Aspects of drug usage in a section of the private health care sector of South Africa: A managed health care approach

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Abstract

Aspects of drug usage in a section of the private health care sector: A managed health care approach.

Keywords: Managed health care, managed health care instruments, generic and therapeutic substitution, drug utilisation review, medicine prevalence, total medicine cost, cost driver products, resource drivers, activity drivers.

Background: According to the Council of Medical Schemes of South Africa (CMS, 2007:52), nearly seventeen per cent of the total benefits paid during 2006 were for medicine. Medicine is thus a cost-driving contributor to total healthcare financing. There are various factors influencing and driving medicine usage and cost patterns, including *inter alia* provider preference, therapeutic committees, marketing and cost.

Objectives: The purpose of this study was to identify the top twenty trade name products according to total cost and prevalence in a section of the private health care sector of South Africa, and to identify cost driving products.

Methodology: A quantitative, retrospective drug utilisation review (DUR) study was performed on computerised medication records (medicine claims data) for two consecutive years (i.e. 2005 and 2006) that were obtained from a South African pharmaceutical benefit management company (PBM). The study population consisted of 1 218 358 and 1 259 099 patients for 2005 and 2006 respectively. A total of 19 860 679 and 21 473 017 medicine items that were claimed during 2005 and 2006 were included in the review.

Descriptive statistics were used to describe the data, and were analysed using the Statistical Analysis System® SAS 9.1® programme. The cost prevalence index (CPI), developed by Serfontein (1989:180), was used as an indicator of the relative expensiveness of *medicine.* Resource- and activity driver products (cost driving products) were identified on the database by calculating the total cost of the product, the CPI of the product as well as the prevalence of the product. Variables for analysis included age, gender, prescriber and provider types.

Results and discussion: A total number of 8 522 574 and 9 046 138 prescriptions were analysed, with an average of 2.33 ± 1.56 and 2.37 ± 1.58 items per prescription during 2005 and 2006 respectively. The average cost per prescription for the total database was R222.16 ± R463.13 for 2005 and R226.25 ± R557.49 for 2006. Members had to co-pay an average of

R26.33 ± R102.70 per prescription in 2005 compared to R29.74 ± R103.96 per prescription in 2006.

Children under the age of nine accounted for approximately 13% of the total study population, the adolescent age group (< 9 and ≥ 19 years) represented 12%, age group three (< 19 and ≥ 45 years) represented 38%, age group four (< 45 and ≥ 59 years) represented 21% and the geriatric age group (patients older than 59 years) represented 16% of the total study population on the database. About 44% of the study population were male compared to 56% female patients.

The top twenty trade name products ranked according to total cost represented about 13% (N=R1 893 376 921.00 and N=R2 046 944 382.50 in 2005 and 2006 respectively) of the overall medicine cost. The top five trade name products according to total cost for 2005 in descending order were Lipitor 10mg and 20mg, Fosamax 70mg, Celebrex 200mg and Prexum 4mg. During 2006 the top five trade name products were similar except for Cipralex 10mg in the place of Celebrex 200mg. The CPIs for all these products were above one; these products were also all activity drivers. The top twenty trade name products ranked according to prevalence represented about 11% (N=19 860 679 and N=21 473 074) of the total medicine prevalence for both study periods. The top five trade name products according to prevalence for both years contained Eltroxin 100mcg, Ecotrin 81mg, Lipitor 10mg and Alcophyllex syrup, with Myprodol capsules in 2005 and Mybulen tablets in 2006. Lipitor 10mg was the only cost driver product in this list.

General medical practitioners prescribed the largest quantity of medicine items and represented about 73% of all the medicine items on the database. The medicine prescribed by general medical prescribers accounted for 65% of the overall medicine expenditure on the database.

Pharmacies can be seen as the main providers of medicine items. Pharmacies provided approximately 80% of the medicine items and represented over 91% of the total medicine expenditure.

Cardiovascular agents were the main pharmacological group that represented the greatest percentage of the total medicine cost, about 19% in both study years. Cardiovascular agents were also positioned 1st according to prevalence and represented about 14% of the overall medicine prevalence in both the study periods.

Conclusions and recommendations: Cost driver products can be seen as the products that drives medicine expenditure in the managed health care environment, thus driving the total cost

of medicine treatment in the private health care sector of South Africa. Through the implementation of managed health care information- and management instruments medicine expenditure can be reduced. Recommendations for future research have been made.

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CHAPTER 1:

Introduction

This chapter reflects on the general outlay of this study which includes the problem statement, research questions and research objectives as well as the research method. The chapter concludes with the division of chapters.

1.1 PROBLEM STATEMENT

In the opening address of the private health care sector's indaba of 2007 Dr. Tshabalala-Msimang stated that the ever-rising cost, affordability and the transparency of the private health care sector of South Africa is an issue that need urgent attention (Tshabalala-Msimang, 2007).

The International Actuarial Association Health Section (IAAHS, 2007) reported that in 2002 medicine expenditure accounted for roughly R37 billion (bn) in the public sector and R43 bn in the private health care sector of South Africa. More recently an annual publication of Mediscor [a South African based pharmaceutical benefit management (PBM)-company] for 2006 illustrated that the total medicine expenditure increased with 5.5 per cent between 2005 and 2006 (Bester *et al.*, 2006:8). Furthermore expenditure on medicines dispensed by pharmacist and providers other than hospitals 2005/2006 increased to 8.8 per cent, or R8.7bn, compared to the R8bn of 2005 (CMS, 2007a).

South Africa has been slow in generic substitution compared to the United States (US) and this may be one of the reasons why the country's health care bill is so high (Luiz & Wessels, 2004:6). According to the World Health Organization (WHO) Sub-Saharan countries such as South Africa can still improve in the number of generic substitutions made compared to other developing countries such as Latin American, Caribbean and East Asian countries (WHO, 2007). *Two* reasons for this lack of generic substitution were identified by Luiz and Wessels. Firstly the Pharmacy Act (Act 101 of 1965) has only recently been changed allowing pharmacists to substitute branded products for generic equivalents without the approval of a doctor and secondly, medical aid administrators and/or PBM's established the maximum medical scheme prices that only compensate for an average generic price requiring the patient to reimburse the difference. For example, the average cost per item for a branded product was R141 in 2005 compared to R156 in 2004, whereas the average cost per item for a generic equivalent was R49

in 2005 compared to R62 in 2004 (Bester *et al.*, 2006:7). Thus if the patient received the original branded product, the patient would have to co-pay about R92 and R94 respectively. Another example of the lowering of cost through generic substitution is as follows: suppose a doctor prescribes Bactrim® (approximately R95 for a pack of 20), the pharmacist decides to substitute the prescribed medicine for its generic equivalent Purbac® (approximately R16 per pack of 20), with this simple substitution, R76 is saved (Act up, 2001).

If there could be more rapid development towards generic substitution it would result in considerable cost reductions. According to Bester *et al.* (2006:7) an average of R92 (R141 – R49) can be saved through generic substitution. According to Karim *et al.* (1996:200) cost savings from generic substitution can range from 9.9 per cent to 59.7 per cent. A recent study done by Van der Westhuizen *et al.* (2008) on the potential cost-saving of generic substitution of antidepressants, showed that if innovator antidepressants were to be substituted for generic equivalents, potential savings between 4.97 per cent to 10.6 per cent could occur. This holds the statement made by Luiz and Wessels (2004:6) that generic substitution can be a method to decrease the South African health care bill. This lowering cost will also align South Africa with more developed countries (Luiz & Wessels, 2004:6) and will help to attain the aims of the National Drug Policy of South Africa which includes *inter alia* the promotion of the affordability of medicine in the country (South Africa, 1996).

In the Minister of Health's (Mrs Msimang) keynote address in 2005, she stated that the role of managed health care needed to go beyond what was specified in the accreditation requirements and that managed health care had to add value to the condition of the complete health care sector in South Africa [Department of Health (DoH), 2005a]. Mrs Msimang also indicated that according to the Registrar of Medical schemes, South Africa spent R1,1bn on managed health care in 2003, an increase of 14.2 per cent from 2002. Most of South Africa's medical schemes used managed health care tools during 2003 (DoH, 2005a).

According to Kinghorn (1996:4) managed health care is proposed as a solution to the cost escalation problems inherent in the existing third-party payment/fee-for-service (FFS) system of health finance in the private sector. Price (1994:52) reported that Slabbert said due to the fact that managed health care was applied reactively it resulted in lowering health expenses and was an essential change that had to be applied in South Africa.

Managed health care has been the solution around the world in the last decade, in an approach of managing cost and maintaining quality of medical care through the practice of evidence-based medicine the last ten years (Luiz & Wessels, 2004:6). Managed health care is about financial and clinical risk assessment and the management of health care and has to ensure appropriateness

and cost-effectiveness of all the related health services through the use of clinical management based programmes (DoH, 2005a).

According to Luiz and Wessels (2004:7) managed health care should focus on making the patient part of the solution to his/her health problems. The intention is to inform the patient about his/her condition so that the patient is more actively involved in the treatment. This would lead to more than merely controlling cost and can then be seen as managed health rather than managed health care.

Based on the preceding discussion it is necessary to have a look at what the impact of managed health care is in South Africa. Will it play an important part in our health system and can it be seen as part of the solution to some cost driving problems in the South African health system? Will managed health care allow for some cost reductions from which not only the medical schemes will benefit but also a large portion of the South African population? Can generic substitution, alternative therapies and health management, that would involve the patient more actively in the treatment plan, contribute towards some of these cost reductions?

According to the 2005 medicines review of Mediscor the "top twenty-five therapeutic groups[1]" represent 74.6 per cent of the overall expenditure and 70.6 per cent of the total number of items dispensed for 2005. From the "top twenty-five pharmaceutical products[2]" there were five products for which generic equivalents were available. Only three generic equivalents appeared in the top twenty-five "medicine expenditure" list. The top five groups represented 30.9 per cent of the total expenditure and 23.9 per cent of the number of items on the company's database and stayed unchanged for 2005 and 2006 on the Mediscor dataset (Bester *et al.*, 2006:8). The cost driving products according to the percentage of the gross cost for the top fifty products on the Mediscor database during 2005 were: lipid lowering agents (19 per cent), antihypertensives (14 per cent), antidepressants (10 per cent), acid-reducers (8 per cent) and non-steroid anti-inflammatory drugs (6 per cent) (Bester *et al.*, 2006:9).

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[1] The top twenty five therapeutic groups are the therapeutic groups according to Mediscor® that represented the therapeutic groups with the highest expenditure according to the total medicine expenditure for that year.

[2] The top twenty five pharmaceutical products are the top pharmaceutical products according to Mediscor® that represented the pharmaceutical products with the highest expenditure for the year.

The aim of this study is to identify the top five cost driving products in the various age and sex groups, provider groups as well as prescriber groups, through the analysis of the data for the study years 2005 and 2006. The analysis was done retrospectively.

1.2 RESEARCH QUESTIONS

A few research questions can be formulated based on the aforementioned discussion:

- What does managed health care in worldwide populations and in South Africa entail?
- What are the cost driving pharmaceutical products in the private health care sector of South Africa based on the data of a South African PBM and how can managed health care be used as a tool to curb total health care expenditure?

1.3 RESEARCH OBJECTIVES

This research includes a general as well as various specific objectives.

1.3.1 General Objective

The general objective of this study was to review and analyse aspects of drug usage in a section of the private health care sector through a managed health care approach.

1.3.2 Specific Objectives

The specific objectives were as follows:

- To conceptualise from the literature what managed health care and private health care in South Africa entail.
- To review the concepts "disease management", "outcomes management", "risk management", "case management", "pharmacoeconomics", "drug utilisation review", "prescribed minimum benefits" and "evidence-based medicine" from the literature.
- To review the concepts "generic- and therapeutic substitution", "lifestyle modifications" and review the possible influence factors *e.g.* provider preference, marketing, physicians targeted promotions, medical scheme composition and formularies, therapeutic committees, essential drug list, availability of alternative treatments and cost on the top twenty trade name products.

- To determine the prevalence and total cost of the top twenty active ingredients according to the PBM's database.
- To determine the prevalence and total cost of the top twenty trade name products according to the PBM's database.
- To determine the top twenty trade name products for the various age groups according to total cost and prevalence from the PBM's database.
- To determine the top twenty trade name products for the different sex groups according to total cost and prevalence from the PBM's database.
- To determine the top twenty trade name products according to the total cost and prevalence for the different prescriber groups from the PBM's database.
- To determine the top twenty trade name products according to total cost and prevalence for the various provider groups from the PBM's database.
- To determine the prevalence and total cost of the top twenty pharmacological and therapeutic groups according to the PBM's database.
- To review the utilisation patterns of the top twenty trade products over the years 2005 and 2006 from the PBM's database.
- To determine the cost driving products from the PBM's database.
- To determine the average total cost per prescription, the average number of items per prescription and the average total cost per item according to the PBM's database for all the different variables as well as the complete database.

1.4 RESEARCH METHODS

The research consisted of two individual phases in order to accomplish the set objectives.

1.4.1 Phase 1: Literature Review

The introduction of the literature review entails an overview of managed health care in South Africa with a brief review of "disease management", "outcomes management", "risk management", "case management" and "prescribed minimum benefits" as management instruments and "pharmacoeconomics", "drug utilisation review", and "evidence-based medicine" as information systems for managed health care. The literature review also entailed an overview

of "generic substitution in South Africa", lifestyle modifications and the possible influence factors *e.g.* provider preference, marketing, physicians targeted promotions, medical scheme composition and formularies, therapeutic committees, essential drug list, availability of alternative treatments and cost on the top twenty pharmaceutical products. It also included an overview of the private health care sector in South Africa.

The literature review also included a sub-division where a brief summary was given of the top twenty pharmaceutical products as previously identified from the PBM's database and other recent studies/publications in the South African private health care sector.

Classifications and a brief overview of the top twenty pharmaceutical products, according to main indications as well as comparisons according to the prevalence, cost, age of the patients, sex of the patients, prescriber type and provider type are included in the results and discussion chapter.

1.4.2 Phase 2: Empirical Investigation

This phase of the investigation contains the results. The data utilised during this stage were obtained from the database of a South African PBM. The study period ranged from 1 January 2005 to 31 December 2006.

1.4.2.1 Data source and study population

The company that provided the database for the study is an organisation that manages the benefits of medical schemes and -insurance companies in South Africa by providing a real-time auditing process to claims from pharmacies and other service providers. In 2005/6, this company managed the medicine benefits for approximately 42 registered medical schemes in South Africa[3].

The database consisted of a total number of 8 522 574 and 9 046 138 prescriptions, containing a total number of 19 860 679 and 21 473 074 medicine items at a total cost of R1 893 376 921 and R2 046 944 383 in 2005 and in 2006 respectively.

Each *prescription record* contained an 11-digit reference number to link each patient, medical practice, pharmacy or medical scheme to line items. This number is a time stamp of when the transaction was adjudicated. The patient was allocated a random, "dummy" member number by the PBM thus ensuring confidentiality. The database consists of the following information: (1)

[3] During 2005 and 2006 there were approximately 98 registered medical schemes in South Africa of which about 37 were open for the public (CMS, 2008).

date of dispensing the prescription, (2) trade name of the medicine item, (3) active ingredients (4) NAPPI codes, (5) NAPPI code extension, (6) NAPPI code description, (7) number of the medicine items prescribed, (8) the total cost paid by the medical scheme, (9) final levy cost, (10) final prescription cost, (11) date of birth of patient, (12) sex of the patient, (13) the prescriber type, (14) the provider type.

1.4.2.2 Research design

The research question was conceived and studied using data that were collected and recorded in the year 2005 and 2006. The study can therefore be classified as a retrospective drug utilisation study (DUR) with quantitative aspects (refer to section 2.5).

1.4.2.3 Measurements

The following measurements were used in the study:

- Total cost
- Frequency
- Age
- Sex
- Provider
- Prescriber

Measurements are explained in section 3.3.

1.4.2.4 Data analysis

The data were analysed using the Statistical Analysis System® SAS for windows 9.1® (SAS institute Inc., 2002-2003) in consultation with the statistical services of the North-West University. Microfsoft (MS) Excel® and Microsoft (MS) Word® were used for the illustration of some of the results from the analysed data through various tables and graphs.

1.4.2.5 Reliability and validity of measuring/research instruments

The data were obtained directly from the PBM. No manipulation by the researcher was therefore possible. Research was conducted with the assumption that all data were reliable and valid. The

database was, however, verified by testing for outliers as well as performing random data checks.

Only one PBM's data were used in the study therefore no cost or prevalence comparisons could be made. Only direct cost of medicine was used throughout the study. External validity is limited, implying that the results can only be generalised to the specific database and study population used (refer to limitations, paragraph 5.3).

1.4.2.6 Ethical considerations

Permission to conduct the study was obtained from the board of directors of the PBM as well as the ethical committee of the North-West University (NWU-0046-08-S5).

1.5 DIVISION OF CHAPTERS

The division of chapters are as follows:

Chapter 1: Introduction

Chapter 2: A short overview of the nature of managed health care and related concepts

Chapter 3: Empirical investigation

Chapter 4: Results and discussion

Chapter 5: Conclusions and recommendations

1.6 CHAPTER SUMMARY

In this chapter the problem statement, research question, research objective, the general as well as the specific objectives, research method, the literature review as well as the empirical investigation, and the division of chapters have been discussed. The following chapter will entail literature review concerning the various aspects of managed health care, pharmacoeconomics and related concepts.

CHAPTER 2:

A short overview of the nature of managed health care and related concepts

Chapter two includes a review of literature concerning managed health care, with a brief look at the origin, principles and evolution thereof. "Disease management", "risk management", "case management", and "outcomes management" will be discussed as management instruments. "Pharmacoeconomics", "drug utilisation review", "prescribed minimum benefits" and "evidence-based medicine" will be discussed as information systems used in the South African health care system and factors such as lifestyle modifications and generic- and therapeutic substitution as possible cost-saving strategies within the South African health care environment will be explored. The chapter concludes with a brief summary of medicine as a cost driver within the South African health care environment.

2.1 MANAGED HEALTH CARE (MHC): CONCEPT, MODELS AND ORGANISATIONS

Even while managed health care's definition is still evolving, there is no doubt that it remains an essential component of the current health care delivery system. O'Connel *et al.* (2004:S98) defines MHC as a system that is directed towards escalating costs through contractual price discounts and evidence-based utilisation controls.

MHC is not a discrete unit; it is a spectrum of activities carried out in a variety of organisational settings while MHC is continually evolving in response to ever increasing health care costs and dysfunctional uneven services (Fairfield *et al.*, 1997:1825). The Inseta Facilitators' Guide (2003:5) defined MHC as a system that seeks to ensure quality health care delivery in a cost-effective way and makes it possible to analyse the process and results of medical treatment, develop guidelines for effective care and cost, build networks of providers to improve and maintain the cost-effectiveness of health care delivery, co-ordinate communication and continuity of care among providers, patients, health care benefits administrators, employers and the government and enable and facilitate access to most appropriate health care services.

From the aforementioned definitions it can be concluded that MHC is an organisation or institute using different techniques of financing and regulating the method of the delivery of the total health care, which would include controlling the cost and the quality of care.

According to Luiz and Wessels (2003:7.) "*MHC should change its perspective to the point where the customer becomes the focal point, the customer is given shared consensus with decision-making power. MHC is more than just reducing costs; it's about the patient being actively involved in its health. Through this MHC has led to what is now called managed health.*"

MHC thus ensures efficient and cost-effective, quality health care delivery, by influencing the price of service, utilisation of service and the performance of health delivery systems (Inseta, 2003:5).

MHC can be arranged in two categories, namely "managed health" and "managed care". Table 2.1 describes the differences in these two categories and explains the main focuses of each category.

Table 2.1: Managed health *vs.* managed care (Schaich, 1998:25)

Managed health	Managed care
Focus on overall health status, managed health risks and quality of life.	Focus on health care delivery, measuring health care costs and delivery.
Focus primarily on consumers to drive cost-effective health, and health care choices.	Focus primarily on providers to drive cost-effective health care choices.
Provides access to multiple health resources.	Limiting access to health care resources.
Pro-active identification of health risks and opportunities.	Active only after the need or request for health care is present.

From table 2.1 it can be concluded that managed health focuses on the overall health status of the patient, and drives cost-effective health from a consumer point of view. Managed health gives access to multiple health resources and attempts to pro-actively identify health risks. In contrast with managed health; managed care focuses on the cost of health care delivery. Managed care also drives cost-effectiveness from a third-party payer's perspective. Managed care usually limits access to health resources and is only active after a request for care.

2.1.1 Managed health care's origin

In the United States of America (USA) the health care system suffered from organisational fragmentation, a lack of resources and the necessary coherence. The USA desperately needed to develop a management system to prevent certain issues like under-and over-treatment of patients, unlimited access to health care and the ever-rising health costs. The USA developed the model of MHC to address these health-related problems (Fairfield *et al.,* 1997:1826).

One of the major goals of MHC is to lower the costs. Strategies such as discounts and benefits to its superior form were implemented and led to the shifting of the risk from the medical aid to the health care provider (Luiz & Wessels, 2003:3).

2.1.2 Managed health care in South Africa

South Africa is witnessing a very complicated delivery and the early development of incorporated MHC in South Africa. The MHC system's confidence is rising and has become ambitious of what it could achieve in the South African health care sector. The Medical Schemes Act (Act 131/1998), together with attendant regulations, sets stipulations and demands that are directed towards top quality care, accessibility and cost-effective health in South Africa which meets physical, emotional, social and spiritual needs of the patient with the necessary integrity and confidentiality (Council for Medical Schemes, 2007c). South Africa is taking the USA-MHC model and changing it to fit the South African structure. Fortunately South Africa can observe the mistakes made in the USA regarding the implementation process of MHC and can choose to only apply the best practices that have been proved to be successful by the USA (Luiz & Wessels, 2003:10).

Although the principles of the South African health care sector were similar to those of the USA for many years before 1995, MHC was only officially implemented in South Africa in 1995 and by the end of that same year MHC was rapidly transforming the private health care sector of South Africa (Rothberg *et al.,*1999). The aim of introducing MHC to South Africa was to decrease the health care cost and increase the quality of care. The effect of MHC was so intense that statements like *"nothing in the South African's medical history has done more to unite the profession than the arrival of US-based Managed Health Care"* (Rothberg *et al.,*1999). Jackson (2007:13), however, reported in the Sunday Times of 24 June 2007 that managed health care in South Africa is still in its original layout, and that the next step for MHC in South Africa is to proceed into the next phase. This would involve the battle to cut costs even more without compromising the quality of health care.

According to the Medical Schemes Act, 1998, (131/1998), MHC in the South African context can be defined as: "*clinical and financial risk assessment and management of health care, with the view to facilitate appropriateness and cost-effectiveness of the relevant health care services within the constraints of what is affordable, through the use of rule based and clinical management-programmes*" (Council for Medical Schemes, 2007c).

Compared with the concluded definition of MHC (refer to paragraph 2.2) the aforementioned definition can be summarised as an "organisation, using different techniques such as clinical and financial risk assessment, to manage the delivery of health care, with the objective to control the appropriateness and cost-effectiveness as well as the quality of care delivered".

If the South African health care sector implements MHC in the correct manner, it will be able to achieve and manage cost-effective and quality health care through the usage of the different techniques and methods of clinical and financial risk assessment. To the contrary, cost reduction through MHC in South Africa is limited if alternative essential environmental factors such as technology adoption, litigation, ability to shift costs and inadequate competition on the basis of price, are not addressed (Kinghorn, 1996:336).

2.1.3 Objectives of MHC

The main goal of MHC is to cut costs and improve the quality of health care. The payer and the provider have different views concerning quality; the payer sees quality as the best efficient use of all the funds available and the appropriate use of health care resources. To have best possible effectivity within the managed care environment, the providers must incorporate the payer's perspective of quality into their own perspective (Hagen,1999:5).

According to the British Columbia Medical Association (BCMA) (2003) the goals of managed health care can be divided into six essential goals, which are the following: minimisation of health care cost, maximisation of quality of health care, maximisation of efficiency, fostering accountability between patient and provider, improving the consistency in health care delivery, and equitable provision of health care. These outlined objectives of MHC can be reached through the implementation of all the managed health care instruments (refer to section 2.3 in which the management instruments are reviewed).

The essential goals of MHC entail the following (BCMA, 2003):

- Minimisation of cost: The objective is to provide a quality service at a lower cost. Costs can be reduced by shifting the combination of services and reducing the average cost of the service.

- Maximisation of quality of care: The maximisation of quality care can be guaranteed through a preference for evidence-based medicine and the providing of treatments with established effective outcomes.

- Maximisation of efficiency: This is maintained through the coalescence of allocative efficiency and productive efficiency. Allocative efficiency is the provision of competing services at the lowest possible cost with maximum productivity.

- Fostering accountability between patient and provider: The third-party payer encourages patients to promote their wellness through a healthy lifestyle and regular exercise, regular screening tests and reduced numbers of unnecessary admissions with less significant insurance premiums. Providers have to ensure that no unnecessary medical investigations are done and that the proven cost-effective treatment plans are prescribed for patients. Providers that do not follow these requirements may face financial penalties.

- Improving consistency in health care delivery: The objective of this goal is not to treat every patient the same, but rather to care for all illnesses in a constant fashion by using the proven most effective methods.

- Equitable provision of health care: Managed care seeks to provide care equitable in such a manner that individuals with equal needs be treated equally, and that the system contain no natural obstructions to service for any one population sub-group.

One of the primary objectives of MHC is to ensure that the patient becomes an enhanced health consumer and also to promote the profits of preventative health care and the benefits of wellness. These goals must be achieved in a cost-effective manner (Managed care, 2004).

The American Heart Association (2008) defined the goals of managed health care as the following: MHC has to ensure that medical providers deliver a high standard of health care at a controlled price; that the care delivered through the medical providers is medically necessary and appropriate; that the care is provided by the most appropriate provider, and that the provided care is in the most appropriate and least restrictive setting.

Managed care models are used to illustrate the different methods in which managed care systems can be structured. In the following section the different types of managed health care organisations will be explained.

2.1.4 Types of managed health care organisations

According to Fincham (2003:8) there are various types of MHC organisations being used in the USA, including *inter alia* the following: the health maintenance organisation (HMO), the preferred provider organisation (PPO) and the exclusive provider organisations (EPO).

Figure 2.1 demonstrates the direction that the USA health care market followed in recent years. If the South African government regards the private health care market as an achievable and essential aspect of the entire health care system in South Africa it may follow a similar trajectory (Schaich, 1998:24).

According to Palmer and co-workers (2003:292) South Africa is establishing the use of a new model of private primary care in South Africa. This new model includes standardised primary care services at a relatively low cost provided by private companies. This private but affordable model can be positive to the public sector, for the reason that it removes some of the burden from the overloaded public health sector of South Africa. Another alternative would be for the government to contract with private organisations that provide primary health care services to the whole population (Palmer *et al.,* 2003:295).

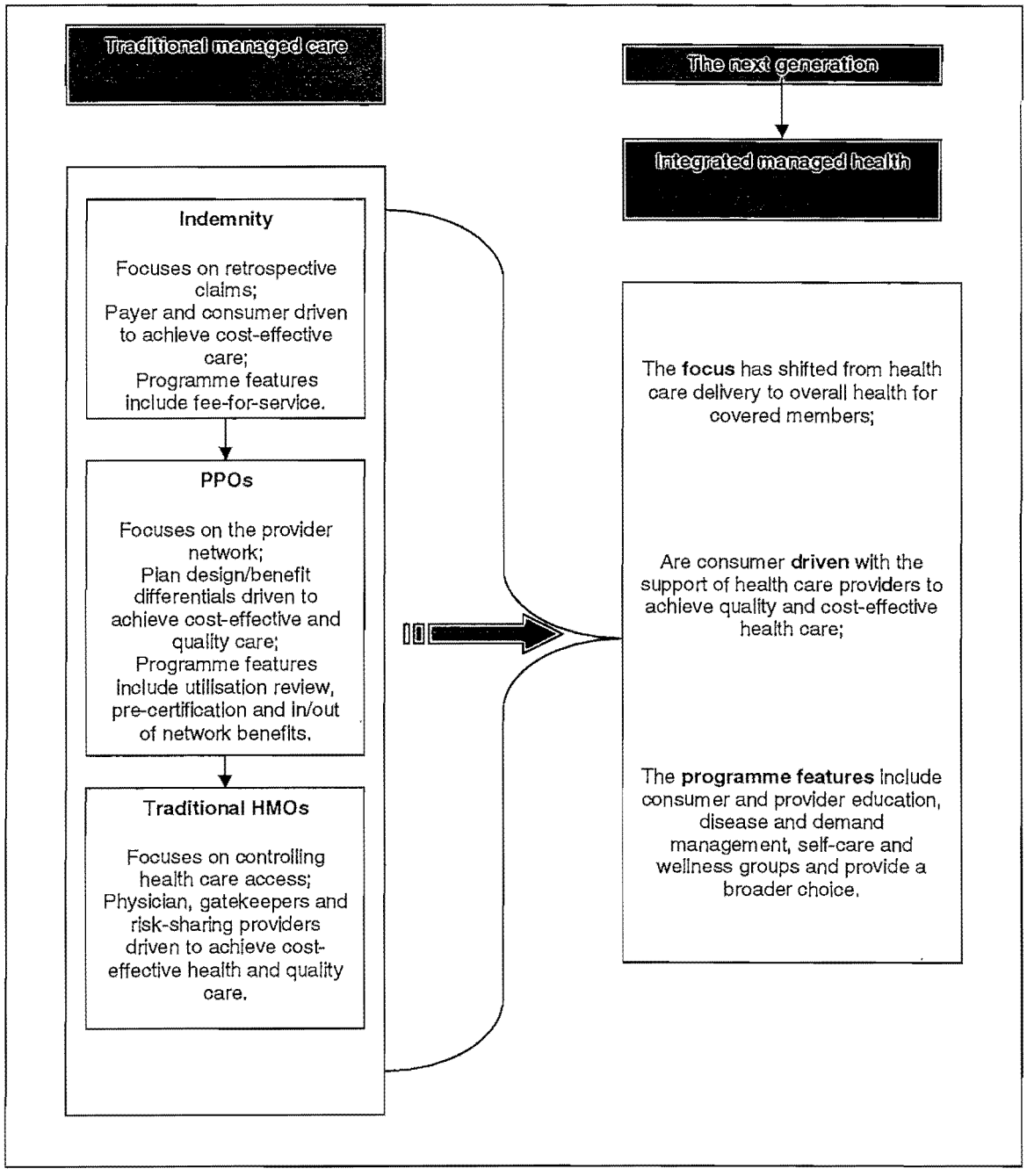

Figure 2.1: The evolution of health plan models (adapted from Schaich, 1998:24)

According to Schaich (1998:24) there is a great contrast in the different health plan models, based on primary differences in their approach to managing health care costs and the raising quality. The "Managed health" model stands in distinction to the traditional indemnity, PPO and the HMO health plan models.

As figure 2.1 indicates, indemnity plans focus primarily on retrospective claims and the payer as well as the consumer are primary drivers to ensure cost-effective health care. PPOs shift the focus to the provider network and are plan-design driven to present more cost-effective and quality care to the consumer, whilst the HMOs focus on the management of health care access and motivation of the physicians, gatekeepers and risk-sharing providers to drive health care cost and quality management (Schaich,1998:24).

Integrated managed health is seen as the next generation health plan model. In the up-and-coming managed health model the focus shifts broader than merely health care delivery to the overall health of the covered members. The programme is consumer driven, with health care providers playing a crucial part in the attainment of quality and cost-effective health care to all. The programme aims to achieve the goal of quality and cost-effective care through a consumer-orientated attitude by enabling members to become educated and active participants in the management of their own health. This focus point ensures that managed health presents a whole new approach of managing health care that is contrary to the three more traditional health plans (Schaich, 1998:25).

South Africa falls predominately in the indemnity plan category but is moving towards the formation of PPO. Some of the groups could soon form HMOs. The ideal for any managed health care organisation is that it would rapidly move towards the next generation of health care services (Luiz & Wessels, 2003:10).

In the following paragraphs the different types of managed health organisations will be explained as well as the different management tools and models these organisations use.

2.1.4.1 Health Maintenance Organisation (HMO)

According to Fairfield *et al.* (1997:1827) a "*Health Maintenance Organisation (HMO) is a prepaid, organised delivery system where the organisation assumes financial risks for the care provided to its enrolled members and the financial risk may be transferred to clinicians through capitation and other financial incentives*". The HMO model provides a full range of health care but focuses on the preventative health system, where they are responsible for providing these services to enrolled members under which they pay a fixed amount per patient per month (PMPM) (Managed care organisations, 2007).

All the HMOs have certain specific features in common namely that, they tolerate risks, have lower premiums, are less comprehensive and they have a responsibility to deliver a certain stated service for a fixed and prospective rate to an enrolled patient (Managed Care Organisations, 2007). Mamdami and Mamdami (2001:96) described the HMO model as the

amalgamation of health care providers that supply services ranging from office visits, hospitalisation and surgery to contracted members without the members having to pay any co-payment. Members that belong to an HMO must receive their medical treatment from the specified physicians and facilities within the HMO network.

2.1.4.1.1 Types of Health Maintenance Organisations

- Staff model

The HMOs own the hospital and directly employ health providers including doctors and pharmacists to take care of their members (Inseta, 2003:18). Health providers are paid on a salary basis and can also receive additional payments based on performance. Staff models employ health care providers in all the necessary speciality fields to ensure that all the health care needs of their enrolled members are covered (Wagner, 1997:43).

An example of a company that makes use of the staff model in South Africa is Gold Fields (GHFS, 2006:6). Gold Fields Health Services (GHFS) in South Africa is a successful staff model HMO. In 2006, GHFS employed 824 staff, of which 24 were doctors and 136 were professional nurses. The model owns eight practices and two hospitals, with a total of 564 patient beds at an average occupancy of 39 per cent. GHFS also recorded 329400 out-patient and clinic visits in 2006, 31600 admissions to hospital and the annual hospital stay was 8.5 days per patient (GHFS, 2006:6).

- Group model

This group model consists of health providers, mainly doctors organised as independent groups that form a separate entity and co-operate with the organisation to provide services exclusively to its enrolees. This practice can include single or multiple specialty practices and facilities, equipment and accounting systems (Inseta, 2003:18). In this model practitioners may continue to see non-HMO members as well as private patients, as in the Independent Practice Association (IPA) (Sandifer, 1997:303).

An example of a group model in South Africa is the Amcoal Highveld Hospital (Highveld Steel, 2008).

- Network model and Independent Practice Association model

The HMO builds a network of existing practices and providers and enter into contract with them to provide medical services to the HMO's members. The HMO may also have a contract with several small groups of primary care physicians. Although the IPA model is under contract with a separate legal entity of providers, the IPA practitioners may continue to see non-HMO

enrolees. The IPA overcomes all the disadvantages of the staff-, group- and network models, because of the fact that it requires less capital to launch and oblige (Kongstvedt, 1997:46).

An example of an IPA in South Africa is the African Health Synergy Ltd (Council for Medical Schemes, 2008).

- Point-of-service model

This added option allows enrolees to seek care outside the group or network and receive partial reimbursement. Patients using point-of-service incur larger out-of-pocket expenses (Fairfield *et al.,* 1997:1829). A possible example of a medical scheme that uses this health plan is Metropolitan Health Group (MHG, 2008).

- Direct contract model

In this model the practitioners have a direct contract with the HMO but are free to see non-HMO patients. The practitioners provide services to the enrolled population. The practitioners are compensated according to a fee-for-service plan or on a capitation basis (Inseta, 2003:18).

2.1.4.2 Preferred Provider Organisation (PPO)

A *"preferred provider organisation is a third party company taking over the administration of utilisation management on behalf of an insurer".* (Fairfield *et al.,* 1997:1827.)

A PPO is an organisation of selected suppliers, these suppliers have been contracted to offer agreed procedures and services at lower negotiated prices and include quality and utilisation reviews. Members are motivated to purchase health care services from these contracted suppliers. If a member chooses not to make use of these prescribed providers and instead use a non-participating provider it is expected of him/her to pay a high co-insurance. PPOs can also be seen as Preferred Provider Arrangements (PPA). PPAs describe a more informal relationship than PPOs and are occasionally used by some observers (Wagner, 1997:39). In PPOs the monitoring of International Coding for Diseases (ICD)-10 diagnostic codes verifies that charging is appropriate to the diagnostic category (Sandifer, 1997:303).

This approach is usually managed and operated by the following (Inseta, 2003:18):

- A designated panel of providers.
- Negotiated payment rates.
- Rapid payment terms.

- Utilisation control.
- Limited or free consumer choice.

An example of a PPO within the South African context is Resolution Health (2007). This company currently has eight organisations that function as PPOs in South Africa, namely "Careworks", "Carecross", "Denis", "Iso-Leso", "Medi-clinic", "Medikredit", "NHN" and "Netcare 911" (Resolution Health, 2007).

2.1.4.3 Exclusive Provider Organisations (EPO)

The EPO is similar to the PPO, but payment is only provided for contracted providers and limits beneficiaries to participating health care providers, whereas PPOs extend coverage to non-preferred provider care as well as preferred provider services (Wagner, 1997:39).

2.1.4.4 HMOs in South Africa and their impact on the South African health care sector

Although in theory the above-mentioned facts concerning the different HMOs are true, in South Africa there is not a "pure form" of a specific HMO currently in use. All the HMO models currently used in South Africa are extensions of a combination of models (Serfontein, 2008). For the purpose of this study the different HMOs and the different options available from the medical schemes/ insurance companies will probably have an influence on the drugs dispensed and services provided (Serfontein, 2008).

There are currently about sixty different managed care organisations in South Africa and a hundred and sixty different medical schemes totalling about 7 million beneficiaries (Council for Medical Schemes, 2007c). Not all the medical schemes are open to the public, for example the Government employees' medical scheme (GEMS)[1]; in fact only about forty out of the hundred and sixty medical schemes in South Africa are open to the public. Bonitas (2007) medical fund in South Africa offers five flexible options to its members with packages designed to address the challenging needs of South African health care. Different options include Primary, Standard, Bonitas Save, Bonitas Capital, Bonitas Comprehensive and the Bonitas Medical Savings Account. Each of these options consists of its own services and formularies (Bonitas, 2007).

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[1] "Government employees' medical scheme (GEMS)" is only for the enrolees of the government (Council for Medical Schemes, 2007).

To illustrate that the different options of a medical aid can influence the medication prescribed the example of Bonita's standard option will be used. Medical treatment in this specific option covers acute medicine, over-the-counter medicine of R6000 per beneficiary and R12 000 per beneficiary for chronic illness medication per year (Bonitas, 2007).

Discovery Health (2007) has primarily six different options to choose from, each of these options offers individual covered services and a medicine formulary. The various options of Discovery Health are as follows: Executive and Comprehensive plan, Priority plan, Saver plan, Core plan, Coastal plan and Keycare plan (Discovery Health, 2007). These different options and their individually designed formularies contain an indication that the various options can have an impact on the prevalence of certain drugs.

2.2 MANAGED HEALTH CARE: MANAGEMENT INSTRUMENTS

In the following section the different management instruments for managed health care will be discussed. This section will entail a brief outline of "disease management", "risk management", "outcome management" and "case management' as well as a short summary of the usage of these instruments in the South African health care sector.

2.2.1 Disease management

The ever-rising costs of health care force the system to seek for alternative methods to reduce costs but still maintain the quality of health care. One of the managing instruments of managed health care is disease management.

According to the report of Kreling (2000:9) for the conference of the American Department of Health; disease management generally refers to the practice of identifying patients with specific medical conditions and providing them with the necessary care whilst monitoring their drug use and health outcomes. Nash and Todd (1997:4) define disease management as a comprehensive, integrated approach to care and reimbursement based on a disease's natural course. Patients with these chronic illnesses are targeted and identified, in most of these situations well established, evidence-based treatments already exist. Patient compliance and education are very important factors in managing a disease (Ashley *et al.*, 2003:6).

In order for the process of disease management to be successful it should be given structure. A system-thinking model is very helpful to design, develop and implement a disease management process. Quantum Solutions Inc. (Nash & Todd, 1997:4) developed a system-thinking model based on the organisational principles of Senge and the continuous quality improvement (CQI) concepts of Demin, Crosby, and Dr. Duran. In figure 2.2 the system-thinking model for a

disease management process is constructed, combined with the disease management process of Fairfield and Hunter (1997:50).

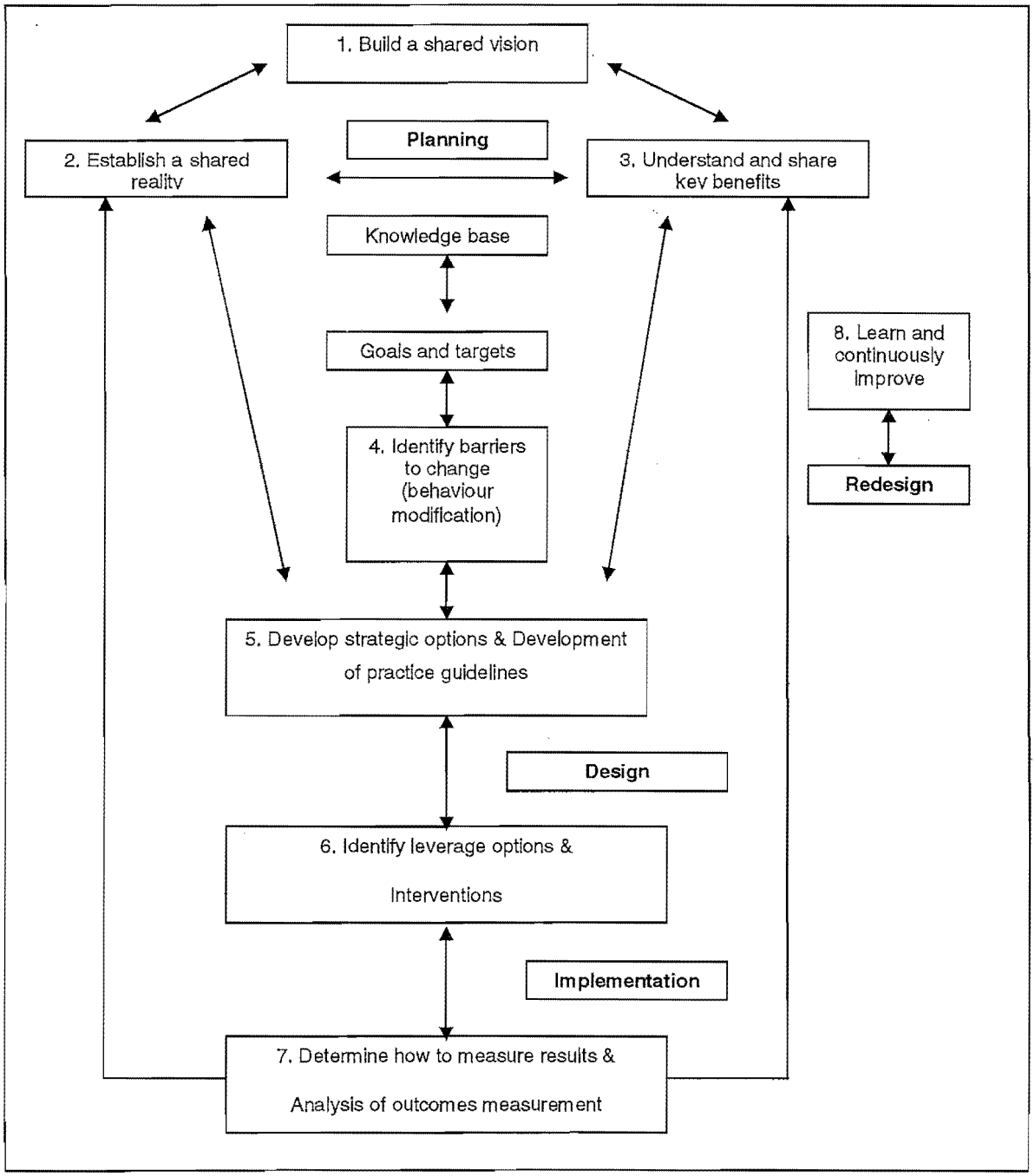

Figure 2.2: Systems-thinking model: the process of disease management [compiled and adapted from Fairfield and Hunter (1997:53); Nash and Todd (1997:4)]

According to figure 2.2, disease management should be seen as a learning curve to a better-managed health. Disease management will only be successful if all the steps in the programme

are followed. The first step is to build a shared vision, this is a creation of a common vision about the mission or purpose of the disease management system, this vision must be realistic and key benefits must be shared. Planning is the centre of a successful disease management process. It is essential to develop strategic options and practice guidelines which will include reducing costs and improving the patient's quality of life, to identify the barriers of change such as a lack of knowledge, as well as the goals and targets. All these decisions must be based on the proper knowledge. The design of a certain intervention is the next step and the identifying of leverage options is essential to pinpoint the areas where the greatest change can be achieved with the least expenditure of resources. Interventions and specific strategies need to be implemented. After implementation results need to be measured and an analysis of the outcomes needs to be done to determine the impact of actions and to challenge reality, vision and key benefits. Measurement is the key to success in a disease management programme. The last stage of the disease management process is to learn and continuously improve through the redesign of the process, which will guarantee a successful disease management process [Fairfield and Hunter (1997:53); Nash and Todd (1997:4)].

Kreling (2000:10) illustrated the implementation and the practicality of the programme of disease management at a conference of the American Department of Health (refer to table 2.2).

Table 2.2: Disease management programs (Kreling, 2000:10)

Technique	Target	Effects	Potential Consequences
Educating patients with specific medical conditions to improve their drug use.	• Pharmacists • Consumers • Prescribers	The effects vary from positive, negative to uncertain.	• Increased consumer sensitivity to their drug use; • Shifts additional cost to the consumer for each prescription; • Increased out-of-pocket expenses can affect consumer perceptions of quality of their prescription benefit.

Table 2.2 indicates that disease management can focus on the pharmacists, consumers and the prescribers. The consumers can be educated on their specific condition and methods of how to improve their condition. Pharmacists and prescribers can receive education on the correct drug use of the medications. Although the reactions to disease management can vary from positive to negative there are also some potential positive consequences such as

increased consumer sensitivity to their drug use, prescribers focusing on the decreasing of costs of prescriptions (Kreling, 2000:10).

In order for a disease management process to be implemented, a certain disease needs to be recognised with some characteristics. In the following section, the selection for a disease intervention will be discussed as well as the suitable interventions. Section 2.2.1.1 entails what the necessary elements to disease interventions are.

2.2.1.1 Selection of a disease for intervention

Each health care organisation has its own criteria to select a disease for an intervention in order to implement the correct disease management programme. However, standard criteria can be separated into a few categories (Donald, 1999:241):

- High cost associated with the treatment for the disease.
- High liability of the disease on the patient.
- High volume or prevalence of the disease in a certain population.
- Low margin or loss.
- Provider expertise.
- Identified problems with quality of care.
- Payer or customer concerns about quality.
- Well defined disease course.
- Effectiveness of available interventions.

Some diseases may have characteristics such as high liability or high volume. These characteristics can be so out of the ordinary that they demand organisational attention. Diseases such as autoimmune deficiency syndrome (AIDS) and hepatitis B can fall within this category of high liability; the programme of disease management may have a substantial effect on reducing the cost through reducing the secondary effects that occur with these disorders (Donald, 1999:241).

With applicability to this study, the criteria of high volume and high expenditure may demand disease management and drastic interventions. The top five therapeutic groups in South Africa

(according to expenditure per therapeutic group) as indicated by the South African medicine expenditure trends – The Mediscor experience (Bester, 2006:27) is depicted in table 2.3.

Table 2.3: Expenditure per therapeutic group for 2006 (Adapted from Bester, 2006:27)

Rank in 2006	Therapeutic group	% of total expenditure
1	Antihypertensives	11.6
2	Hypolipidaemic agents	6.3
3	Antidepressants	5.0
4	Acid reducers	4.3
5	Sex hormones	3.8

In table 2.3 it is shown that antihypertensives consumed 11.6 per cent of the total expenditure of Mediscor database in 2006. This factor illustrates the demand for an intervention, which can be made possible through disease management. The top five therapeutic groups in 2006 represented 31 per cent of total medicine expenditure for that year.

In table 2.4 the five most prevalent therapeutic groups are illustrated according to the 2006 review of Mediscor (Bester, 2006:29).

Table 2.4: The five most prevalent therapeutic groups for 2006 (adapted from Bester, 2006:29)

Therapeutic group	Rank according to total expenditure	Utilising beneficiaries as % of total beneficiaries
Combination analgesics	10	50.6
Cough & cold preparations	11	49.9
Beta-lactam antibiotics	6	45.3
Non-Steroid-Anti-Inflammatory-Drugs (NSAID's)	8	31.2
Antihistamines	20	22.4

According to table 2.4, these five top prevalence therapeutic groups show potential for an intervention. These therapeutic groups are not necessarily chronic illnesses, but an investigation and several longitudinal studies can be launched to determine why the usages of these groups were so elevated and if they were elevated in comparison with other study years.

2.2.1.2 Disease management programme and interventions

Once a disease has been identified on the basis of the criteria (refer to paragraph 2.3.1.1) a disease programme can be created with the necessary interventions. The programme is created based on the medical literature and guidance from different medical professionals.

The form of the programme is usually a Clinical Practice Guideline (CPG). According to the Agency for Health Care Policy and Research (Donald, 1999:243) a CPG can be defined as a "*systematically developed statement to assist practitioners and patients on the decisions about the health care to be provided for specific clinical circumstances*".

A CPG normally consists of a flowchart detailing the diagnosis and the treatment followed during the disease management process. The CPG is maintained through the organisation, based on the prerequisite that the organisation would have access to all the documents in order to provide accurate applicable advice and insights. Physicians will then evaluate the CPG in order to determine the accuracy of the programme (Donald, 1999:243).

In order for a disease management programme to be sufficient the programme needs to contain some elements. In table 2.5 the necessary elements for an effective disease management programme are shown.

Table 2.5: Necessary elements for effective disease management programme (adapted from Donald, 1999:242)

Element	Detail
Thorough understanding of the pathophyliogy of the continuum of the disease entity	How healthy people become ill with the disease. How and when in the course of the illness people with the illness can be recognised. What interventions can be implemented to cure or ameliorate the disease?
Effective treatment modalities for the disease entity	Drugs. Surgical procedures. Therapies, e.g. physical or occupational therapy. Environmental interventions, e.g. removal of lead sources from houses.

Table 2.5: Necessary elements for effective disease management programme (adapted from Donald, 1999:242) (continue)

Element	Detail
Understanding of morbidity and mortality associated with treatments	Side effects of drugs. Complications of surgery. Unintended consequences of therapies.
Statistically defensible methods of patient selection for treatment	Characteristics of patient groups that segment them into treatment groups. Readily implemented and inexpensive screening tools. Access to screening methods by providers and patients.
Appropriate demographic profile of the target population	Educational and socio-economic levels adequate to participate in program. Motivation.
Elimination of barriers to access for patients	Transportation. Distance. Cultural. Economic.
Adequacy of current patterns of care	Provider training and experience appropriate for disease. Institutions and services properly aligned to provide quality care.
Ability to understanding statistical analyses of patterns of diagnosis and treatment	Provider and institutional willingness to work within disease measurement system to improve population health through appropriate allocation of resources.
Capacity to segment the population into targets for intervention	Ability to communicate with segments of population for intervention. Geographic distribution that allows access to care appropriate to status of disease.
Provider attitudes and opinions about the disease and treatments	Providers amenable to changing practice habits based on evidence-based medicine.
Effective methods of educating providers and patients regarding the disease and treatments	Educational modalities appropriate to each group, e.g. telephone consultations to patients. Informative literature for providers.
Ability to work in a team environment	Providers and patients willing to work as a team with disease managers to improve care.

As depicted in table 2.5, some elements are needed for a successful disease management programme. The programme must be focused on the patient's well-being and health outcome,

objective and evidence based, this way it ensures credibility and acceptance. In order to account for normal variations and some uncertainties in the health care the programme must be highly flexible but still goal-driven and dynamic to ensure progression and durability. The disease management programme should be based on what happens in the real world and not what happens in theory. The main goal of the programme should be to minimise difficulties for the patient and maximise benefits (Fairfield & Hunter, 1997:50).

2.2.1.3 Disease management intervention

The disease management team can start with the selection of interventions once differences between the current and recommended practices have been identified. The thorough study of the current care can determine and show the extent of variation; throughout this data certain guidelines can be developed for the recommended practice. In order to decide which intervention is suitable for a certain disease the condition of the disease should be taken into consideration in cohorts with the population. The disease programme manager should understand the symptoms and clinical signs of the disease in order to characterise the stage of the disease so that the most suitable intervention can be implemented.

Disease management is not merely a cure but is most effective when it is implemented as a preventative care programme (Donald, 1999:243).

Table 2.6 (Donald, 1999:243) depicts the optimum intervention at different stages of a disease.

Table 2.6 Interventions used at specific stages of diseases (Donald, 1999:244)

Disease stage/status	Intervention
Healthy, disease free	Preventative care education. Population screening tests. Preventative care interventions (e.g. immunisation).
Early, little disability	Appropriate diagnostic modalities. Appropriate early treatment modalities.
Mid-course, moderate disability	Ongoing diagnostic evaluations. Appropriate maintenance and curative therapy.
Late, severely affected	Periodic diagnostic evaluations to monitor course of disease. Aggressive curative therapy.
Terminal	Rare diagnostic evaluations. Palliative therapy.

According to table 2.6 every stage of a disease requires a different intervention. In healthy, disease free patients preventative care is optimal. The diagnosis in the early stages of a disease is of great importance, this way the proper treatment can be given.

2.2.1.4 Strategic approaches to disease management

There are a few strategies attached to disease management. Organisations that have implemented disease management can espouse one or more or all three strategies i.e. "integrated", "carve out" and "enabling". Integrated disease managers focus on a wide variety of diseases, all of these conditions are covered completely. In an attempt to combine primary and specialist care they often cross traditional boundaries between medical specialties and institutions. Managed care plans that seek to fortify their structural position and so surface locally and regionally, as the leading alleged integrated delivery system, are most likely to accept the integrated disease management. Specialised disease managers provide crucial support services, products and information to integrated or carveout managers (Sandifer, 1997:305).

2.2.1.5 Conclusion and application of disease management

Disease management in South Africa is still at the very beginning of implementation. Guidelines have been set for the treatment of certain chronic illnesses such as hypertension, asthma, cholesterol, and diabetes.

The Southern African Hypertension Society (SAHS) have published a third hypertension guideline and the National Department of Health (DOH) has published a second hypertension guideline. This guideline is the first joint DOH and SAHS hypertension guideline and represents an essential step towards the implementation of disease management and standard care for patients suffering from hypertension in South Africa.

The objective of these combined guidelines is to ensure and support evidence-based, available and all-inclusive management of hypertension in South Africa (Croasdale *et al.*, 2006:337).

Figure 2.3 is an example of the South African Hypertension Management guideline.

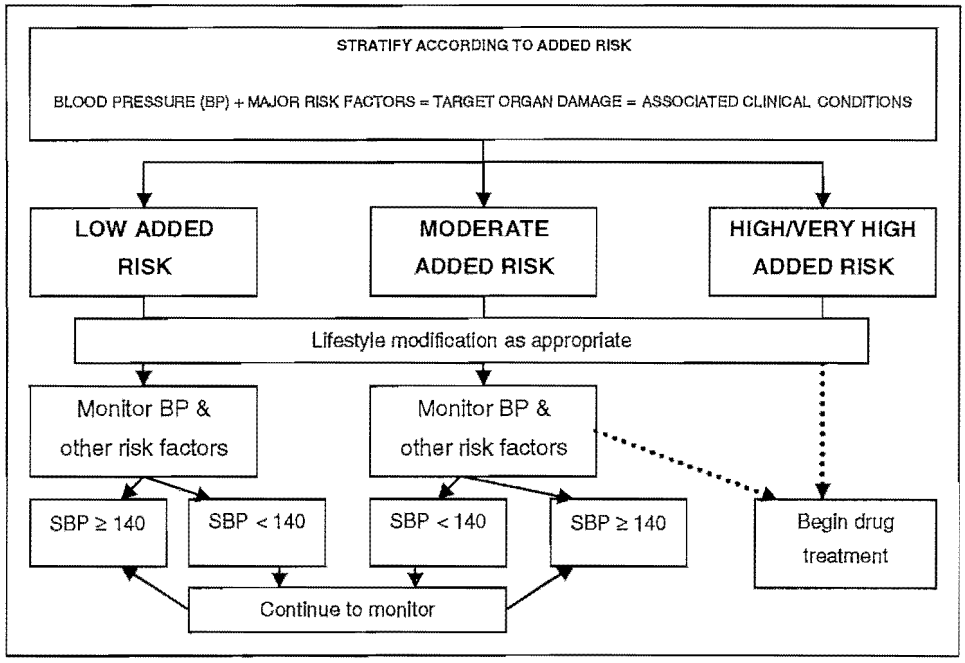

Figure 2.3: Southern African hypertension management flow diagram based on added cardiovascular disease risk (Croasdale *et al.*, 2006:341)

Figure 2.3 indicates that for every stage of the disease, in this case hypertension, a certain intervention should be considered. If the systolic blood pressure (SBP) is higher than 140 mmHg and the diastolic blood pressure (DBP) is higher than 90mmHg drug treatment should be started. In the case where the SBP is lower than 140mmHg and the DBP is lower than 90mmHg the blood pressure should be monitored continuously.

A second example of disease management in South Africa is one that focused on asthma patients. Access Health (Pty) Ltd. designed an asthma management programme during 1999. Goals were set for participants to manage their condition. Before taking part in the programme the total sick days from work or school taken by the participants were 4986 days per year. After 120 days of following the programme the total number shrank with 546 days. There was also a radical decrease in the number of emergency visits to hospitals, the initial number of visits were 676 visits per thousand participants per year. After 120 days of implementing the programme no emergency visits were reported (Green, 2004:61). This example shows that disease management can be very effective. In this case cost of health was rapidly reduced and the quality of life of the participants was improved.

2.2.2 Risk management

According to Wilson (2004:519), risk management is the minimisation of financial loss. Wilson also referred to risk management as an essential factor of quality management. Risk *management* is more than only controlling costs; its optimum goal is reducing costs and increasing quality of life (Wilson, 2004:520). For the purpose of this study, risk management is defined as an ongoing process of identifying, measuring and assessing certain risks, implementing an alternative option to minimise the financial risk and improve the quality of health.

Van der Velden and Sirot (2007:145) explained that risk management is not only an essential part of the MHC system, but also a process that assesses potential risks and benefits of health care interventions, medicine and devices. The basis of risk management is the factors, which could affect health care in general, i.e. age, gender, region, industry and income.

There are various tools for risk management in MHC systems. Some of the medical schemes have already started to implement some of these tools. These risk management tools can be divided into three main categories, *i.e.* those that aim at the members, those that aim at the provider and then thirdly those that aim at both the provider and the member such as drug utilisation review (refer to paragraph 2.5) (Da Silva & Jurisich,1999:12). A short discussion on each of these tools will follow subsequently.

2.2.2.1 Risk management tools

2.2.2.1.1 Methods aimed at members

- Co-payments: A co-payment is an amount the member is obligated to pay to the provider at the point-of-service. It is essential that the level of the co-payment is such that it does not prevent the member from seeking care, but only prevents the misuse of health care.

- Co-insurance: This is a method of cost sharing. The member's share of the costs is a percentage of the total amount of the service. This can make budgeting for medical expenditures difficult since the member does not always know the cost of the service beforehand. This can also have a positive effect, because it encourages the member to be more involved in the process of selecting the most effective treatment at the most afordable amount of money.

- Deductibles: Here the member is responsible for all the health care costs up to a certain threshold. Claim costs are usually cumulated over a year. This boils down to the fact that benefits are targeted at those whose health expenditure exceeds this threshold.

- Benefit limits: This is the most commonly known method and is already implemented in all the South African medical schemes. This means that a member has only a certain amount of money to be spent; after this limit has been reached the member is responsible for all the costs of the services.

- Preventive care and education: This method is based on the "prevention is better than cure"-principle. The aim is to educate the member about his/her condition to minimise unnecessary health expenditure networks. This agreement with the network providers would cover data requirements, practice guidelines and reimbursement (Van der Velden & Sirot, 2007:145).

2.2.1.1.2 Methods aimed at providers

- Peer review: The key factor of this method is that doctors, HMOs and MCOs have access to the correct data, to enable them to monitor their performance and become more effective.

- Treatment protocols: This is an important tool to assist in the delivery of quality health care. Conditions have to be treated with the appropriate treatment that has been identified by the treatment protocol.

- Benchmarking: This method entails the comparison of practice statistics to benchmarks, all of which need to be based on sound statistically approved data.

- Negotiated fees: Fees can be negotiated with the providers through the MCOs, consecutively the providers will receive increased patient volumes (Da Silva & Jurisich,1999:14).

Figure 2.4 was compiled and adjusted from CAPC (2005:57) Smith and Eloff (2000:6) to illustrate the process of risk management in order to be relevant to the study performed in this literature.

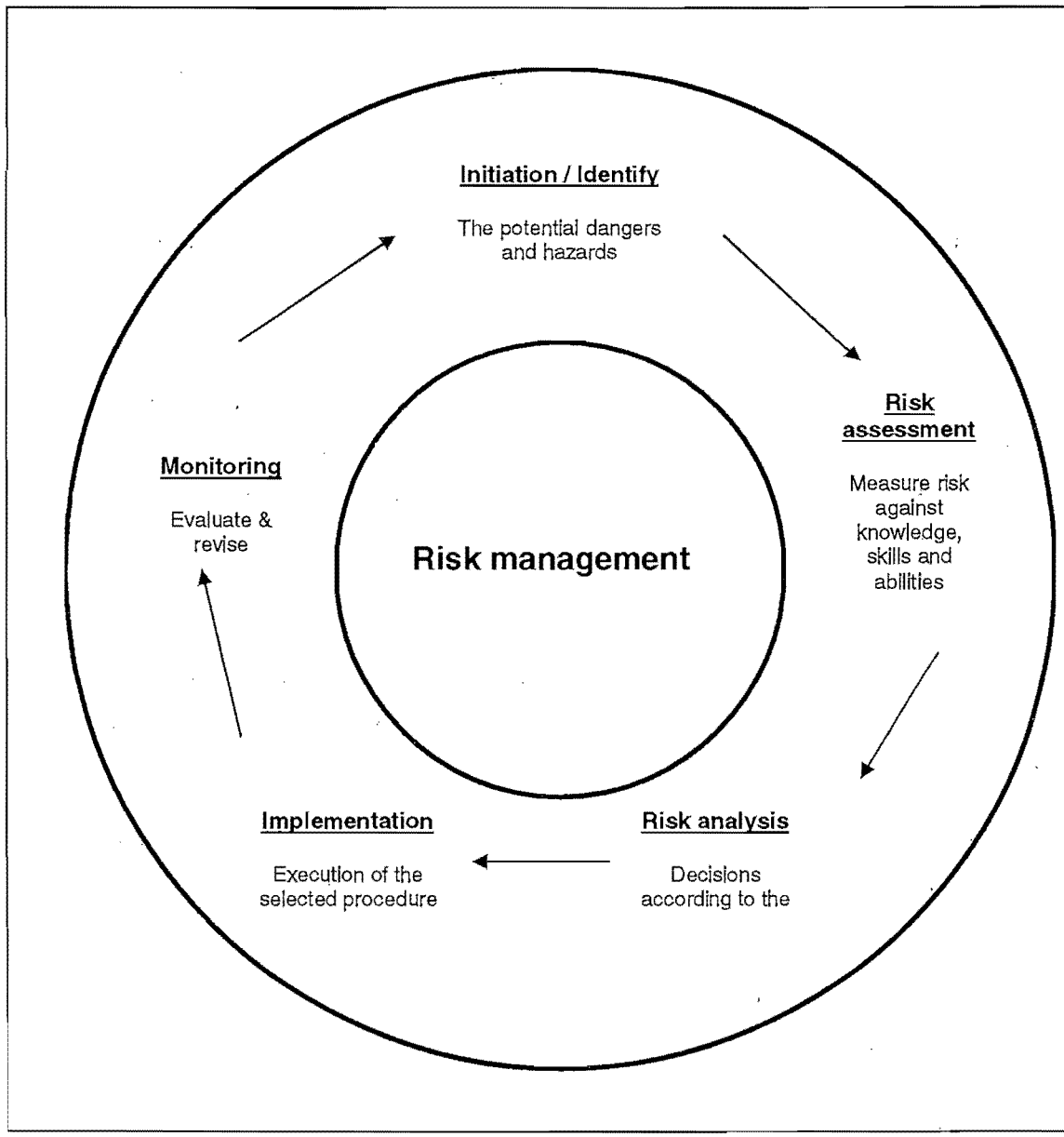

Figure 2.4: A graphic representation of the process of risk management [adapted and compiled from CAPC (2005:57); Smith and Eloff, (2000:6)]

According to figure 2.4, the five steps in this process are to identify, assess and to analyse risk, to implement and to monitor the selected procedure. The subsequent paragraphs explain each of these steps in the process of risk management.

- Identifying: It is essential to recognise potential risks to the organisation. In this specific case the organisation would be a health care organisation such as a medical scheme.

The risks can be aging of the members, or gender, disabilities, and chronic illnesses such as AIDS or Tuberculosis (TB) (CAPC, 2005:57).

- Risk assessment: The aim of the risk-assessment stage is to determine the risk value for each phase in a patient and to determine the source of the specific problem that increases the risk value. This stage is critical in order to determine a way in which to decrease such a risk (Smith & Eloff, 2000:8). An example can be a patient living with AIDS. The factors contributing to a likeliness of contracting an infection should be determined in order to lower the risk of the infection. To treat an infection can be more expensive than preventing one with a fluenza vaccination (CAPC, 2005:57).

- Risk analysis: During this stage, decisions are made according to the risk-assessment made in stage 2. In this stage "What if?" scenarios can be constructed in order to possibly help with reducing the risks. A report can be compiled to this effect and a proper project plan can be devised (Smith & Eloff, 2000:9).

- Implementation: This is the stage of the execution of the selected programme. Medical schemes create certain health plans according to risk assessment and analysis. These plans differ from each other; some only give coverage to chronic illnesses, whilst others have a sub-minimum coverage on a certain illness. An example can be a health plan that only pays R100 for hypertensive medication, with the difference payable by the patient (CAPC, 2005:57).

- Monitoring: It is essential to review programmes, policies and procedures for all relevant activities. Certain questions can be formulated, such as: "Have we identified the potential risks?" "Have we assessed the risks?" "Have we reduced or limited the risks?" "Why or Why not? What could we do differently?" (CAPC, 2005:57).

2.2.2.2 Categories of risks

The different risk factors can be categorised into four categories; namely pre-morbid conditions, secondary conditions, response to disablement and environmental factors (Liey, 1998:59).

- Pre-morbid conditions: These conditions include conditions such as diabetes or chronic obstructive pulmonary disease; lifestyle behaviours such as alcohol or drug abuse or even unhealthy nutritional habits. Sociological problems such as dysfunctional family relationships and a lack of support and even high levels of stress also fall within this category.

- Secondary conditions: Pressure sores, contractions, urinary tract infections and depression are conditions caused by a primary impairment and falls within this category.

- Response to disablement: Patients have reactions to being disabled. These reactions include *inter alia* a reduction in activity due to fear of falling, use of alcohol, anger or even denial. These reactions are called a "response to disablement".

- Environmental factors: These factors include a need for change, whether it is structural modifications at home, school or work. Adjustments need to be made to improve access to public buildings, public transport or access to primary health care (Liey, 1998:59).

2.2.2.3. Conclusion and application of risk management

Risk management is an important factor in the health care sector in South Africa. Risk management is especially important to medical schemes in the modelling and forecasting of claims. This can only be done successfully if the medical schemes are in a position to identify and measure the correct information over a certain period of time (De Villiers *et al.,* 2004:22).

De Villiers *et al.* (2004:23) recently conducted a study on the classification of a member in terms of health care risk and focused on South African medical schemes. The conclusion of the study established that the number of beneficiaries in a family is an important risk factor if a member is classified into a normal claim category or in a category where the patient's normality is more at risk than the usual patient enrolled by the medical scheme. A function was also determined by which it is made possible to calculate the probability that a member will fall into a certain claim category.

2.2.3 Case management

Case management can be defined as the principal service strategy used to develop the combination of social, medical, and psychological services needed to maintain the patient in the least restrictive environment and in the most cost-efficient manner (Anon., 2001). According to Phillips and co-workers, case management can also be defined as an integrated approach to intensive patient care with-in the hospital and the community (Phillips *et al.*, 2006:603).

Some definitions of case management focuses exclusively on the financial function of case management and only represents a small part of the comprehensive case management commonly provided to those individuals suffering from a specific disorder who need it (Anon., 2001). Providers should ensure that in almost every case of case management the following five components are incorporated: intake, assessment, crisis intervention and counselling, initial service plan and monitoring or follow-up reassessment (Anon., 2001). Case management

includes clinical pathways to ensure the best treatment for the specific disorder; and in order to achieve this, case managers are needed. Case managers are usually nurses with particular patient management skills. The goal of the case manager is to achieve optimum health outcomes at low cost using specific enrolled protocols (Gross, 1998:124).

Anticipatory case management is a more complicated version of case management, which focuses on population-based databases and new patient classification systems to identify patients admitted to hospital because of three cases; inadequate primary health care, the supply of surgical services and specific disease markers in a community. Such a system and data can contribute to the better planning of future care needs, which will reduce hospital admittance (Gross, 1998:124).

2.2.3.1 Case management tools

The process of case management requires certain instruments or tools in order to complete the process successfully. In the following section various case management tools are listed and explained.

- Managing therapy resources:
    - Utilise only the disciplines that are essential in achieving the patient's expected clinical outcome.
    - Provide only that frequency of each discipline's interventions needed to achieve expected clinical outcome.
    - Provide only the services of each discipline that are needed to achieve the specific clinical outcome.
- Managing treatment duration: Ensure that each discipline provides the needed services only for the time needed to achieve the expected outcome.
- Managing the services delivery format: Provide only the therapy, whether it is group treatment, co-therapy or individual treatment, needed to achieve the necessary outcome.
- Managing the level of care: Ensure that services provided are at the correct level of care. This could include acute rehabilitation, skilled nursing or outpatient facilities that are altogether required to achieve the expected outcome.
- Managing risks for complications: Identify any related factor and take the necessary action during the treatment. Factors that may keep the patient from achieving the

expected clinical outcome could, for example, be related to environment, physical or psychological status as well as life style factors (Hagen, 1999:46).

2.2.3.2 The case management process

The case management process is intended to assist patients in the ongoing process to improve and maintain optimum health (Fraser & Strang, 2004:32). According to these authors, a personalised case management process is needed in every situation because every patient has unique problems. Although every process may differ in certain areas a standard guideline should be used. Case managers' skills and creativity add some uniqueness to the certain individual's case management process (Fraser & Strang, 2004:32).

According to a presentation done by the Minesota Department of Health (2007), and the literature of Powell (2000:442-449) and also according to Fraser and Strang (2004:32) the case management process needs to entail the following steps: case selection, assessment/problem identification, planning, development and co-ordination of the case plan, implementation of the plan, evaluation and follow-up, and continuous monitoring, reassessing and re-evaluating. The following case management processes were compiled:

- Stage 1 - Case selection: Case management is not necessary in every patient condition. Those patients who may require case management are most likely to be patients with complex problems such as: complex medical conditions and co-morbidities, multifaceted discharge needs or problematical social issues.

- Stage 2 - Assessment/problem identification: After a case has been selected in stage one of the management process, stage two can be continued. Assessment determines the needs of the patients and helps to create a plan to overcome the related problems. Assessment is an essential point that serves as a pivot around which the case management process circles. In order for assessment to be thorough the following data should be examined: patient history and demographics, current medical status, nutritional assessment, medication assessment, financial assessment, environmental factors, psychosocial assessment, cultural and religious diversity, care plan activities and screening and assessment tools. The patient should also be interviewed to ensure that the patient is aware of the care he/she needs to obtain. In the assessment stage of the process all the barriers preventing the patient from receiving the care should be determined.

- Stage 3 – Planning, development and coordination of the case plan: The case manager and his team must decide on the following: What needs to be done? How to do it? Who

will provide the services? When will each need be met? Where and when will the next level of care be provided? For this stage to be successful the patient and his family needs to participate in full. In this stage there are a few steps to be taken in consideration such as: establishing goals, prioritising needs and objectives, service planning and resource allocation.

- Stage 4 - Implementation of the plan: At this stage the plan is put into action, all the services are coordinated, the needs are filled and the patient, support system and plan are all in agreement. By this stage in the case management process the case manager has assessed all the needs of the patient and the proper plan has been implemented to improve the patient's weaknesses.

- Stage 5 - Evaluation and follow-up: This stage is an essential step in the case management process. Follow-up ensures the patient that his needs will be filled and sends a caring massage to the family. In this stage the family's needs are really taken into consideration, because family plays such an important part in the recovery of the patient. The case needs are to be evaluated by means of the following questions: Have the goals and objectives been met? Have all the services been delivered as planned? Have there been any problems with the agencies or companies that were set up? Are new needs surfacing that are serious enough to destabilise the whole plan? Case management outcomes are an essential part to assure the continuous growth of case management. Evaluation on a system level is also essential to ensure that the process is and remains successful; it determines whether follow-up and treatment are occurring in a timely and effective manner.

- Stage 6 - Continuous monitoring, reassessing and re-evaluating: this is a review process more than an actual stage, because of its ongoing process. The monitoring, reassessing and re-evaluating continues until the case is formally closed. Changes in the patients' medical or environmental condition can lead to necessary changes in the health recovery plan. These changes can be identified in this last stage of the case management process [(Fraser & Strang, 2004:34); (Minnesota Department of Health, 2007); (Powell, 2000:442-449].

2.2.3.3 Conclusion and application of case management

To conclude case management can be defined as an integrated approach to optimise the clinical outcome of a certain patient through different strategies to develop the social, medical and psychological services needed.

An example of a case management process in South Africa is a study that was done in 2000 on the syndrome packets and health worker training to improve sexually transmitted disease (STD) case management in the rural areas of South Africa (Harrison *et al.,* 2000:2769). The intervention of this programme consisted of two components, training and supervision of health workers in a broad approach to STD syndrome case management and the developing and implementing of the syndrome packets. The syndrome packets included the following: drug treatment for each STD, condoms, partner cards and an information leaflet. The outcome of this study was measured by means of five consistent indicators to determine whether this case management process was successful. After the intervention the quality of care received by patients with STDs improved substantially and also reported better counselling (Harrison *et al.,* 2000:2775). The study concluded that case management improves the quality of health care provided as well as the counselling on preventing STDs, it also showed that a patient's health outcome improves drastically through the implementation of case management (Harrison *et al.,* 2000:2776).

2.2.4 Outcomes management

Marcus (2000:10) defined outcomes management as the "*use of studies to measure and evaluate health status and quality of life and document changes in these as a result of therapeutic interventions.*" In outcomes management, data are collected as part of routine medical care. It attempts to establish the appropriate resource expenditure through excellent patient, outcomes, diagnosis and demographic information (Marcus, 2000:10).

Outcomes can be measured in different ways and the results are categorised on whether they influenced the patient's social, physical, or emotional state and also on how the patients' quality of life it changed (Bonk, 1999:69).

2.2.4.1 A model for outcomes management

There are sequences of phases, which drive the process of outcomes management. In order for outcomes management to be successful all of these phases must be implemented correctly and to full aptitude (Wojner, 2001:7). Figure 2.5 illustrates the model of outcomes management.

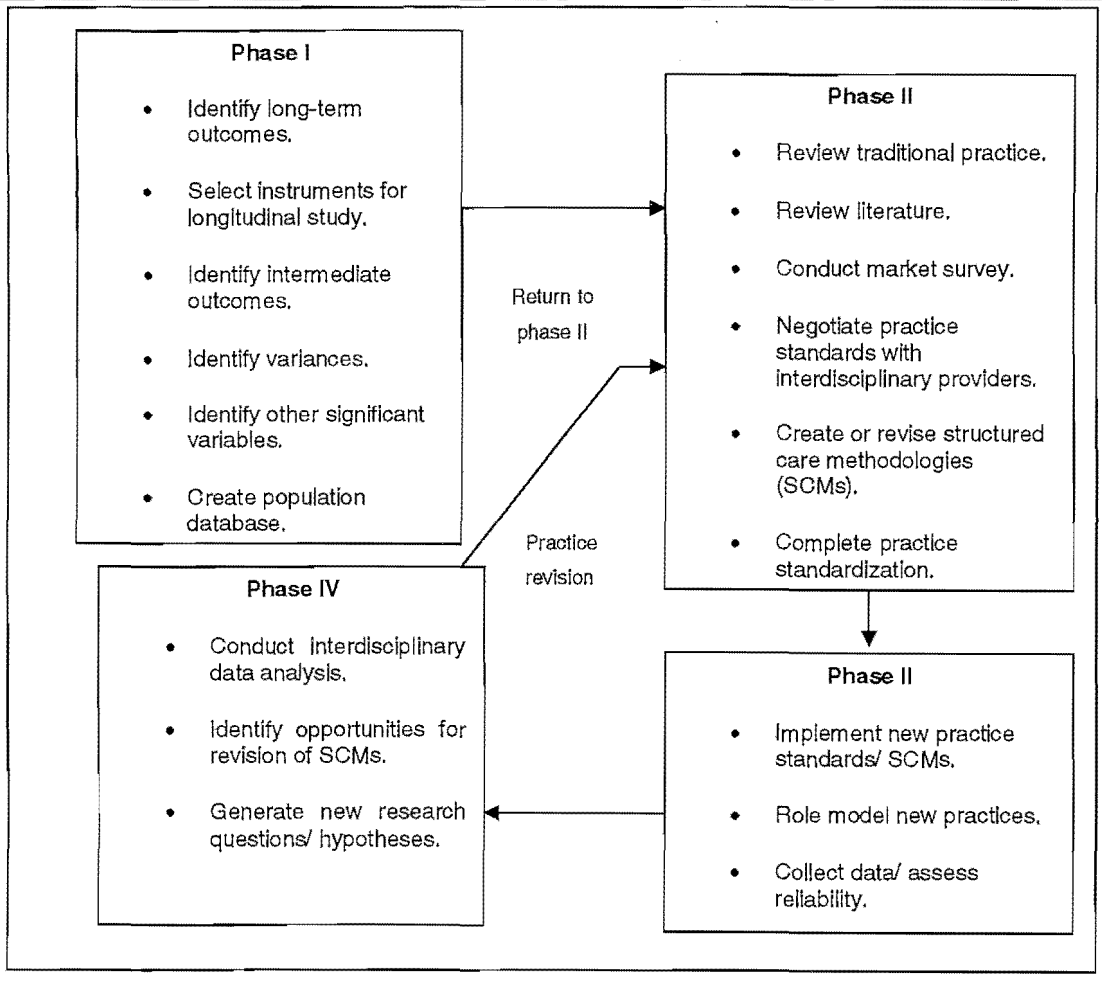

Figure 2.5: Outcomes management model (Wojner, 2001:7)

The process begins with phase I of the outcomes management model with the identification of required patient outcomes and the edifice of a concurrent database to support the ongoing analysis of the patient experience. In phase II through phase IV, different interventions are developed and implemented; these interventions are tested to ensure the appropriate patient outcomes.

The process constantly returns to phase II when outcomes measurement in phase IV identifies room for further refinement of the interventions or when a need is identified for a new process to improve patient outcomes (Wojner, 2001:7).

2.2.4.2 The different categories of outcomes measurements

Outcomes can be classified into different categories as illustrated in table 2.7.

Table 2.7: Categorisation of outcome measures (Bonk, 1999:69)

Category of outcome	Examples of outcome measures
Explicit health indices	*Physical status*, such as death, disability, or pain. *Social functions*, such as communicating with family members. *Emotional manifestations*, such as stress disorders or depression.
Resource consumption	*Directly by patient*, as for drugs or physical therapy. *Directly by others*, as for home care provided by family. *Indirectly by patient*, as for lost time from employment. *Indirectly by others*, as for decreased word productivity.
Quality of life	*General assessments*, such as satisfaction with life. *Specific assessments*, such as sleep or sexual function.

In table 2.7 the wide range of available outcome measures are illustrated and categorised by their relationships to patients and those who provide care (Bonk, 1999:70). The various categories are "quality of life", "resource consumption" and "explicit health indices". Explicit health indices illustrate the emotional, social and physical status of the patient, the resource consumption that focuses more on the usage of resources by the patient, medical providers and the patient's relatives. Quality of life represents the general and specific assessments of the patient after the treatment.

2.2.4.3 Outcomes management in South Africa

Various outcomes management studies have *inter alia* been conducted at the North-West University regarding medicine usage in South Africa.

A recent example of an outcomes management study conducted in South Africa was on parents' understanding of the causes and management of their children's epilepsy (Keikelame & Swartz, 2007:307). The study scrutinised what parents understood about their children's epilepsy and they found that neither the parents nor the children really did understand what the epilepsy as an illness entailed. The parents mostly thought the causes of the epilepsy were tumours or evil spirits. Major findings in this study included the lack of understanding and education about the correct use of the seizure medication. The outcomes of the study was that interventions were put into place to empower the parents and their children about the usage of

epilepsy medication in order to promote the health outcome of these children's disease (Keikelame & Swartz, 2007:307).

2.2.5 Conclusion of the different instruments used in managed health care

Disease management, case management, risk management and outcomes management are different management strategies which can be used in managed health care. There is a constricted relationship between the different instruments used in managed health care.

Outcomes management can be seen as the central part of the connection between the different instruments and drives the development of both disease management and case management programmes (Wojner, 2001:178). Wojner illustrates the relationship between the various management instruments and for the purpose of this study risk management plays an integrated part in case management, disease management and outcomes management.

In figure 2.6 the union between the different instruments is illustrated.

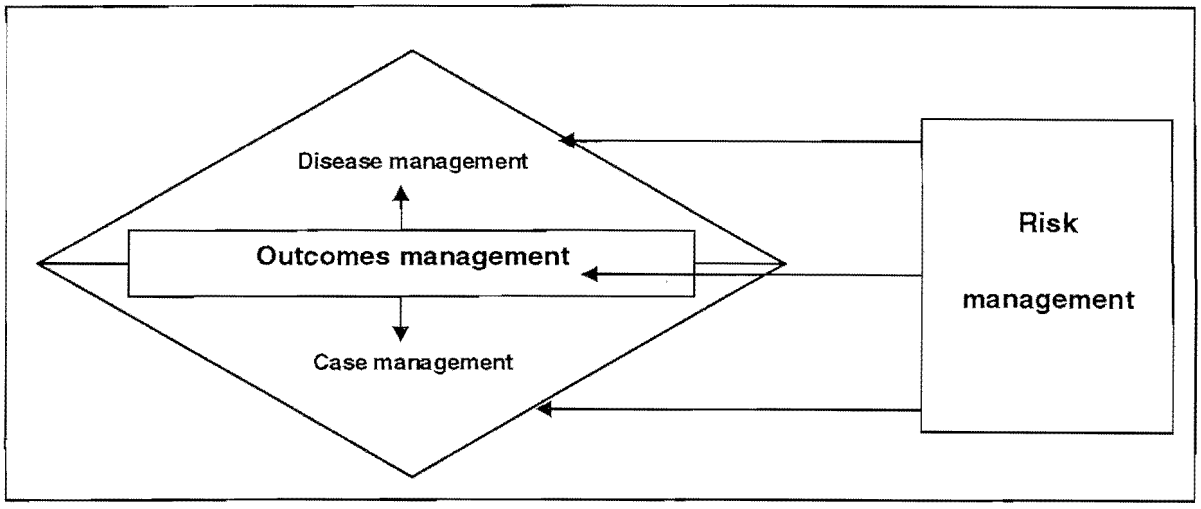

Figure 2.6 The relationship between the different instruments used in managed health care (adapted from Wojner, 2001:178)

Additional to the management instruments that have been discussed in sections 2.2.1 to 2.2.4; there are a few other management instruments, which are also being used in managed health care, e.g., prescribed minimum benefits and generic and/or therapeutic substitution. These supplementary management instruments will be discussed in the following section.

2.3 ADDITIONAL MANAGEMENT INSTRUMENTS FOR MANAGED HEALTH CARE IN SOUTH AFRICA

Two of the main additional management instruments for managed health care are Prescribed Minimum Benefits (PMB) and/or generic- and therapeutic substitution.

2.3.1 Prescribed minimum benefits (PMB)

PMB are indicated on an exclusive list of 270 medical conditions and 26 chronic conditions as well as any medical emergency listed in the Medical Schemes Act (131/1998) by diagnosis and treatment pairs for which a medical scheme is compelled to provide cover. This cover includes the diagnosis, treatment, medical practioners' procedures and consultations as well as the treatment of the conditions (Medikredit, 2008). According to the definitions for the purpose of the new Medical Schemes Act, 131 of 1998 the PMB can be defined as *"Means the benefit contemplated and consist of the provision of the diagnosis, treatment and care cost of the diagnosis and treatment pairs; and any emergency medical condition"* (South Africa, 131/1998).

2.3.1.1 New Act and Regulations on PMB

The new Medical Schemes Act, 131 of 1998 commenced on 1 February 1999, but the Regulations to give effect to it were only published in the Government Gazette on 20 October 1999 and updated on 4 November 2002 and again on 6 October 2006. Act 131 of 1998 stipulates PMB in the following way: "*Subject to the providers of this regulation, any benefit option that is offered by a medical scheme must pay in full, without co-payment or the use of deductibles, the diagnosis, treatment and care of the prescribed minimum benefit conditions*" (South Africa, 131/1998.).

The Medical Schemes Act states that this benefit may not be exceeded during a given calendar year, and the use of co-payments and deductibles are not allowed. The list also includes 26 chronic conditions (Chronic Disease List or CDL), which may not be covered currently, but all diagnosies and care may be covered from the day-to-day benefits (Medikredit, 2008). The complete chronic disease list is illustrated in Appendix C.1.2.

2.3.1.2 The objective of PMB

There are two main objectives for setting PMB, which are the following:

- To ensure that in the event of serious illness and the consequent risk of unfounded utilisation of public hospitals, the individual does not lose his/her medical scheme cover.

- The encouragement of improved efficiency in the allocation of private and public health care resources (South Africa, 131/1998).

2.3.1.3 The future of PMB in South Africa

There is a constant change in the medical practice and the available medical technology, and the Department of Health (DOH) in South Africa is aware of these constant developing changes, they are also aware that the regulation of PMB are new in South Africa. The DOH is supposed to monitor the impact, effectiveness and appropriateness of the PMB throughout the development and implementation of PMB in South Africa. A review should be conducted every two years by the DOH that will entail discussions with the Council for Medical Schemes, stakeholders, Provincial Health Departments and certain consumer representatives (LexisNexis, 2005).

On the first of July 2005 the general regulations made in terms of the Medical Schemes Act 131 of 1998 (Council of Medical Schemes, 2005) was published and introduced ARVs as a prescribed minimum benefit for all medical schemes registered in South Africa.

2.3.2 Generic and therapeutic substitution

2.3.2.1 Concept/Definition of generic medicine

According to the Association of the British Pharmaceutical Industry (2007) generic medicine is a medicine with the same active ingredient or a medicine that contains the same chemical equivalent than the original product that is no longer protected by patent. Generic medicines consist of dosage forms similar to the original products and contain the same quantities of each ingredient that is incorporated in the original product. There is no restriction on the number of duplicate products of the original product that can be placed on the market. All of these so-called generic medicines, however, have to go through safety and quality requirements demanded of the original product (The Association of the British Pharmaceutical Industry, 2007).

Generic substitution in South Africa can be defined as the replacement of a drug or medicine prescribed through the doctor, but substituted through the pharmacists with an alternative drug, which has the same chemical composition (Djolov, 2003:583).

Generic substitution empowers the pharmacist, who is not actively involved in the diagnosis and treatment, to change the treatment from one product to another (Djolov, 2003:583).

2.3.2.2 Generically similar

According to Bester (2008b) medicines that are generic similar, are medicine products which contain the same active ingredient or same active ingredients, at exactly the same dosage, but in a different formulation or other pack size. An example of products that are generic similar are Panado capsules and Panado tablets or Ventolin inhaler 200 dose and Ventolin inhaler 300 dose.

2.3.2.3 Therapeutic similar/ therapeutic substitution

The concept of therapeutic similar products was explained by Bester (2008b), as different compounds which are assigned to the same pharmacological subgroup, have the same therapeutic effect and can be used to treat the same condition. An example of therapeutic similar products is Lipitor 10mg tablets and Adco-Simvastatin 20mg tablets.

2.3.2.4 Generic substitution and the Medicines and Related Substances Act

According to the Medicines and Related Substances Act no 101 of 1965, generic substitution is "*where a pharmacist or a person licensed in terms of the act must inform all members of the public who visit the pharmacy or any other place where dispensing takes place, as the case may be, with the prescription for dispensing, of the benefits of the substitution for a branded medicine by an interchangeable multi-source medicine, and shall, in case of a substitution, take responsible steps to inform the person who prescribed the medicine of such substitution; and dispense an interchangeable multi-source medicine instead of the medicine prescribed by a medical practitioner, dentist, practitioner, nurse or any other person registered under the Health Professions Act, 1974, unless expressly forbidden by the patient to do so*" (South Africa, 101/1965.).

2.3.2.5 Guidelines for generic substitution and list of non-substitution medicines

The Medicines and Related Act as well as compiled guidelines for generic substitution, and the Medicines Control Council (2003) described the guidelines thoroughly, and having revised the matter nationally and internationally, recommends that the original prescribed product should not be substituted for a generic brand if the original product has any of the following characteristics:

- A narrow therapeutic range.
- Have been known to show erratic intra- and interpatient responses.

- Are contained in dosage forms that are likely to give rise to clinically significant bio-availability problems, e.g. extended or delayed release preparations, as well as those known to be super bio-available.

- Are intended for the critically ill and/or geriatric and paediatric patient (Medicines Control Council, 2003).

In terms of the above factors a list of non-substitution medicines have been compiled. These medicines are known to have bio-equivalence problems and should not be substituted with a generic equivalent. The complete lists of these non-substitutional medicines are shown in Appendix C.1.3 (Medicines Control Council, 2003).

2.3.2.6 Cases where generic substitution are prohibited

According to Klinck (2003:546) generic substitution may not take place in the following situations:

- If the patient prohibits such a substitution.

- Where the prescriber has indicated that the item is not to be substituted.

- Where the generic product is more expensive than the original brand product.

- Where the prescribed product has been declared non-substitutable.

2.3.2.7 The National Drug Policy's view of generic drug use

The national health care system encourages the use of generic drugs or the use of interchangeable multi-source pharmaceutical products (IMPP), using the international non-proprietary name (INN). The use of generics is a recommended step to reduce drug costs and expenditure. It also contributes to the rational use of medicine, procurement and distribution of drugs at every level of our health care system (South Africa, 1996).

One of the objectives of the National Drug Policy of South Africa[2] states that generic substitution is a recommended step in order to reduce the cost of medication. This step also adds to the concrete system of procurement and distribution, as well as the development of rational drug use in every level of health care in South Africa (South Africa, 1996).

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[2] The National Drug Policy is defined as a policy that aims at ensuring that people get good quality drugs at the lowest possible price (Wikipedia, 2008).

- The availability of generic, essential drugs will be encouraged through the implementation of incentives that favour generic drugs and their production.

- The policy will aim at achieving generic prescribing in both the public and private sectors. Until this aim is achieved, generic substitution will be allowed, through legislation, in the public and the private sectors. It will be incumbent on the pharmacist, prior to dispensing a prescription, to inform the patient on the benefits of generic substitution and to ensure that substitution takes place with the patient's full understanding and consent.

- Patients have the right to make informed decisions concerning their own health. Including a choice for generic drugs (South Africa, 1996).

2.3.2.8 Potential savings from generic substitution

According to a study by Karim *et al.* (1996:201) generic prescribing and substitution have the potential to reduce drug costs by nearly 10 per cent. This is, however, if generic substitution is at its optimal capacity. In South Africa doctors are prescribing close to brand name price, and generic substitution can reduce drug costs by approximately 6,8 per cent (Karim *et al.*, 1996:201). Generic substitution can be encouraged through the proper training and education of medical practitioners, mainly prescribing doctors (Karim *et al.*, 1996:201).

A more recent study by Djolov (2003:583) also illustrated that generic substitution has the potential to save an enormous amount of money. The total savings for the top 200 selling products revealed to be 6.2 per cent of their total sales' value. However, it must be considered that this is a reflection of all the sales, the substitution with the cheapest generic equivalent included.

According to a study done by Van der Westhuizen and co-workers (2008) generic substitution of mental health products has the potential to save up to 11 per cent of medicine expenditure in the private health care sector in South Africa.

2.4 INFORMATION SYSTEMS FOR MANAGED HEALTH CARE

In the next section the different information systems for managed health care such as "pharmacoeconomics" will be discussed as well as the different measurement tools within the framework of pharmacoeconomics such as "cost-effective analysis", "cost-of-illness analysis", "cost-minimisation analysis", "cost-of-benefit analysis", and "cost-utility analysis".

2.4.1 Pharmacoeconomics

According to Vogenberg (2001:4) pharmacoeconomics is the evaluation of the economic, humanistic and clinical outcomes connected to pharmaceutical services and products. According to Walley *et al.* (2004:9) pharmacoeconomics implements and applies the basic concepts of economics to health care and it is most commonly used to assist in the decision making process in order to analyse the supply and demand for health care services and to provide a structure to understand decisions and their consequences. Pharmacoeconomics assists in balancing cost and outcomes and aid in determining the most efficient use of health care services and products (Bungay & Sanchez, 2003:35). It can also be described as the systematic quantification of the health care services and products and can be used as an instrument in the decision-making process.

According to the above, a concluded definition can be made, that pharmacoeconomics is not just about saving money, but more about the financial impact of a certain treatment. It is a very important tool for decision making and takes the impact on the financial, humanitarian, cultural and ethical issues regarding the treatment into consideration.

2.4.1.1 Quantitative tools

There are different types of quantitative tools available within the framework of pharmacoeconomics to enable managed health care organisations to make informed value-based decisions (McGhan, 1999:178). These different quantitative tools are *inter alia* cost-minimisation analysis, cost-benefit analysis, cost-utility analysis, cost-effectiveness analysis and cost-of-illness analysis. In table 2.8 the different quantitative tools will be summarised shortly in order to compare them.

Table 2.8: Different methods of economic evaluation (Walley *et al.*, 2004:108)

Method of economic evaluation	Measurement of outcome (health benefits)	Synthesis of costs and benefits
Cost-minimisation analysis (CMA)	Assumed to be equivalent and can take any form (e.g. number of cases detected, reductions in cholesterol levels, years of life saved).	Additional costs of therapy A relative to B.
Cost-effectiveness analysis (CEA)	Health benefits across therapies are measured in similar natural units.	Cost per life year gained, cost per life saved, cost per patient cured, etc.
Cost-utility analysis (CUA)	Health benefits across therapies are valued in similar units based on individual preferences.	Cost per QALY gained, cost per healthy year experienced HYE gained.
Cost-benefit analysis (CBA)	Measured in similar or different units and are always valued in monetary units (e.g. amount willing to pay to prevent a death, amount willing to pay to reduce exposure to hazard).	Net benefits = benefits minus cost, benefit-cost ratio = benefits/cost.

A short discussion on each of these types of analyses will subsequently follow.

2.4.1.1.1 Cost-minimisation analysis (CMA)

The goal of CMA is to identify the least expensive treatment or drug and is an easy way to compare multiple drugs based on their cost; it therefore does not attempt to determine the cost-effectiveness of the treatment nor the cost-benefit of the certain intervention (Walley *et al.*, 2004:12).

According to Carroll (1998:255), CMA is the easiest of the pharmacoeconomic tools. It compares the costs of different therapies that achieve the same outcome. CMA can thus only be used if the therapies have already shown to be equally effective. In CMA the applicable cost is the total cost of therapy and not merely the gaining cost of the drug.

In figure 2.7, Vogenberg (2001:264) used the following example to illustrate the scenario where CMA will be effectively used.

Outcome measured desired: Cost-minimisation for common eardrops used for the removal of impacted earwax for 500 patients.

Alternative medications compared:

Prescription (Rx) a: Polypeptide oleate mixture (6ml)

Rx b: Carbamide peroxide (15ml)

Rx c: Mineral oil and hydrogen peroxide USP (15ml of each prepackaged separately)

Total cost per Rx: Rx a – R37.26

Rx b – R7.25

Rx c – R7.06

Outcome measurements:

Total cost of 500 patients: Rx a – R18630.00

Rx b – R3625.00

Rx c – R3530.00

Outcome findings: Rx C leads to cost-minimisation

Rx A is 527% of the cost of Rx C.

Figure 2.7: An example to illustrate the scenario where CMA will be effectively used (Vogenberg, 2001:264)

2.4.1.1.2 Cost-benefit analysis (CBA)

CBA is the one technique that differs from the rest of the pharmacoeconomic tools, because effectiveness is measured in financial values. According to Carroll (1998:260) this makes the interpretation process easier. McGhan (1999:179) differs in opinion from that of Carroll in that he states that it is difficult to interpret CBA because cost and consequences should all be measured in money value. All outcomes such as rapid blood pressure changes must be thus assigned with a money value (McGhan, 1999:179).

CBA is an economic analysis that assesses whether the outcome or benefit outweighs the cost associated with the intervention programme. If the benefits are positive it would illustrate that the treatment has worked; where, as aforementioned, if the benefits are negative, it would illustrate that the treatment had failed to work and had been unsuccessful. The above assessments can be expressed as a cost-benefit ratio or a net-benefit (Barner & Rascati, 2003:115).

CBA has potentially wide applications and can therefore be used in an extensive variety of ways. It assesses the nett monetary outcome of a single intervention, rather than only a comparison with other interventions and is an appropriate technique to use when mitigating and documenting the worth of an already existing pharmacy service, or the potential worth of a new pharmacy service (Bungay & Sanchez, 2003:32).

Vogenberg (2001:267) uses an example of comparing the cost-benefits of two different antibacterial medication regimens for resolving an infectious disease in a 30-bed unit of a hospital. The first regimen uses parenteral antibacterials only, where the second regimen uses a combined regimen of parenteral and oral antibacterials. The total hospital cost per day was R700 for combination therapy and R720 for parenteral therapy. The combination therapy resulted in an average stay of 8 days, where the parenteral therapy resulted in an average hospital stay of 12 days. The combination regimen was found to produce a cure rate of 88 per cent, a failure rate of 5 per cent, and partial resolutions of 7 per cent. The parenteral regimen had a cure rate of 90 per cent, a failure rate of 7 per cent, and partial resolutions of 3 per cent.

In Figure 2.8 the example discussed above is illustrated.

Cost-benefit ratio for combination therapy: 8 days x 30 beds x R700/bed-day = R168000/benefit

Cost-benefit ratio for parenteral therapy: 12 days x 30 beds x R720/bed-day = R259200/benefit

Comparing the two cost-benefit ratios of the two regimens:

Combination: Parenteral = 168000 : 259200 / 0,648 : 1

The combination therapy favours the parenteral therapy in this cost-benefit analysis.

Figure 2.8: An example of a CBA (Vogenberg, 2001:267)

A CBA consists of five essential steps that need to be followed in order to determine the cost-benefit ratio of an intervention. Figure 2.9 illustrates the steps in the CBA process.

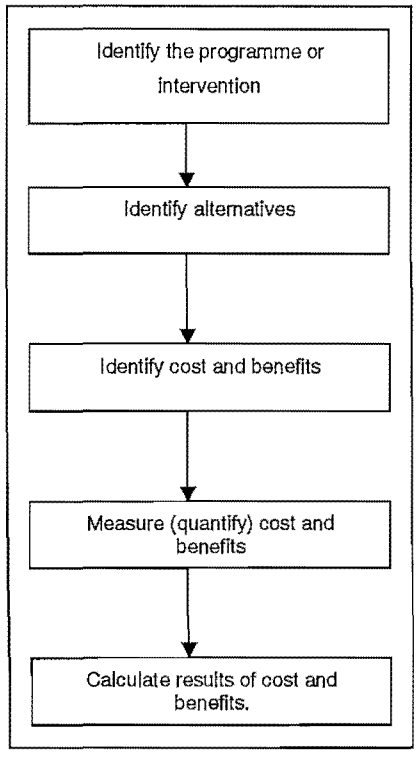

Figure 2.9: The steps in the CBA process (Barner & Rascati, 2003:120)

In the process of a CBA, the first step is to determine the type of programme or intervention to be considered, in the second step the alternatives need to be identified (the alternative can be another treatment plan or to simply do nothing). During the third step the cost and benefits need to be identified, and then the cost and benefits must be measured in the fourth step. The last step that has to be completed in the CBA process is to calculate the results of the cost and benefits (Barner & Rascati, 2003:120).

2.4.1.1.3 Cost-effectiveness analysis (CEA)

CEA is being used with products, interventions or services which are not equally effective, in most of the cases it is being used to compare an older cheaper, and sometimes less effective alternative with a newer, more expensive and more effective one (Walley *et al.*, 2004:13).

The goal of the CEA as an economic evaluation is to identify and examine the least costly way to achieve a certain health outcome, through simultaneously comparing the costs and effectiveness of the interventions that achieve a common health outcome. CEA relies on the accurate selection of appropriate outcome measures expressed as cost-effectiveness ratios, such as cost per case cured, cost per life saved or cost per infection avoided to allow the useful comparison of alternative therapies (Lee *et al.*, 2003:133). Effectiveness can be measured in natural or physical units such as mmHg in the instants where the health outcome is to lower the blood pressure; it can also be measured in years where the outcome is to prolong number of years to live (Carroll, 1998:256).

CEA compares the costs and consequences through an incremental cost-effectiveness ratio (ICER). The additional costs and effectiveness of the intervention are being compared with the current standard of therapy and this assures that the ratio is incremental (Carroll, 1998:256).

An example of a situation where CEA was useful was with the comparison of the dosages of lovastatin for hyperlipidaemia (Bonk, 1999:39). CEA can also compare different dosage levels of the same drug and is not only used to compare different interventions. The cost for each year saved by lowering cholesterol levels in comparison with the different dosage forms of lovastatin was determined in preventing coronary heart disease. In the USA a cost of $50 000 was acceptable for each year of life saved. Based on this knowledge a dosage of 20mg/day proved to be appropriate for men and women from all age groups where the cholesterol levels were 6.67mmol/L. A dosage of 80mg/day could not be justified as a preventative measure (Bonk, 1999:39).

In figure 2.10 the possible results that may arise from a CEA are illustrated.

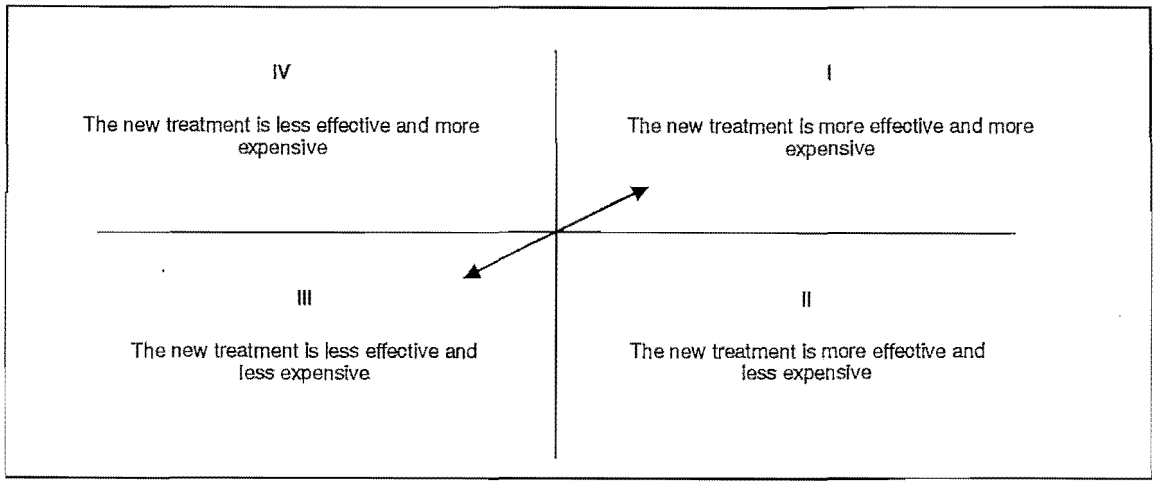

Figure 2.10: The four possible qualitative results in a cost-effective analysis (the cost-effectiveness plane) (Walley *et al.*, 2004:112)

According to Walley *et al.* (2004:111) there are four possible results that arise from CEA, as listed below:

- The cost of one drug is lower and the health benefits of the same drug are higher than the alternative treatment, the former is said to dominate and would be the preferred treatment option (Fig 2.10, quadrant II).
- The new drug is more expensive and less effective, and therefore is considered mediocre and is not the recommended treatment for introduction (Fig 2.10, quadrant IV).
- The alternative new drug is more effective and more expensive than the standard treatment option (Fig 2.10, quadrant I). In this scenario an extra analysis must be done to ensure whether the extra benefits gathered from this treatment are worth the extra cost and whether the treatment is indeed "cost-effective".
- The new treatment is less effective but also less expensive (Fig 2.10, quadrant III). Another analysis needs to be done in this scenario to determine whether the extra benefits gained from the more expensive treatment justify the extra cost spent on that particular treatment.

2.4.1.1.4 Cost-utility analysis (CUA)

CUA can be seen as an economic evaluation that assimilates the cost and consequences of health programmes within the utility framework and can be perceived as a smaller fragment of

CEA. It focuses on the utility for the individual patient, or serves to analyse how the patient is feeling towards the treatment (Franic *et al.*, 2003:146).

An example to explain CUA is to analyse a certain treatment, that may appear perfect according to the health care provider's point of view, because it is cost-effective and has a good cost-benefit ratio, but the treatment has a side-effect of tremors. The utility to the patient is poor because in the specific case the patient is an artist and tremors prevent the patient from doing his/her job successfully (Bonk, 1999:41). One problem in the measurement of utility is how to determine the value a patient attaches to his/her well-being? That is why, for the purpose of pharmacoeconomic analyses, utility is measured in quantity-adjusted life years (QALY). For example an extra year of life with constant pain may be less valuable than only a year of life without pain. The QALY in this specific case would therefore be 0,5 QALY (Bonk, 1999:42).

CUA can also be measured in perceived quality of life (QOL). A range of different studies have been developed in an attempt to measure QOL. One of the well known surveys is the short forum 36 (SF-36). It is a self-administered survey that contains 36 items which cover eight different areas of health which are: physical functioning, role functioning-physical, bodily pain, general health, vitality, social functioning, role functioning-emotional, and mental health. The SF-36 is a very useful and accurate way of determining the QOL of a patient, but the SF-36 is only at the implementation state in pharmacoeconomic analyses (Nakahiro *et al.*, 1998:7.17).

Franic *et al.* (2003:155) illustrate the concept of QALY graphically in the figure 2.11, to ensure better understanding of this concept.

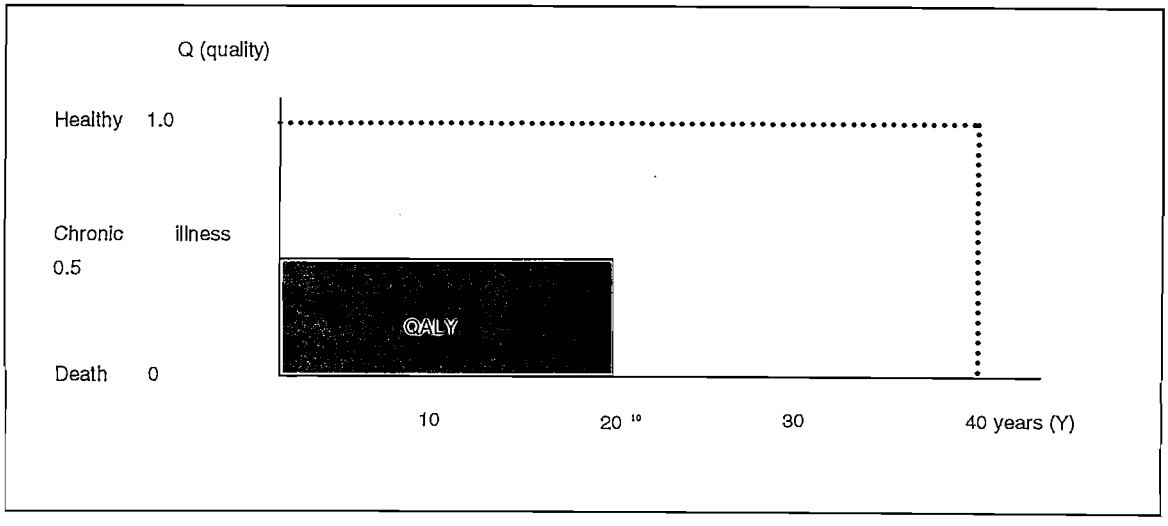

Figure 2.11: Graphical presentation of the concept of Quality-Adjusted-Life-Years (QALY) (Franic *et al.*, 2003:155)

An example of a situation where a CUA study is effective was given by Carroll (1998:258). The question to the study was, the utility or quality of life accompanied by chemotherapy. The comparison was made between a "year of life after surgery without chemotherapy" with a "year of life after surgery with chemotherapy". The year of life after surgery, which was accompanied with chemotherapy, was equivalent to 0,87 years of life after surgery without chemotherapy. That illustrates that the utility value for the surgery plus chemotherapy treatment was 0.87. Patients treated with surgery and chemotherapy has an average lifespan of 15,65 years, that means that the chemotherapy plus surgery treatment extended the average patient's lifespan by 13.62 (0.87 x 15.65) quality-adjusted life years (QALY).

2.4.1.1.5 Cost-of-illness analysis (COI)

COI is a pharmacoeconomic method used to measure the economic burden of a disease or illness in a certain society and includes the following: indirect cost associated with productivity losses due to the morbidity and mortality of the disease, the direct and indirect medical cost devoted in treating those affected by the condition as well as the psychosocial or insubstantial costs associated with the transformation in the quality of one's life due to the disease (Cox, 2003:91). COI is the first step of pharmacoeconomic analyses; it is the analyses of new or existing drugs, treatments and interventions. COI delivers baseline information about the cost of the disease to be treated and supply useful information for determining new drug treatments. The following parameters can be used to gather the needed information (Bonk, 1999:25):

- Prevalence - the number of existing cases in a population.
- Incidence - the number of new cases in a given time period.
- Morbidity - the frequency of an illness's effects on individuals.
- Mortality - the rate at which an illness prematurely causes death.

COI is a method that determines within each disease group, the distribution of the various resources categories. Resources categories include direct, indirect and intangible costs and are used to allocate where health resources are being distributed to (Cox, 2003:91). According to Cox (2003:91) COI also does not present any indication of whether the resources are spent effectively, but only provide a foundation for pharmacoeconomic methodologies designed to access effectiveness and efficiency.

A study that has been done in 1998 determining the COI of diarrhoea in rural KwaZulu-Natal in South Africa is an example of the implementation of COI in the health care sector. The COI

approach was chosen because it is based on direct and indirect costs associated with the illness. The total cost of diarrhoeal disease included the following: direct cost, indirect cost, other direct costs, social costs and overall costs to the economy (Pegram *et al.*, 1998:12). In table 2.9 a summary of some of the results of the conducted study are shown.

Table 2.9: Summary of diarrhoeal cost in South Africa (adapted from Pegram *et al.*, 1998:18)

Summary of the diarrhoeal costs in South Africa	
Productivity cost (R m./yr)	325
Health costs (R m/yr)	3000
Transport costs (R m/yr)	40
Total costs (R m/yr)	3375
Average household cost (R/yr)	380

As illustrated in table 2.9, the average COI for diarrhoea in one household in South Africa is R380 per year, which included the productivity cost, health cost and transport costs (Pegram *et al.*, 1998:18).

2.4.1.2 Application of pharmacoeconomics

Bruckner *et al.* (2000:7) came to the conclusion that *"Pharmacoeconomics does not give you the correct answer, it does not take away the use of common sense but it merely introduces the necessary scepticism and aids in the process of decision-making. Pharmacoeconomics is not about saving money, it is about how to spend money and if money is saved in the process that is an added advantage but not the endpoint."*

There is a range of situations where pharmacoeconomic studies can play a constructive part in the process of decision making in the South African health care sector such as the following:

- Pricing decisions.
- Formulary decisions.
- Clinical guidelines for prescribing decisions.
- Post-marketing surveillance

- Selection of drugs.
- Rational use of drugs.
- Procurement.
- Drug pricing (Bruckner *et al.*, 2000:14).

In 2006, Jones (2006:96), stated that the full implementation of pharmacoeconomics in South Africa will properly not take place for the next two to five years, as the full implementation will also require the development of capacity-building courses within the Department of Health (DOH) and the industry.

Currently pharmacoeconomics is growing in South Africa. In May 2007, the International Society of Pharmacoeconomics and Outcomes Research South Africa (ISPOR) has been established in South Africa. ISPOR South Africa states that their objectives are the following:

- To provide an environment and opportunity where researchers, health care practitioners as well as decision makers can share their views.
- To act as a facilitator and to improve the implementation of educational programmes in pharmacoeconomics and outcomes research for all members of the health care community (ISPOR, 2008).

The establishing of the South African ISPOR chapter can be seen as one of many steps towards the full implementation of pharmacoeconomics in South Africa.

2.5 DRUG UTILISATION REVIEW (DUR)

In 1977 the World Health Organization (WHO) defined DUR as "*the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences*" (WHO, 2003:33.). More than a decade later Edgren (1999:119) defined DUR as an "*authorised, structured, and continuing programme that reviews, analyses, and interprets aggregate patterns of medication use measured against predetermined standards and criteria established for specific health care delivery systems.*" More recently Jones and Radloff (2007:32) defined DUR as a process specifically formulated to improve safe, appropriate and effective drug therapy by detecting widespread variations from appropriate prescribing drug utilisation.

From the aforementioned definitions for DUR, a concluded definition of DUR (for the purpose of this study) can be seen as a structured system of determining whether the usage of drug treatment is appropriate, safe and effective through comparing the prescribed drug treatment with standard criteria.

2.5.1 Objectives of DUR

According to the WHO, the primary purpose of DUR is to motivate the rational use of drugs in different populations; this implies the prescription of well recognised drugs at most favourable use, combined with the correct information, at an affordable price (WHO, 2003:9). Sjoqvist and Birkett (2003:78) recon that DUR has more than one objective, the principal aim, however, is to facilitate the rational use of drugs in certain populations, the other objectives are the following: improving the quality of care, containing the costs of care, and the identification of fraud and abuse. DUR thus improves the quality of care through the reflecting of appropriate, cost-effective and certain medical necessary interventions that optimise the prospect of a good health outcome.

The purpose of DUR to control the appropriate prescribing of medicine can be confirmed through the statement that the WHO made in 2004, that almost 50 per cent of all medications prescribed had been inappropriately prescribed, dispensed and sold (Jones & Radloff, 2007:33).

Heath Canada (2006) added another dimension to the purpose of DUR by stating that the purpose of DUR was not to replace the professional judgement or the personal interactions of the medical practitioners and pharmacists but to enhance the quality of individual care in the health care sector.

In the following paragraph the different types of DUR studies will be discussed.

2.5.2 Types of DUR studies

The process of DUR is characterised through the development of the precise criteria, the evaluation of prescribed medications against the criteria, and the implementation of the most correct action needed (Chrischilles *et al.,* 1996:172). The process of DUR can be categorised into three main categories, namely retrospective DUR, prospective DUR and concurrent DUR. These will be discussed in the subsequent paragraphs.

2.5.2.1 Retrospective DUR (RDUR)

According to Chrischilles and co-workers (1996:172) retrospective DUR can be defined as the system that combines data of all the prescribed drugs onto a summary to simplify the identification of inappropriate prescribing patterns.

A retrospective study involves the computerised screening of drug claims made by pharmacies each month to detect the exceptions that appear in the data. These exceptions contravene the predetermined formula for appropriate prescribing. The exceptions illustrate prescribing errors (Hennessy & Strom, 2003:1494). Thomas and co-workers (2004:434) explain retrospective DUR as the system that scrutinises drug usage after the drug has been dispensed and often takes place after the drug has been consumed. RDUR's main goal is to distinguish the inappropriate prescribing patterns or the sub-optimal drug use and to design interventions with providers and consumers to prevent inappropriate prescribing and unfavourable drug use in future (Thomas *et al.*, 2004: 434).

2.5.2.2 Concurrent reviews/On-line prospective DUR (OPDUR)

Concurrent reviews are conducted at the exact time the dispensing claim is prepared. That means that potential problems are identified while dispensing a prescription, authorisation is only given when the problem has been identified and corrected. Although concurrent reviews are more costly and time consuming than retrospective studies, they are more accurate in precluding the problems and therefore would have a greater advantage to the payer (Thomas *et al.*, 2004:434). OPDUR enhances the information available to the pharmacists, which leads to improved cognitive services of the pharmacists (Chrischilles *et al.*, 1996:174).

There are a few factors, which can have an effect on the patient's health outcome *via* OPDUR. In figure 2.12 the relating factors to OPDUR effects on patient outcomes, are illustrated.

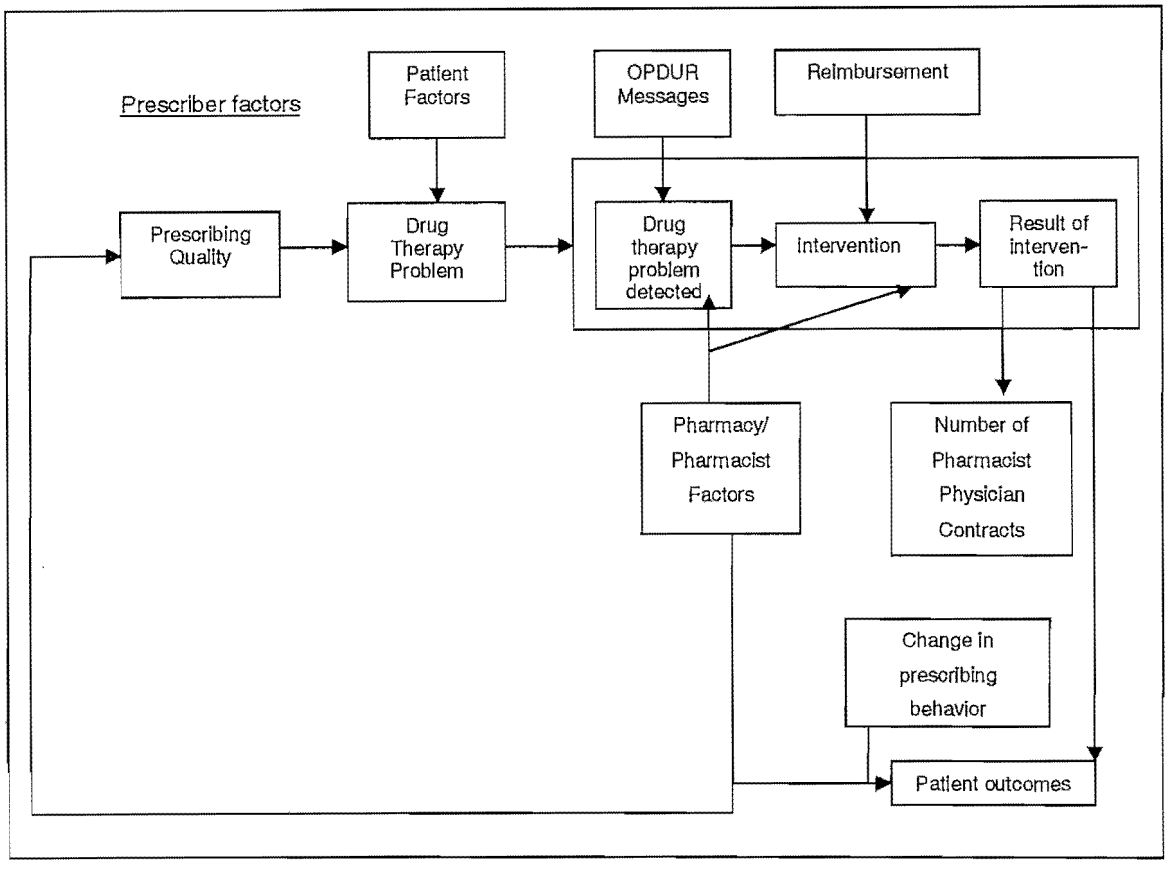

Figure 2.12: Factors related to OPDUR effects on patients' outcomes (adapted from Chrischilles *et al.*, 1996:175)

Figure 2.12 shows the various factors that may influence the outcome of a patient's health through the system of OPDUR. If an OPDUR message occurs it is the identification of a drug therapy problem, reimbursement should then be implemented through a certain intervention to solve the detected problem. The result of the chosen intervention will have an effect on the outcome of the patient's health.

A change in the prescriber's behaviour can also affect the outcome of the patient through an indirect way. It will influence the quality of prescribing, which can lead to a drug therapy problem, which will again lead to an OPDUR message of the identification of a drug therapy problem.

According to the Academy of Managed Care Pharmacy (AMCP) (2005) the following are medication safety issues commonly addressed in OPDUR process:

- Drug-disease contraindications.
- Drug-drug interactions.

- Incorrect drug dosage.
- Inappropriate duration of drug treatment.
- Drug-allergy interactions.
- Clinical abuse or misuse (AMCP, 2005).

2.5.2.3 Prospective reviews (PDURs)

Prospective reviews are based on a complete drug and medical history to enable the practitioner to evaluate the specific condition from pre-existing therapies while the drug is dispensed to the patient and then use professional judgement to determine an appropriate intervention to correct the identified problem. This review is ideal for the reason that it is designed to identify potential problems such as therapeutic duplication, inappropriate dosage or the incorrect duration of therapy (Thomas *et al.,* 2004:434).

The goal of a PDUR is to eliminate problems that might occur in future as a result of the inappropriate prescribed drug therapy (Chrischilles *et al.,* 1996:172).

2.5.3 Additional definitions to understand DUR

There are a few definitions that are linked to the process of DUR which will help with the understanding of DUR.

- DUR screening criteria: Explicit, predetermined rules based on a scientific basis for the developed DUR process, which specify the rules of appropriate and medically necessary drug use. It can be seen as the foundation of effective DUR.
- Screening failures, hits, drug conflicts, clinical events, exceptions or flags: Terms used to describe a certain situation in which the prescribed drug does not apply to the rules of the DUR screening criteria.
- DUR Message or DUR Response: The message transmitted to the user after the prescription had been sent in electronically to the claims processor for adjunction and DUR-screening explaining the nature of the screen failure (Lyles *et al.,* 2001:77).

The above-mentioned definitions will help the practitioner as well as the pharmacist to understand the problems that occur in practice, each of these messages explains the exact problem.

For DUR to be effectively implemented and applied all the drugs need to be categorised. In the following division drug classification systems will be examined.

2.5.4 Drug Classification systems

Drugs can be categorised in different ways according to different standards. For the use of DUR studies drugs can be categorised according to their mode of action, their indications and their chemical structure. Each of these classifications has its own advantages and disadvantages. Two of the classification systems plays a dominant role in DUR studies, which are the anatomical therapeutic (AT) and anatomical therapeutic chemical (ATC) systems (WHO, 2003:33).

2.5.4.1 The ATC classification system

The ATC classification system divides drugs into various groups according to their different chemical structures, pharmacological and therapeutic properties. The drugs can also be divided according to the organ or illness they have an effect on. Drugs are classified in five main levels. The drugs are then divided into 14 main groups (first level); which is then sub-divided into second and third levels (these levels are the two pharmacological subgroups). The fourth level is a therapeutic pharmacological and chemical subgroup. The fifth level is the chemical substance. The second, third and fourth levels can be used to identify the pharmacological subgroups (WHO, 2003:33).

2.5.4.2 Other classification systems

Over the last twenty years various classification systems have been tried and tested and only two survived to attain a dominant position in drug utilisation research worldwide. The two dominant systems are the Anatomical Therapeutic (AT) classification developed by the European Pharmaceutical Market Research Association (EPhMRA) and the Anatomical Therapeutic Chemical, which is discussed in paragraph 2.5.4.1 The EMhMRA system is based on the classification of drugs into groups with three or four different levels (WHO, 2003:33).

The data on drug cost play a vital role in managing policy related to drug supply, pricing and use. Numerous cost metrics can be used to evaluate the appropriateness of drug pricing, use and supply. Drug utilisation metrics will be revised in the following segment.

2.5.5 Drug utilisation metrics and their applications

2.5.5.1 Defined daily dose (DDD)

The DDD is the average dose per day for a specific drug used in its specific main indication in adults. This can also be seen as a maintenance dose (WHO, 2003:17). The DDD and prescribed daily dose (PDD) sometimes differ; the DDD is only a unit of measurement and does not always agree with individualised PDD, which is determined on characteristics such as weight, length, age and gender. The DDD can also differ from the recommended pharmacokinetic and pharmacogenetic considerations (WHO, 2003:36).

The DDD is also most accurate when it is presented as numbers; e.g., DDDs/1000 inhabitants/day, DDDs per 100 bed days and DDDs per inhabitant per year.

In the following section the different DDD numbers will be defined.

2.5.5.1.1 DDDs/1000 inhabitants/day

Prescriptions or sales data presented in 1000 inhabitants/day provide a rough estimate of the proportion of the population that are treated with a specific drug. If the number is 10DDDs/1000 inhabitants/day it would illustrate that 1 per cent of the population would receive a specific drug per day. This number can differ according to the size of the population and according to which certain drug is examined.

Certain drugs are not used in children, but repeatedly in adults over the age of 45. Simple age adjustments can be made to correct the utilisation of these drugs (WHO, 2003:38).

2.5.5.1.2 DDDs per 100 bed days

This unit is considered to be effective for utilisation purposes when used in a hospital. As an example, 70 DDD/100 bed days of hypnotics provide an estimate of the therapeutic intensity and suggests that 70 per cent of the inhospital-patients might receive a DDD of a hypnotic each day. This unit is very handy for benchmarking in hospitals (WHO, 2003:38).

2.5.5.1.3 *DDDs per inhabitant per year*

This term illustrates the number of days for which each inhabitant is treated per year on average. For example, 5 DDDs/inhabitant/year illustrates that on average a person was treated for 5 days during the year. This number can differ to a certain extent depending on how big the population is and in what geographical area the study is undertaken (WHO, 2003:38).

2.5.5.2 Prescribed daily dose/Consumed daily dose (PDD)

According to the WHO (2003:39) the PDD is defined as "the average dose prescribed according to a representative sample of prescriptions." It is of great importance that the PDD is related to the diagnoses made for the prescribed medication. The average daily amount of a drug prescribed can be determined through the PDD. The PDD is important in those drugs where the dosage differs from one indication to another. The PDD is, however, not the most accurate method of drug utilisation analysis because some prescribed medications are not always dispensed, and the patient does not always take all the dispensed medications (WHO, 2003:39).

2.5.5.3 Volume

Common physical units, number of packages, and the number of prescriptions or tablets can also be used for quantifying drug utilisation. This unit has its disadvantages and can therefore only be applied in the use of a single drug or if well-defined products is evaluated (WHO, 2003:39).

2.5.6 DUR in South Africa

Millions of real-time DURs are performed annually in South Africa by local PBMs (Venter, 2009). A great deal of retrospective DUR studies have also been conducted at the North-West University[3], and recently Katende-Kyenda and co-workers performed a retrospective drug utilisation study to investigate the prescribing patterns of antimicrobials in private primary health care in South Africa (Katende-Kyenda *et al.*, 2007:21).

The classification system used in this study was the Monthly Index of Medical Specialities (MIMS) and the ATC classification. The results of this study showed that antimicrobials were prescribed to almost 65 per cent of all patients that visited the clinics, which was part of the study population. The antimicrobials accounted for 18.69 per cent of the total amount of medicine prescribed. The overall result was that the there was an indication of overuse of antimicrobials in certain areas of the private health sector in South Africa (Katende-Kyenda *et al.*, 2007:26).

[3] In appendix C, table C.1.5 is given to illustrate some of the DUR studies that have been conducted at the North-West University, this table portrays the variety of DUR studies that have been performed in South Africa.

2.6 EVIDENCE-BASED MEDICINE

Appearing from a convergence of events and changes in culture; the term "evidence-based medicine" was recognised in 1991 by a group at McMaster University, Ontario (Dickersin *et al.*, 2007:334).

2.6.1 The definition/concept of evidence-based medicine

According to Dickersin *et al.* (2007:334) evidence-based medicine is part of a health care practice that is based on integrating knowledge gained from the best available research evidence, clinical expertise, and patient's values and circumstances. Donald and Rosenberg (1995:1122) gave a simple answer to the question of what evidence-based medicine entails, namely that it is the process of systematically finding assessment and use of contemporary research findings as the basis for all clinical decisions.

From the aforementioned definitions it can be concluded that evidence-based medicine is part of an integrated system of analysing clinical research evidence that uses the results of the analysis as a standard criteria for clinical questions and uncertain clinical situations.

Evidence-based medicine as an approach is practised in any situation where there is doubt about an aspect of clinical diagnosis, prognosis, or management (Donald & Rosenberg, 1995:1122). The process contains four basic steps. A short discussion of these basic steps will follow in subsequent paragraphs.

2.6.2 Steps in evidence-based medicine

According to Leung and Whitty (2000:603) the evidence-based medicine process of integrating the best available research evidence in decision making contains four distinct steps namely the formulation of a clear clinical question about a patient's problem, searching the literature for relevant clinical articles, evaluating the evidence for its validity and usefulness, and the implementation of useful findings in clinical practice. According to Meyrs (2002:47) a fifth step can be introduced to the process around evidence-based medicine, namely the evaluation of the entire process, (this way the process can be improved on a regular basis.) Each of these steps is essential to the success of the evidence-based medicine approach to the process.

Meyrs (2002:47) illustrates the steps of the process of the evidence-based medicine through the usage of the Three-loop model cycle in medicine (refer to figure 2.13).

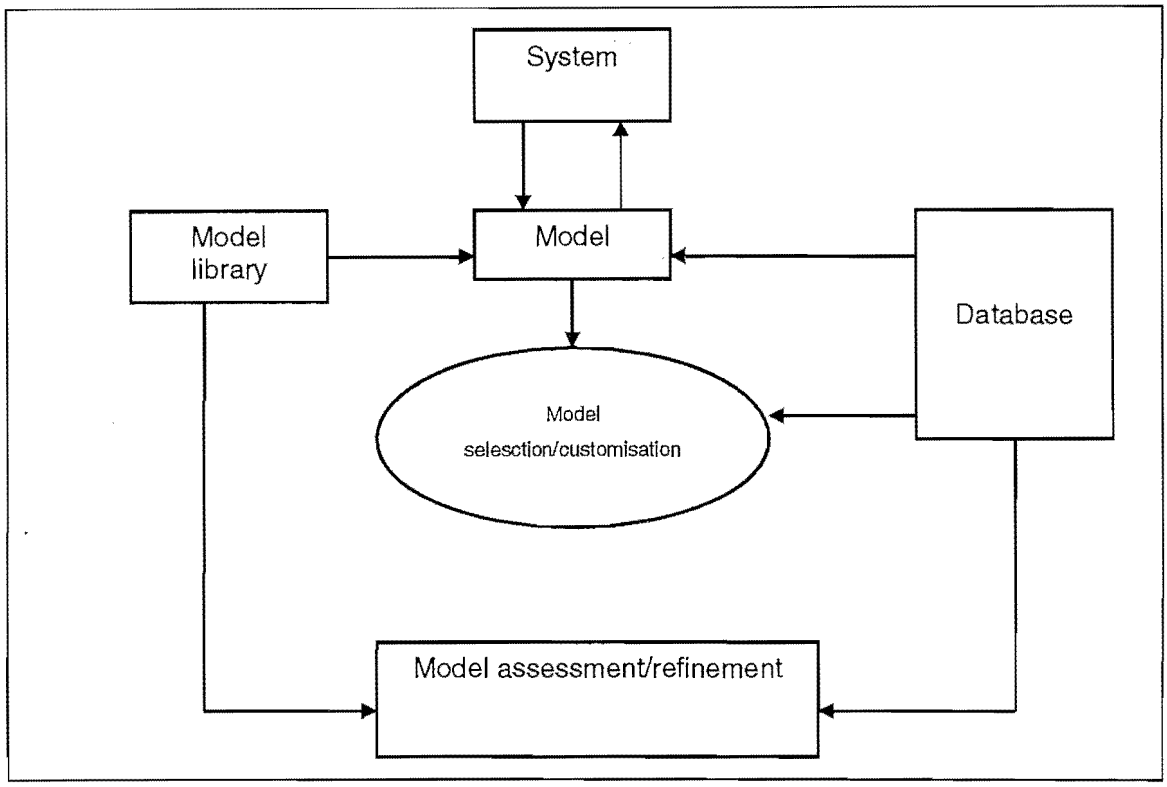

Figure 2.13: Three-loop model cycle in medicine (Meyrs, 2002:48).

The steps of the process involving evidence-based medicine (Meyers, 2002:61):

- Formulate a clear clinical question about a patient's problem: The question must be as specific as possible and must contain three essential aspects namely, the type of patient, the clinical intervention and the clinical outcome. The clinical question can be related to the diagnosis, prognosis, treatment, iatrogenic harm, and the quality of care. For the purpose of this study the clinical questions will most likely be related to the aspect of health economics.

- Search the literature for relevant clinical articles: This step aims to find the most relevant studies in the literature; either on the Internet or a certain database. The evidence must however, be concrete and medically correct.

- Evaluate the evidence for its validity and usefulness: This step is essential to ensure that the evidence is valid for clinical use. If the article is relevant the clinicians can rely on the content to provide the necessary guidance for an intervention.

- Implement useful findings in clinical practice: The found evidence can be implemented in various ways into the health care sector. The clinician can implement it directly in (or introduce into) the patient's care protocol and it can be used as a guideline for future

care programmes or the results can help revolutionise continuing medical education programme experiences.

- Evaluation of the process: In this step, the process of evidence-based medicine on the whole should be re-evaluated to determine shortcomings. This way the process will be updated and improved regularly (Meyrs, 2002:61).

2.6.3 Evidence-based medicine in the future

Evidence-based medicine as part of a managed health care organisation has three tasks for the future: to implement the evidence summaries in the clinical practice, to continuously develop and update the systematic reviews or evidence based guidelines in their area of knowledge, and to encourage patients to take part in studies of treatment, diagnosis and prognosis on which the medical practice is based (Craig *et al.*, 2001:254).

2.6.4 Evidence-based medicine in South Africa

Although evidence-based medicine is not yet fully implemented in South Africa, studies are being done with great results and findings that prove that the results of the incorporation of evidence-based medicine in South Africa can lead to improved quality of care and cost of care received by patients. Smith and co-workers (Smith *et al.*, 2004:117) used a focused change programme (the Better Births Initiative) to influence the obstetric practice at ten hospitals in Gauteng, South Africa. The results (in the form of qualitative data) showed that an interactive approach to implementing evidence-based medicine can influence health professionals' decisions to change practise patterns which can lead to more cost and quality controlled care (Smith *et al.*, 2004.119).

The top twenty pharmaceutical products in the managed care environment will be discussed in the subsequent paragraphs.

2.7 THE TOP TWENTY PHARMACEUTICAL PRODUCTS IN THE MANAGED HEALTH CARE ENVIRONMENT

The top twenty pharmaceutical products has been selected for practical reasons and can be seen as a summary of the different cost drivers in the private health care sector of South Africa. The top twenty products represent a percentage of the total expenditure that is paid each year by the medical schemes as well as the products with the highest frequency. The top twenty pharmaceutical products can be seen as an essential knowledge-based tool for the managed health care industry in order to cut the financial elements but still ensure a good standard of health care.

There are numerous possible factors that can have an influence on the prevalence of the different products that can appear among the top twenty pharmaceutical products in this study. In the following sub-divisions some of these factors will be discussed.

2.7.1 Marketing

Marketing of pharmaceutical products is a complex process and the promotion of medication should be thoroughly examined to ensure that the correct protocols are followed. Two of the most used marketing strategies in the health care market are the "pull" and "push" strategies. In the following diagram these two strategies will be illustrated graphically (Krishnamurthi, 2007).

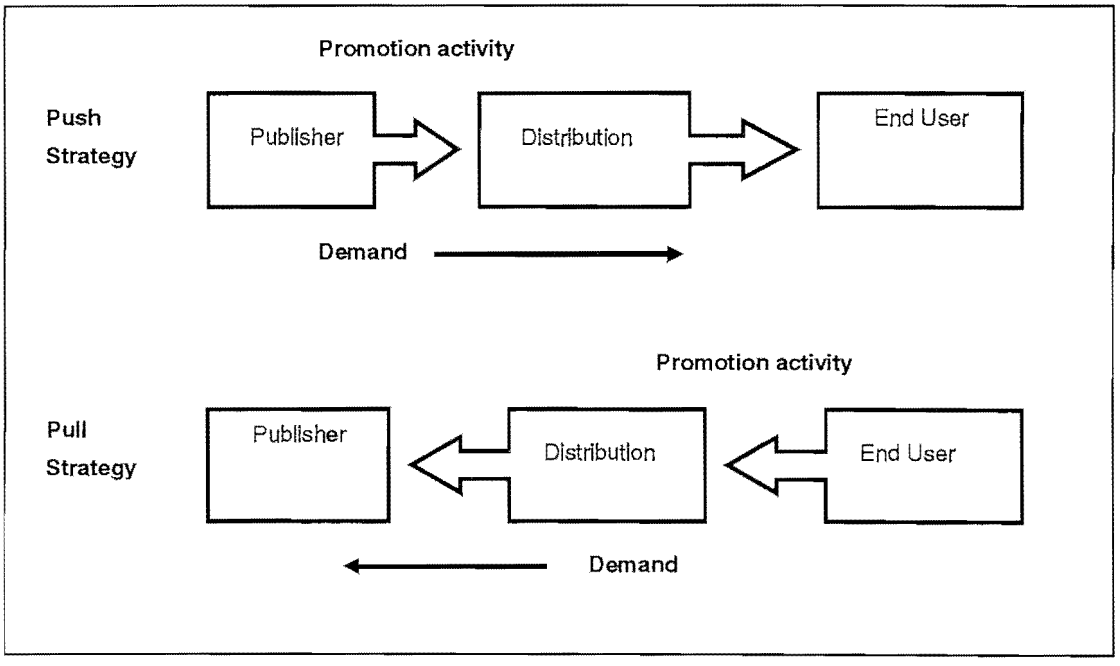

Figure 2.14: Graphical illustration of the push and pull marketing strategies (Krishnamurthi, 2007)

In the following paragraphs the push and pull strategies will be discussed.

2.7.1.1 Push marketing strategy

A "push" promotional strategy uses a company's sales force and trade promotion activities to create a consumer demand for the certain product. The producer promotes the product to the wholesalers, the wholesalers promote it to retailers and the retailers then promote it to the consumers (Pharmafocus, 2007). According to Krishnamurthi (2007) a push marketing strategy is where the manufacturer develops an advertising campaign directed towards marketing and distribution channels to attract them in promoting your product. Although this strategy is widely accepted and used, it is a little more complicated to implement it completely in the health care

sector of South Africa because of the fact that consumer promotions and advertising medication are prohibited in the South African health care sector (South Africa, 101/1965).

2.7.1.2 Pull marketing strategy

The "pull" strategy differs from the "push" strategy in the way that it plays a passive role in the marketing of the product; the "pull" strategy focuses on the fulfilment of already created consumer demand and the entire strategy is directed on increasing the demand for the specific product (Pharmafocus, 2007).

2.7.2 Physicians targeted promotions

Studies show that promotions influence the way doctors prescribe; therefore physicians can play a major role in the different drugs dispensed and this can have an influence on the top twenty pharmaceutical products (Serfontein, 2008) A study in 2005 conducted in the USA through undergraduate students confirmed the suspicions that doctors do have an influence in the different drugs dispensed and the drugs that are added to insurance companies' formularies. The authors came to the conclusion that doctors who had contact with pharmaceutical representatives were 13 times more likely to ask that a particular drug be added to an insurance plan's list of approved drugs (Chiu, 2005). According to an article in the Science News online Harder (2005:75) reported that during periods of intense advertising by manufacturers, 32 per cent of all the prescriptions contained advertised products.

Research has shown that approximately 95 per cent of physicians in the USA are frequent internet users and are online a great percentage of the day, using the internet for clinical research and completing medical education. These quantities of online physicians signify that there is a hefty market to which health care companies can present their products and services (Forward Analytics, 2006).

2.7.3 Provider preference

Every individual medical practitioner has his/her own preference of medication treatment that he/she prefers to prescribe for a specific illness. According to Wosinska (2003:2), 70 to 85 per cent of all the cases where medical practitioners respected the patients' request for a specific advertised brand, it was actually the providers' preference and not the patients' influence that made the medical practitioner prescribe the specific brand. This provider preference could influence the top twenty pharmaceutical products in a certain area to some extent.

2.7.4 Medical scheme composition and formularies

A medicine formulary is a compiled list of medicines or drug products approved through the pharmaceutical and therapeutic committees covered by a health care plan, which is used as means to control the cost of medicine (AMCP, 2003). A formulary supports and optimises the efficiency of the prescribing guidelines and protocols for physicians and other health care providers (AMCP, 2003).

Every medical scheme has its own individual composition of benefits and a pre-authorised formulary of products. As referred to in paragraph 2.1.4.4, Bonitas Medical Scheme in South Africa illustrates different options and formularies. Although the structure of these medical benefits is significant on the usage of medicine it did not form part of this study and should be explored in future research.

According to Bester (2008b) formularies are implemented to manage medicine utilisation and as a cost management tool to minimise financial risks.

2.7.5 Therapeutic committees

Therapeutic committees form a panel of health care professionals; these therapeutic committees make decisions based on facts to determine which drugs should be pre-authorised for medical schemes and government organisations (Mediscor, 2007). Some of the responsibilities of therapeutic and pharmaceutical committees are the following:

- Evaluating of pharmaceutical products.
- Decision making on whether to include a product on the formulary or not.
- Develop/approve protocols and procedures for the use of non-formulary products.
- Develop/approve treatment guidelines for medicine therapies.
- Develop/approve treatment guidelines for specific conditions.
- Validate reference pricing models.
- Develop/approve policies for managing medicine utilisation.
- Develop/approve patient education material (Mediscor, 2007).

Therapeutic committees can have an influence on the prevalence of certain drugs in the top twenty pharmaceutical products list.

2.7.6 Generic substitution

According to Bester (2006:6) the introduction of formularies that promote generic utilisation for the management of disease conditions is one of the reasons why generic utilisation is still increasing. In 2006 branded products of which the patent had expired represented 16.8 per cent of the total expenditure compared to the generic equivalents for these products that represented 25.6 per cent of the total expenditure in the Mediscor database (Bester, 2006:7).

The substitute of branded products for their generic equivalents will have an influence on the prevalence of the top twenty pharmaceutical products, as showed in paragraph 2.3.2.

According to Haas *et al.* (2005:891) the use of generic products instead of a branded products could be one of the most important methods to decrease medicine expenditure. According to these authors broad generic substitution could possibly save up to 11 per cent of all drug expenditure, in current value an 11 per cent saving is equivalent to $8.8 bn.

2.7.7 Prescribed minimum benefits

During 2006, 43 per cent of the overall medicine expenditure by Mediscor was allocated to chronic disease list medication, and prescribed minimum benefits consisted of 20 per cent of the total overall expenditure (Bester, 2006:18). According to regulations of the Medical Schemes Act, all medical schemes have to pay in full and without co-payments for the treatment and care costs for the PMB conditions (Innovative Medicine, 2004)..

Prescribed minimum benefits will thus have an effect on the top twenty pharmaceutical products (refer to paragraph 2.4.1).

2.7.8 Essential drug list (EDL)

The EDL is a guide often used in all South African health care institutions to identify which drugs should be prescribed for regular conditions at various levels of health care in South Africa. The EDL also provides a protocol, to illustrate how the identified drugs should be used (Taylor *et al.*, 2007:446). Because of the fact that the EDL provides specific preferred drugs in the form of a protocol, the EDL can have an influence on the prevalence of certain drugs in the top twenty pharmaceutical products.

2.7.9 Availability of alternative treatments

The availability of certain treatments will have a great effect on which drugs would appear in the top twenty pharmaceutical products list. If the alternative treatment is cheaper or has fewer adverse reactions it will replace the original treatment (Serfontein, 2008).

2.7.10 Evidence-based medicine

Evidence-based medicine can also influence the different drugs dispensed which will then have an influence on the prevalence of the top twenty pharmaceutical products (refer to paragraph 2.6).

2.7.11 Cost

The costs of drugs play a major role in the prevalence of drugs in the top twenty pharmaceutical product lists. If a drug is overpriced or very expensive; service providers may hesitate to prescribe or dispense it (Serfontein, 2008). Medical professionals will rather seek less costly alternative treatment.

The following section will entail a brief overview of lifestyle modifications and the possible influences that lifestyle modifications can have on health status.

2.8 LIFESTYLE MODIFICATION

Is it possible to prevent the development or to treat the symptoms of certain conditions simply by adopting a healthy lifestyle? Numerous studies have shown that certain diseases' prevalence can be drastically lowered by adopting a healthy lifestyle. According to Mokdad *et al.* (2004:1238) people often fail to realise that the simple choices they make during a day like what they eat, how they exercise, and whether they use tobacco and alcohol would influence their health. All these choices can have an effect on people's ultimate health.

In the next section lifestyle modification specifically, the effect of lifestyle modification on certain diseases and the cost associated with lifestyle alteration, will be discussed.

2.8.1 The effect of lifestyle modification on various conditions

According to Lenz (2008:93) lifestyle alterations have an effect on some chronic diseases. The preventing and treating of chronic diseases through lifestyle modifications has recently become a focal point. In the following paragraphs the effects of lifestyle modification on hypertension, cholesterol and diabetes will be discussed. The above-mentioned conditions are all in the top

ten therapeutic groups illustrated in the Mediscor report in 2006. In the subsequent paragraphs various examples will be given of lifestyle modifications and their effect on chronic conditions.

2.8.1.1 Lifestyle modification and hypertension

Worldwide the public health is battling against hypertension because of its high prevalence and the associated increase in the risk of cardiovascular disease and renal disease (He *et al.*, 2000:544). Stevens and co-workers (2001:1) have determined that more than half of the adult population in the world has higher than the optimal blood pressure. Greeff (2006:19) described some of the risk factors for the development of hypertension as the following: overweight, increased daily sodium, fat and alcohol intake, and the lack of physical activity.

Through the modification of lifestyle the above risk factors as well as the frequency of hypertension can be reduced (Greeff, 2006:19).

Table 2.10 portrays the blood pressure lowering effects of lifestyle interventions.

Table 2.10: Blood pressure lowering effects of lifestyle interventions (Greeff, 2006:18)

Modifiable lifestyle factors	Recommended change effect	Systolic blood pressure lowering
1. Weight reduction	Normal BMI[4]: 18.5-24.9 kg/m^2	5-20 mmHg/10kg weight reduction
2. Adopt a healthy eating plan	a.) Five servings of fruit/vegetable per day. (This will reduce the risk for stroke by 26%.) b.) High intake of high fibre wholegrain foods. c.) Fish rather than red meat. d.) Reduce daily fat intake to <30% of total calories consumed. e.) Five servings of fruit/vegetable per day. (This will reduce the risk for stroke by 26%). f.) High intake of high fibre wholegrain foods.	8-14 mmHg

[4] Body mass index.

Table 2.10: Blood pressure lowering effects of lifestyle interventions (Greeff, 2006:18) (continue)

Modifiable lifestyle factors	Recommended change effect	Systolic blood pressure lowering
2. Adopt a healthy eating plan	g.) Fish rather than red meat. h.) Reduce daily fat intake to <30% of total calories consumed. i.) Consume low-fat dairy products j.) Maximum fat intake: • Normal weight: o Female less than 70g/day o Male: 95g/day • Overweight: o Female: 50g/day o Male: 70g/day	
3. Reduce dietary salt intake	Reduce salt intake to <2400mg sodium per day or <6000 NaCl per day.	2-8 mmHg
4. Limit (daily) alcohol intake	Males: 2 standard drinks per day (< 20 g ethanol / day) • <50ml spirits / day • <250ml wine / day • <680ml beer / day • <120ml sherry / day • <50ml liqueur / day Females: 1 standard drink per day • <25ml spirits / day • <125ml wine / day • <340ml beer / day • <60ml sherry / day • <25ml liqueur / day	2-4 mmHg
5. Physical activity	Regular aerobic exercises (brisk walking) for 30 minutes per day, or at least 150 minutes per week.	4-9 mmHg

Table 2.10 depicts the effect that lifestyle modification can have on blood pressure. Table 2.10 also summarises these modifiable factors. This table can be essential in motivating and

educating patients that lifestyle changes can make an important difference to the development of any cardiovascular disease.

According to John *et al.* (2006:408) smoking is one of the primary risk factors for hypertension and their study has revealed higher systolic blood pressure among male current smokers. Numerous studies have shown that to reduce smoking along with caffeine intake, can have a positive influence on blood pressure measurements. According to Greeff (2006:19), smoking increases the risk for cardiovascular diseases and all patients should be encouraged to quit smoking.

Weight loss is an essential factor, which contributes to the lowering of blood pressure. This fact is highlighted frequently in different studies. For optimum blood pressure, a BMI <24 should be achieved and maintained (He *et al.*, 2000:545). According to Narkiewicz (2006:264) the ever-rising prevalence of obesity is increasingly recognised as one of the primary risk factors for the development of hypertension. Narkiewicz (2006:264) goes further by explaining that obesity-related hypertension is generally associated with further elements of the metabolic syndrome and the developing of chronic kidney disease. Figure 2.15 illustrates the potential mechanisms linking obesity, hypertension and chronic kidney disease.

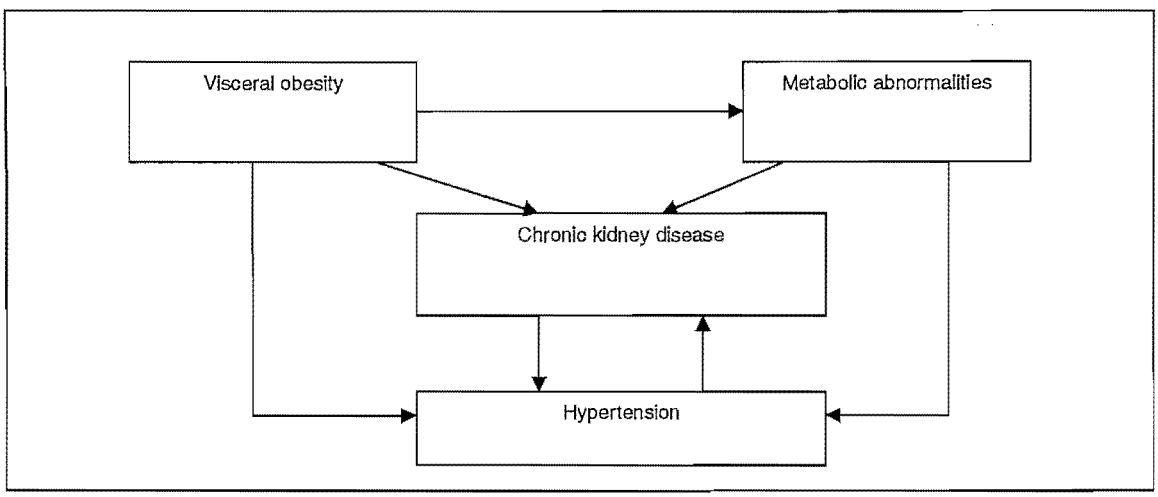

Figure 2.15: Potential mechanisms linking obesity, hypertension and chronic kidney disease (Narkiewicz, 2006:265).

Lifestyle changes can be a method to reduce expenses; in fact it is a way to save money, and most of the lifestyle changes are for free. Smoking cessation, a healthy diet, the lowering of alcohol intake and more physical activity reduce or delay the need for medication which can lead to potential decline in health expenses for the patient as well as the third party payer (Greeff, 2006:19).

2.8.1.2 Lifestyle modification and diabetes

The prevalence of diabetes in the USA is a rising concern and continues to increase by epidemic proportions (Klein *et al.*, 2004:2067). The increase of type 2 diabetes follows the parallel increase of obesity rates and it is well accepted that the risk for diabetes increase as the degree of overweight increases (Marks, 2005:129). Studies have shown that as BMI increase the risk of developing type 2 diabetes increases in a dosages-dependent manner (Klein *et al.*, 2004:2067). Klein and co-workers (2004:2068) have proved that moderate weight loss (5 per cent of total body weight) can improve insulin action in such a way that fasting blood glucose concentrations decrease drastically, which in turn would reduce the need for diabetes medications.

A study done by Knowler *et al.* (2002:394) illustrated the significance of lifestyle modification in patients with type 2 diabetes. Their results showed that lifestyle intervention reduced the incidence of type 2 diabetes with 58 per cent.

2.8.1.3 Lifestyle modification and cholesterol

Cholesterol is the cause of many cardiovascular diseases, and the major one is atherosclerosis. Atherosclerosis is the leading cause of death for both sexes in the USA and other Western countries (Katzung, 2004:564). There are the low-density (LDL), intermediate density (IDL), very low density (VLDL) and high-density (HDL) lipoproteins. Lipoprotein disorders are detected by measuring the lipids in serum. The National Cholesterol Education Programme for Adult Treatment Programme (NCEP-ATP) stipulated the following guidelines illustrated in table 2.11 for the measurement of lipids in serum (Katzung, 2004:564).

Table 2.11: The national cholesterol education guidelines for lipids in serum (Katzung, 2004:564)

	Desirable	Borderline to high	High
Total cholesterol	<200 mg/dL (5.2 mmol/L)	200-239 mg/dL (5.2-6.2 mmol/L)	>240 mg/dL (6.2 mmol/L)
LDL cholesterol	<130 mg/dL (3.4 mmol/L)	130-159 mg/dL (3.4-4.1 mmol/L)	>160 mg/dL (4.1 mmol/L)
HDL cholesterol Men Women	 >40 mg/dL (1.04 mmol/L) >50 mg/dL (1.30 mmol/L)		>60 mg/dL (1.55 mmol/L)
Triglycerides	<150 mg/dL (1.7 mmol/L)	150-199 mg/dL (1.7-2.3 mmol/L)	>200 mg/dL (2.3 mmol/L)

The Kwa-Zulu Natal Department of Health states that at least three dietary strategies are effective against dyslipidaemia; and could act as first-line therapy in the management of plasma lipids, and include the following: substituting unsaturated fats for saturated fats, increasing consumption of omega-3 fatty acids from fish and plant sources, and consuming a diet high in fruits, vegetables, nuts and whole refined grains (DOH, 2006). The goal of dietary treatment is to reduce high cholesterol and LDL-concentrations. The NCEP-ATP recommends that a dietary programme be implemented stepwise. There have been results that show that a step I dietary programme can reduce total plasma cholesterol and LDL levels by 7 – 9 per cent, whereas the dietary step II programme can decrease the total cholesterol and the LDL cholesterol by 10 – 20 per cent (Yu-Poth *et al.*, 1999:632).

Lifestyle modification has a great effect on HDL-concentrations and can be positively effected through weight reduction, smoking cessation and exercise (Baylor College of Medicine, 2000). The Latter authors summarised the effects of lifestyle modification on HDL-concentration levels as follow:

- Weight reduction:
    - HDL-levels increase by 1 mg/dL for every 3kg of weigh loss.
- Smoking cessation
    - HDL-levels in smokers are 7 – 20 per cent lower that those in non-smokers.
    - HDL-levels will return to normal within 30 - 60 days after smoking cessation.
- Exercise
    - Aerobic exercise increases HDL-levels in a dose dependent manner (Baylor College of Medicine, 2000).

2.8.1.4 Lifestyle modification in South Africa

According to Van Heerden (2005:31) external factors play a major role on the health and well-being of a person. It is in this area where lifestyle modifications have a key influence on the state of health of a person. Van Heerden goes further by explaining that nearly all the top ten best selling drugs for the year 2005 in South Africa are indicated for conditions that are significantly changeable to lifestyle interventions. In figure 2.16 Van Heerden illustrates the five components of the personality as well as the various external influences that have an impact on a person's well-being.

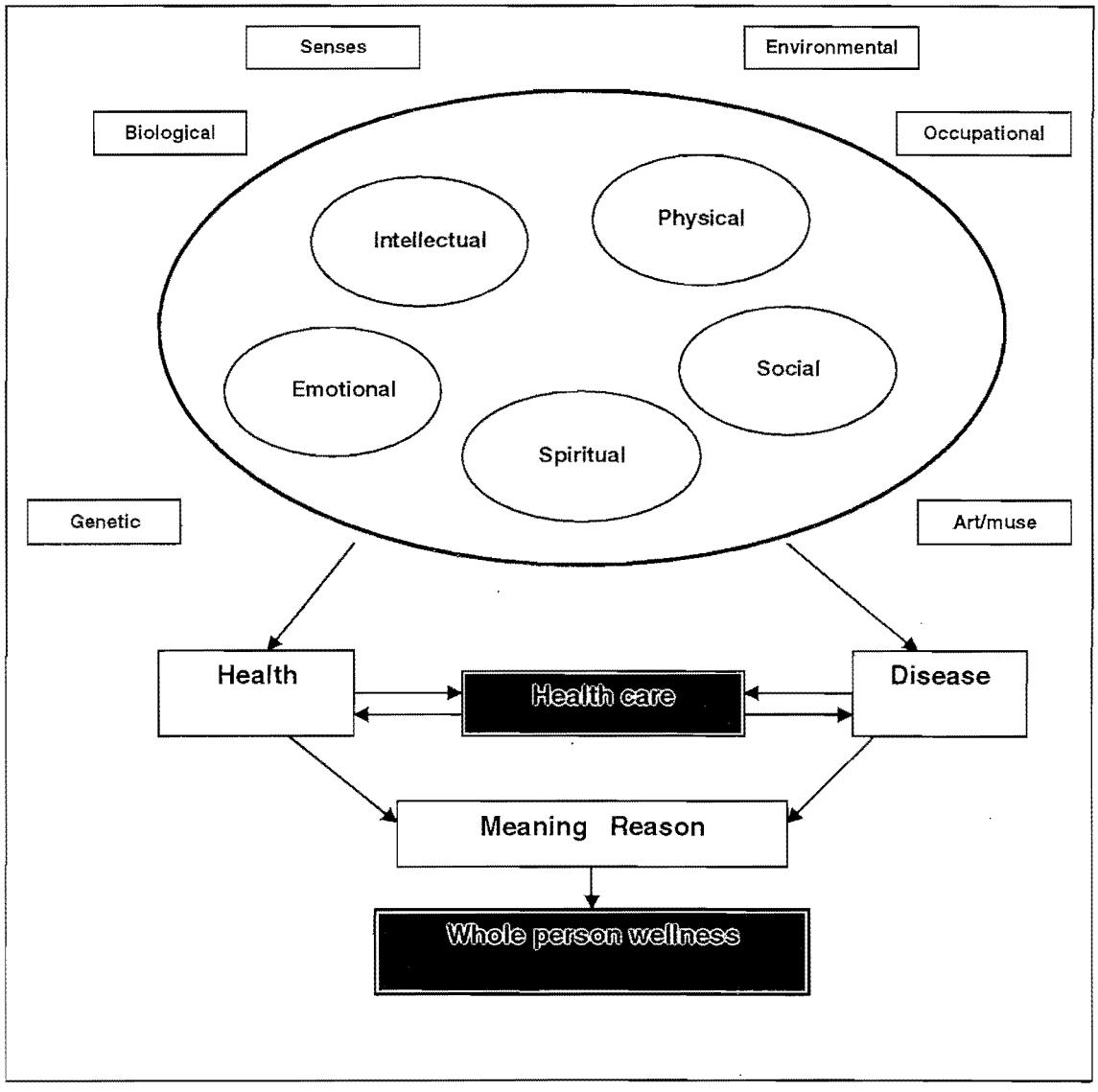

Figure 2.16: Schematic presentation of the encircled 5 components of the personality as well as the various external influences that will ultimately determine the reason for living and whole-person wellness (Gkaliagkousi *et al.*, 2007:70)

Gkaliagkousi *et al.* (2007:70) did a study on non-pharmacological treatment of endothelial syndrome with the relevance to diabetes and described lifestyle modifications as one of the essential treatments to this disease. Exercise, regular intake of antioxidants and fish oil are prescribed as effective lifestyle interventions. According to Gkaliagkousi and co-workers (2007:70) as little as 30 minutes of exercise each day lowers the risk of developing type 2 diabetes by 30 to 50 per cent as well as other diseases such as metabolic syndrome, hypertension, dyslipidaemia and inflammation. All these conditions are regularly found in the South African population.

2.9 COST DRIVERS

A cost driver is a factor that determines the cost of an activity or product. There are two main cost drivers (BNET, 2008):

- Resource driver: This refers to the contribution of the quantity of the resource that drive the cost (BNET, 2008). An example of a resource driver would be a product with a high prevalence, no matter what the average cost per item was. The prevalence of this product would drive the total cost, and therefore this product would be seen as a cost driver.

- Activity driver: This refers to the costs incurred by the activity (BNET, 2008). An example of an activity driver would be a product with a high average cost per item, which would drive the cost of the product, and can therefore be seen as a cost driver.

For the purpose of this study the products which appeared in the top five trade name list according to total cost, can be seen as the cost drivers. These products would have a high total cost, comprised out of average cost per item and volume (Serfontein, 2008).

2.9.1 Medicine as a cost driver in the South African private health care sector

According to the annual report of the Council of Medical Schemes (2007), hospitals were the biggest contributor to total benefits paid, and represented 35 per cent of the overall health care expenditure. Medical specialists were the second largest contributor with 21 per cent. Although medicine expenditure have been declining over the past few years it still represented 17 per cent (R8.7 million) of the total benefits paid by medical schemes; therefore medicine can be seen as a cost driver in the private health care sector (Council for Medical Schemes, 2007b).

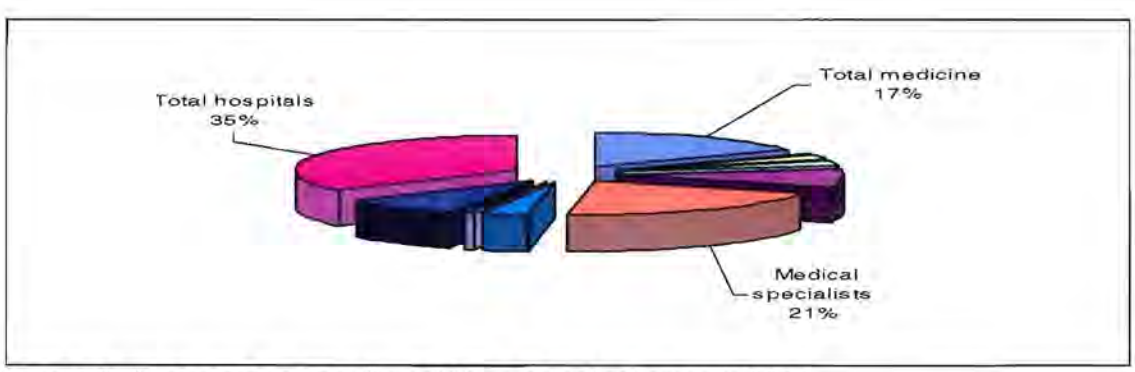

Figure 2.18 illustrates the benefits paid by medical schemes in 2006.

Figure 2.17: The distribution of the total benefits paid by the medical schemes in 2006 (Council for Medical Schemes, 2007b)

The fact that other medical expenses have been increasing over the last few years warrent extra attention. According to Steyn and co-workers (2007:33) the decline in medicine expenditure can attributed to the implementation of the new pricing regulations in South Africa in 2004.re have been a decling in medicine prices

2.10 CHAPTER SUMMARY

The managed health care process includes a variety of different methods that are applied to different areas of health care in the attempt to lower the cost of health care and to increase the quality of health care. There are different managed health care organisations, and each of these individual organisations determines it's own basis of decision making based on the specific instruments they use. In managed health care there are some pharmacoeconomic tools and management instruments that simplify and support the decisions-making process that leads to higher quality of care and the lowering of health costs.

In this chapter, managed health care has been briefly discussed as well as "pharmacoeconomics", "drug utilisation review", "evidence-based medicine", "prescribed minimum benefits" and "generic substitution" as principles of the managed health care system and the purpose of these information instruments in the South African health care sector. The management instruments "disease management", "case management", "risk management", and "outcomes management" have been discussed in this chapter. The influence of certain factors on the prevalence of drugs in the top twenty pharmaceutical products list has been discussed as well as to what extent lifestyle modification improves the prognosis of certain chronic illnesses. Medicine as a cost driver in the private health care sector has also been discussed.

Hereby the research question of what managed health care entails has been answered.

CHAPTER 3:

Empirical Investigation

In this chapter, the empirical research methodology will be discussed. All the procedures followed obtaining the applicable information and the following analysis of the data will also be discussed. The empirical research includes the statement of general and specific objectives, the selection and construction of the data source and study population, the outlay of the research design, the selection of the measurements, the data analysis, assessing the reliability and validity of measuring/research instruments, a report and discussion of the results of the empirical investigation and a conclusion and recommendations.

3.1 OBJECTIVES OF THE EMPPIRICAL INVESTIGATION

The objectives of the empirical investigation will be discussed under general objectives and specific objectives. The discussion of the various objectives will follow in the subsequent paragraphs.

3.1.1 General objectives

The general objective of this study was to review and analyse aspects of drug usage in a section of the private health care sector through a managed health care approach.

3.2.2 Specific objectives

The specific research objectives of the empirical research were as follows:

- To determine the prevalence and total cost of the top twenty active ingredients according to the PBM's database.
- To determine the prevalence and total cost of the top twenty trade name products according to the PBM's database.
- To determine the top twenty trade name products for the different age groups according to prevalence and total cost from the PBM's database.

- To determine the top twenty trade name products for the different sex groups according to total cost and prevalence from the PBM's database.
- To determine the top twenty trade name products for the various prescriber groups according to total cost and prevalence from the PBM's database.
- To determine the top twenty trade name products for the various prescriber groups according to total cost and prevalence from the PBM's database.
- To determine the prevalence and total cost of the top twenty therapeutic groups according to the PBM's database.
- To review the utilisation patterns of the top twenty trade products over the years 2005 and 2006 from the PBM's database.
- To determine the total cost driving products from the PBM's database.
- To determine the average total cost per prescription, the average number of items per prescription and the average total cost per item according to the PBM's database for all the different variables as well as the complete database.

3.2 THE STUDY POPULATION AND DATA SOURCE

The target population consisted of relevant medicines claimed through a South African PBM for the years 2005 and 2006, while the study population consisted of all the medicine items present on the PBM's database for the period 2005 and 2006.

The study years 2005 and 2006 were divided into three four-monthly periods. Period 1 was from 1 January 2005 to 30 April 2005. Period 2 was from 1 May 2005 to 30 August 2005, and Period 3 was from 1 September 2005 to 31 December 2005. In 2006 periods 1, 2 and 3 represented the same monthly intervals.

The following fields were used in the study:

- Date of dispensing the prescription.
- NAPPI codes.
- NAPPI code extension.
- NAPPI code description.
- Quantity of the medicine item prescribed.
- Final amount paid by the medical scheme.

- Final levy amount.
- Final prescription cost.
- Date of birth of patient.
- Sex of the patient.
- The prescriber type.
- The provider type.

3.2.1 Editing and coding of the data

Different classification systems were used during this study, which will be discussed subsequently.

3.2.1.1 The NAPPI code (National Pharmaceutical Product Interface - codes for medication)

The NAPPI code is a nine-digit code and a unique identifier for any given product implemented with electronic use in mind. The NAPPI code allows the dispenser to identify the brand, pack size, strength and manufacturer plus exclusion of the product dispensed (HealthWeb, 2008).

3.2.1.2 The MIMS (Monthly Index of Medical Specialities) classification system

The MIMS classification system classifies pharmaceutical products according to their pharmacological action (Snyman, 2007:11a).

3.2.2 Entering and analysis of data

A *Statistical Analysis System*® SAS 9.1® (SAS institute Inc., 2006-2007) programme was selected to analyse the data. *Microsoft Excel 2000*® and *Microsoft Word 2000*® were used along with the SAS system to process the basic analysis.

The measurements will be explained in section 3.3.

3.3 MEASUREMENTS

The following criteria were selected to obtain the specific objectives set out in this study:

3.3.1 The prevalence of the different therapeutic classes of the top twenty pharmaceutical products

Prevalence can be defined as the "number of cases of disease, infected persons, or persons with some attribute, present at a particular time and in relation to the size of the population from which it was drawn" (Pam Pohly's Net Guide, 2006).

Prevalence was used in the data analysis as follows:

- To describe the prevalence of the pharmacological classes divided into three categories, "main pharmcode" which indicates the main pharmacological group, "sub pharmcode" which represents the sub-divisions of the main pharmacological groups and "pharmcode" which indicates the specified pharmacological groups of the drugs, thus giving an estimation to the possible use of these drugs.

- To describe the prevalence of each individual top twenty pharmaceutical product according to active ingredient and trade name over the two-year period on the PBM's database.

- To describe the prevalence of the top twenty pharmaceutical products according to sex, age, prescriber type as well as provider type on the PBM's database.

3.3.2 The costs associated with the top twenty pharmaceutical products

The top twenty pharmaceutical products will be analysed according to their relevant total costs in this study. The following costs will be used: the total costs, the average costs, and also a cost prevalence index (CPI; refer to paragraph 3.5.3). The total cost of each prescription can also be divided into the following costs: total prescription amount (a+b), total scheme amount (a) and total patient levy (b). These different costs will be used to determine the following:

- The total costs of each pharmaceutical product will be used to calculate the top twenty pharmaceutical products divided into the categories 'active ingredient' and 'trade name', according to their expenditures.

- The total cost of the individual top twenty pharmaceutical products on the database according to age, sex, prescriber and provider.

- The total cost of the different therapeutic classes.

- The total cost associated with the various medicine types.
- The average cost per prescription as well as the average cost per product per prescription for the following categories, age, sex, prescriber type and provider type.

3.3.3 Age

The PBM's data were divided into five different age groups, namely children, adolescents, young adults, older adults and the elderly. The division of the age groups into their various categories is illustrated in table 3.1.

Table 3.1: Categories of age groups

Age group	Years	Explanation
1	0-9 years	Children ≤9 years of age.
2	10-19 years	Teenagers 9< and ≤19 years of age.
3	20-45 years	Adults 19< and ≤45 years of age.
4	46-60 years	Adults 45< and ≤59 years of age.
5	60+ years	Elderly people 59< years of age.

3.3.4 Sex

For the purpose of the analysis of the top twenty pharmaceutical products only two sex groups were used. The two sex groups that were used in the individual data were as follows:

- Sex group F : Female
- Sex group M : Male

For the purpose of the total database analysis a third sex group was being used, *i.e.* were sex group U. This group included all the patients whose sex was unknown to the PBM. This can be the result of the medical scheme not supplying the sex of the patient to the PBM.

3.3.5 Provider type

The PBM's data provided information regarding the providers of the pharmaceutical products (*i.e.* site and person dispensing the product) which made it possible to divide the providers into

three groups. The provider type groups were divided into the following categories to simplify the analysis process:

General medical practitioners: This group includes all the medical providers that are registered with the Health professions Council of South Africa (HPCSA) as general medical practitioners.

- Pharmacies: This group includes all the pharmacies that are registered with the South African Pharmacy Council. Whether the person dispensing was an assistant, intern or pharmacist, was not a determining factor.

- Other: This group includes all of the following providers:

    - Cardiology, dermatology, diagnostic radiology, gastroenterology, general dental practice, group practices, homeopaths, maxillor-facial & oral surgery, neurology, obstetrics & gynaecology, oncology, opthalmology, orthopeadics, otorhinolaryngolgy, peadiatrics, urology, surgery/pediatric surgery, radiothology/nucleur medicine/oncology, psychiatry, private hospital (B tarif), physician / immunologist / rheumatologist / nephrologist /endocrinologists.

3.3.6 Prescriber type

The PBM's data were also divided according to prescriber type (*i.e.* person writing the prescription). The prescribers were divided into the four following categories:

- General medical practitioners: This group includes all the medical providers that are registered with the South African Medical Board as a general medical practitioner.

- Pharmacotherapists: This group consists of all the pharmacotherapists that are registered with the South African Pharmacy Council as a qualified pharmacist with an additional qualification permitting him/her to provide primary health services.

- Pharmacies: This group includes all the pharmacies' qualified personnel that are registered with the South African Pharmacy Council. Pharmacies as prescribers include all the registered pharmacists, pharmacist assistants and pharmacist interns excluding pharmacotherapists.

- Other: This group includes all of the following prescribers:

    - Anaesthesiology, approved day clinics, cardiology, cardiology peadiatrics

clinical haemotology, community dentistry, community health, dermatology, diagnostic radiology, gastroenterology, general dental practice, group practices, group practices/hospitals, homeopaths, maxillor-facial & oral surgery, neurology, neurosurgery, nuclear medicine, obstetrics & gynecology, oncology, ophthalmology, oral pathology, orthodontics, orthopedics, otorhinolaryngolgy, pediatrics, Pathology, periodontics, urology, surgery/pediatric surgery, radiothology/nuclear medicine/oncology, psychiatry, private hospital (A tariff), private hospital (B tariff), physicians/immunologist/rheumatologist/nephrologist/endocrinologists, physical medicine, plastic & reconstructive surgery, prosthodontics, provincial hospital, pulmonology, radiography, rheumatology, thoracic surgery, operating theatre /day.

3.3.7 Pharmacological groups

The PBM's data were also divided according to pharmacological groups. The reason for this division of the data was to simplify the process of calculating the top pharmacological groups according to expenditure and frequency. The following categories were used:

- "Main pharmcode": Classification according to main pharmacological group.
- "Sub pharmcode": Classification according to pharmacological/therapeutic sub group.
- "Pharmcode": Classification according to chemical/therapeutic sub group.

The complete list of the description of each of the pharmacological groups is illustrated in appendix C.1.4.

3.4 RESEARCH DESIGN/METHOD

The data were obtained from a South African PBM's medicine claims database and all the data were collected after the medicine had been issued to the various patients. The study could therefore be defined as a retrospective utilisation study with quantitive aspects (refer to paragraph 2.5.2).

Research and evaluation were conducted on the total cost and usage of the top twenty pharmaceutical products as well as the top twenty therapeutic groups. Research and evaluation were also conducted on the total database and in particular to calculate the following:

- Average number of items per prescription.

- Average number of prescription per patient per year.
- Average cost per prescription.
- Average cost per item per prescription.
- Average cost of medicine types.

The application of the various managed health care instruments and information systems in this study (i.e. DUR, evidence-based medicine, prescribed minimum benefits, and related concepts) is depicted in table 3.2.

Table 3.2: Aspects of DUR, pharmacoeconomics, evidence-based medicine, prescribed minim benefits, and related concepts applied in the study

Aspects:	Indication:	Description and reference:
DUR - concept	♦	Only identifies the concept of DUR, refer to paragraph 2.5
Objectives of DUR	♦	Identifies the various objectives of DUR, refer to paragraph 2.5.1
DUR in South Africa	♦	Refer to paragraph 2.5.6
Types of DUR studies		
Retrospective DUR	♦+	The data were obtained after the medicine claims had been made, refer to paragraph 2.5.2.1.
Concurrent DUR	♦-	Refer to paragraph 2.5.2.2
Prospective DUR	♦-	Refer to paragraph 2.5.2.3
Quantitative DUR	+	The cost and amounts of medicine products were used and analysed.
Qualitative DUR	-	
Drug classification systems		
The ATC classification system	♦+	Refer to paragraph 2.5.4.1, used in the analysis of data
MIMS classification	♦+	Used to identify the various medicine products, refer to paragraph 3.2.1.2.
NAPPI code	♦+	This pricing coding system was used in the analysis of the data, refer to paragraph 3.2.1.1.

Table 3.2: Aspects of DUR, pharmacoeconomics, evidence-based medicine, prescribed minim benefits, and related concepts applied in the study (continue)

Aspects:	Indication:	Description and reference:
Drug utilisation metrics and their applications		
Defined daily dose (DDD)	♦ -	Refer to paragraph 2.5.5.1
Prescribed daily dose/Consumed daily dose (PDD)	♦ -	Refer to paragraph 2.5.5.2
Volume	♦ +	Refer to paragraph 2.5.5.3, the volume of the medicine items was used in the analysis of the data.
Pharmacoeconomics		
Cost-minimisation analysis	♦ +	The potential cost saving of generic substitution has been calculated in paragraph 4.3.3.2.1 and 4.3.2.5.2. Refer to paragraph 2.4.1.1.1,
Cost-benefit analysis	♦	Refer to paragraph 2.4.1.1.2
Cost-effectiveness analysis	♦	Refer to paragraph 2.4.1.1.3
Cost-utility analysis	♦	Refer to paragraph 2.4.1.1.4
Cost-of-illness analysis	♦	Refer to paragraph 2.4.1.1.5
Application of pharmacoeconomics	♦	Refer to paragraph 2.4.1.2
Evidence based medicine		
Concept of evidence-based medicine	♦	Refer to paragraph 2.6.1
Steps in evidence-based medicine	♦	Refer to paragraph 2.6.2
Evidence-based medicine in South Africa	♦	Refer to paragraph 2.6.4
Prescribed minimum benefits		
Concept and objective of PBM	♦	Refer to paragraph 2.3.1
The future of PMB in South Africa	♦	Refer to paragraph 2.3.2
The impact of PMB	♦ +	Refer to paragraphs 4.3.2.5.2, 4.3.2.1 and 4.3.4.2.1
Management instruments		
The concept and definition of disease management	♦	Refer to paragraph 2.2.1

Table 3.2: Aspects of DUR, pharmacoeconomics, evidence-based medicine, prescribed minim benefits, and related concepts applied in the study (continue)

Aspects:	Indication:	Description and reference:
Disease management programme and interventions	♦	Refer to paragraphs 2.2.1.2 and 2.2.1.3
Strategic approaches to disease management	♦	Refer to paragraphs 2.2.1.4
Conclusion and application of disease management	♦	Refer to paragraphs 2.2.1.5
Concepts of risk management	♦	Refer to paragraphs 2.2.2
Risk management tools	♦	Refer to paragraphs 2.2.2.1
Conclusion and application of risk management	♦	Refer to paragraphs 2.2.2.3
Concepts of case management	♦	Refer to paragraphs 2.2.3
Case management tools	♦	Refer to paragraphs 2.2.3.1
The case management process	♦	Refer to paragraphs 2.2.3.2
Conclusion and application of case management	♦	Refer to paragraphs 2.2.3.3
Concepts of outcomes management	♦	Refer to paragraphs 2.2.4.1
The different categories of outcomes measurements	♦	Refer to paragraphs 2.2.4.2
Outcomes management in South Africa	♦	Refer to paragraphs 2.2.4.3

+ = This aspect was discussed in the results chapter.

- = This aspect was not discussed in the results chapter.

♦ = This aspect was reviewed in the literature.

3.5 STATISTICAL ANALYSIS

For the purposes of this study, the following descriptive statistical methods and statistical calculations were applied to analyse the data:

3.5.1 Arithmetic mean (AM)

The arithmetic mean can be defined as the average of all the numbers. The value of the arithmetic mean is always between the least and the greatest of the numbers (Steyn *et al.*, 2004:99).

If $a_1, a_2, \ldots\ldots, a_n$ are real numbers, their arithmetic mean is defined as (Steyn *et al.*, 2004:99):

$$A.M = \frac{a_1 + a_2 + \ldots\ldots + a_n}{n}$$

Where:

a_1 = *the first number / observation*

a_2= *the second number / observation*

a_n= *the last number / observation*

n= the total amount of different numbers / observation

The arithmetic mean can mathematically be expressed as (Steyn *et al.*, 2004:99):

$$\bar{x} = \frac{\sum x}{n}$$

Where:

x = the values of the variable

$\sum$ = *the sum of*

n = the number of observations

For the purposes of the analysis of the data the mathematical arithmetic mean was used to determine the following:

- Average number of prescriptions per patient per year.
- Average number of medicine items per prescription.
- Average total cost according to the types of medicine.

- Average total cost per prescription.
- Average cost of all medicine items.
- Average cost per item.

3.5.2 Standard deviation (SD)

Brase and Brase (1999:103) describe the standard deviation as a "measurement that indicates how the data entries differ from the mean".

Given the random variable X, the standard deviation of X is defined as (Steyn *et al.*, 2004:130):

$$SD[X] = \sqrt{Var[X]}$$

Where:

SD = standard deviation

X = random variable (PlanetMath,2007:1)

The standard deviation can mathematically be expressed as (Steyn *et al.*, 2004:131):

$$s = \sqrt{\sum (x - \bar{x})2 / n = 1}$$

Where:

n = *the number of observations*

s = *the standard deviation*

$\bar{x}$ = *the arithmetic mean*

x = *any value in the data set*

For the purpose of the study the mathematical standard deviation was used to determine the following:

- The standard deviation of the number of prescriptions per patient per year.
- The standard deviation of the number of medicine items per prescription.

- The standard deviation of the total cost according to the types of medicine.
- The standard deviation of the total cost per prescription.
- The standard deviation of the cost of all medicine items.

3.5.3 Cost Prevalence Index (CPI)

According to Serfontein (2008), the cost prevalence index is an indicator of the relative expensiveness of the top twenty trade name products. According to Serfontein (1989:180) the index numbers are fundamental in the analysis of drug utilisation patterns. The relation between the total number of medicine items prescribed and the total medicine expenditure can be illustrated as the cost prevalence index.

$$\text{Cost Prevalence Index} = \frac{\text{Cost (\%)}}{\text{Prevalence (\%)}}$$

For study purposes the cost prevalence index can be interpreted as follows:

- If cost index <1 the drug utilised is relatively inexpensive.
- If cost index = 1 there is an equilibrium between the cost and prevalence of the product.
- If cost index > 1 the product utilised is relatively expensive.

The cost prevalence index was used to determine which of the pharmaceutical products in the "top five" are expensive and which of the pharmaceutical products can be described as relatively inexpensive products.

Indication of products as cost drivers:

- High cost, low prevalence – activity driver.
- Low cost, high prevalence – resource driver (refer to paragraph 2.9)

3.5.4 Effect sizes / *d*-values

According to Thalheimer and Cook (2000) an effect size is the difference between two means (e.g., treatment minus control) divided by the standard deviation of the two conditions. It is the division by the standard deviation that enables us to compare the effect sizes across experiments.

The effect size (*d*) was calculated as follows:

$$d = \frac{\overline{x_t} - \overline{x_c}}{s_{max}}$$

Where:

d = *the effect size*

$\overline{x}$ = *mean*

s = *standard deviation*

Subscripts "t" refers to the treatment condition and "c" refers to the comparison condition or control condition.

The effect sizes were used to compare two or more treatments for the same condition, whether it was to compare a generic product with its branded equivalent or two therapeutic similar treatments.

The d-value can be interpreted as follows:

- d = 0.2 – small effect, with no practical significance.
- d = 0.5 – medium effect, observable and may have practical significance.
- d = 0.8 – large effect, which is significant with practical importance.
- d > 0.8 – assumed to have practical significance.

3.5.5 Potential cost savings

According to Van der Westhuizen *et al.* (2008) a formula was designed to calculate the maximum potential cost saving if an innovator generic is substituted for an generic equivalent.

The potential cost savings were calculated as follows:

$$\text{Cost saving} = \text{Total cost}_I - [\text{Average cost}_G \times n_I]$$

Where:

Total cost$_I$ = the total cost of the innovator product

Average cost$_G$ = the average cost per item of the generic equivalent

n_I = the frequency of the innovator product

The potential cost saving formula was used to calculate the potential cost savings in certain scenarios, *e.g.* therapeutic substitution.

3.6 RELIABILITY AND VALIDITY OF THE RESEARCH INSTRUMENTS

The data were obtained directly from the medicine claims database and there was no forthright manipulation of the data done by the researcher. Research was conducted from the perspective that all data obtained from the medicine claims database were reliable and valid. The database was, however, verified by testing for outliers as well as performing random data checks.

Only one PBM's data were used in the study therefore no cost or prevalence comparisons could be made. Only direct cost of medicine was used throughout the study. External validity is limited, implying that the results can only be generalised to the specific database and study population used (refer to limitations, paragraph 5.3).

3.7 ETHICAL CONSIDERATIONS

Each prescription record contained an 11-digit reference number to link each patient, medical practice, pharmacy or medical scheme to line items. This number is a time stamp of when the transaction was adjudicated. The patient was allocated a random, "dummy" member number by the PBM thus ensuring confidentiality.

Permission to conduct the study was granted by the PBM's board of directors as well as by the NWU Ethical Committee. The ethical permission was granted by the NWU for the study "Investigation of medicine usage patterns in a section of the private health care sector utilising data from a Pharmaceutical Benefit Management (PBM) in South Africa" and the ethical committee awarded the study with the following permission number: NWU-0046-08-S5.

3.8 RESULTS AND DISCUSSION

The results and discussion of this study will be documented in chapter 4. Certain relevant data will be provided in the Appendices.

3.9 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations pertaining to this study will be discussed in chapter 5.

3.10 CHAPTER SUMMARY

This chapter focused on the objectives of the empirical investigation, the study population and the data source and the measurements that included the following; total cost, age, sex, provider, prescriber and the pharmacological groups. The chapter also included the research method and design and described the following statistical analyse; arithmetical mean, standard deviation, cost prevalence index and effect sizes. The reliability and validity of the research instruments as well as the ethical considerations were also discussed in this chapter.

CHAPTER 4:
Results and discussions

Chapter 4 portrays the presentation of the data analysis as well as the results obtained from the empirical investigation. The general analysis of the data is discussed in this chapter. Summarised tables are used throughout the results and discussions to depict the two study periods' data.

4.1 INTRODUCTION

In this chapter the results obtained from the empirical investigation through the analysis of a South African pharmaceutical benefit management company's (PBM) data for the periods 1 January 2005 to 31 December 2006 will be discussed.

4.1.1 Annotations concerning the analysis of the data

- Data in each year were analysed according to three study periods (01 January – 30 April), (01 May – 30 August) and (01 September – 31 December). The purpose of the division of the years into quarterly periods was to simplify the analysis process and to assist in identifying variations in the prescribing patterns.
- For the purpose of this study a "trade name product" refers to a medicine item or a registered medicine product that is used to treat an illness or condition.
- The top twenty active ingredients and pharmacological groups were identified according to cost and prevalence.
- The top twenty trade name products were identified for each of the following on the database: age, sex, prescriber and provider according to cost and prevalence.
- The top five cost driving products were discussed, according to resource and activity drivers, as well as the top five most prevalent products.
- The pharmacological groups were divided into three categories namely, main pharmacological group, pharmacological/therapeutic sub-group and chemical/therapeutic sub-group (refer to 3.3.7).
- Trade names of the trade name products were used throughout the top twenty-analysis, except in the few tables where active ingredients was investigated (i.e. table 4.1, table 4.2, table B.1, table B.2, table B.3, table B.4 and table B.5).
- Total cost refers to the total monetary value that was spent on the trade name product.

- The top twenty data tables of each individual variable are given in appendix B. For discussion purposes; only summarised tables will be given in this chapter. These summarised tables contain only the top five trade name products.
- Frequency and prevalence were used interchangeably; and refers to the number of times that a trade name product was dispensed.
- The medicine cost does not include expenses such as injections, latex gloves and other medicine instruments.
- Amounts in the data have been rounded off to the nearest two decimal places; therefore the cumulative sum will not always add up to 100 per cent.
- The cost on the total database has been divided into three amounts, "final prescription cost", "final scheme amount" and "final levy". The final prescription cost represents the total cost of the prescription. The final scheme amount illustrates the total amount reimbursed by the medical scheme and the final levy represents the amount which the patient co-paid for the prescription.
- Ages were categorised according to five age groups and the numbers 1 to 5 were assigned to the various groups to portray them in tables. The age groups are explained in chapter 3 (refer to paragraph 3.3.3).
- Sex were categorised into three groups; i.e. F (female), M (male) and U (unknown). Initials F; M and U were used to portray them in the tables. Sex groups were explained in chapter 3 (refer to paragraph 3.3.4).
- The term "type of medicine" refers to generic/innovator medicine.
- All the analyses were done according to total cost and not the average cost of the medicine product.
- Due to the extent of the use of trade name products and trade mark products, the ® and ™ are not shown throughout the study.
- Various acronyms were used throughout the study to portray the different dosage forms of the types of medicine; namely: aq (aqua's ~ liquids); cap (capsules); disp (dispersible tablets); eff (effervescent tablets); inj (injections); powd (powder); susp (suspension); syr (syrup) and tab (tablets).
- Various acronyms were used throughout the study to portray the different types of medicines; namely: M (original product with patent); N (original product with no generic); O (original product) and Y (generic).

4.1.2 Presentation of the data analysis

Figure 4.1 depicts the order in which the results of the study will be presented.

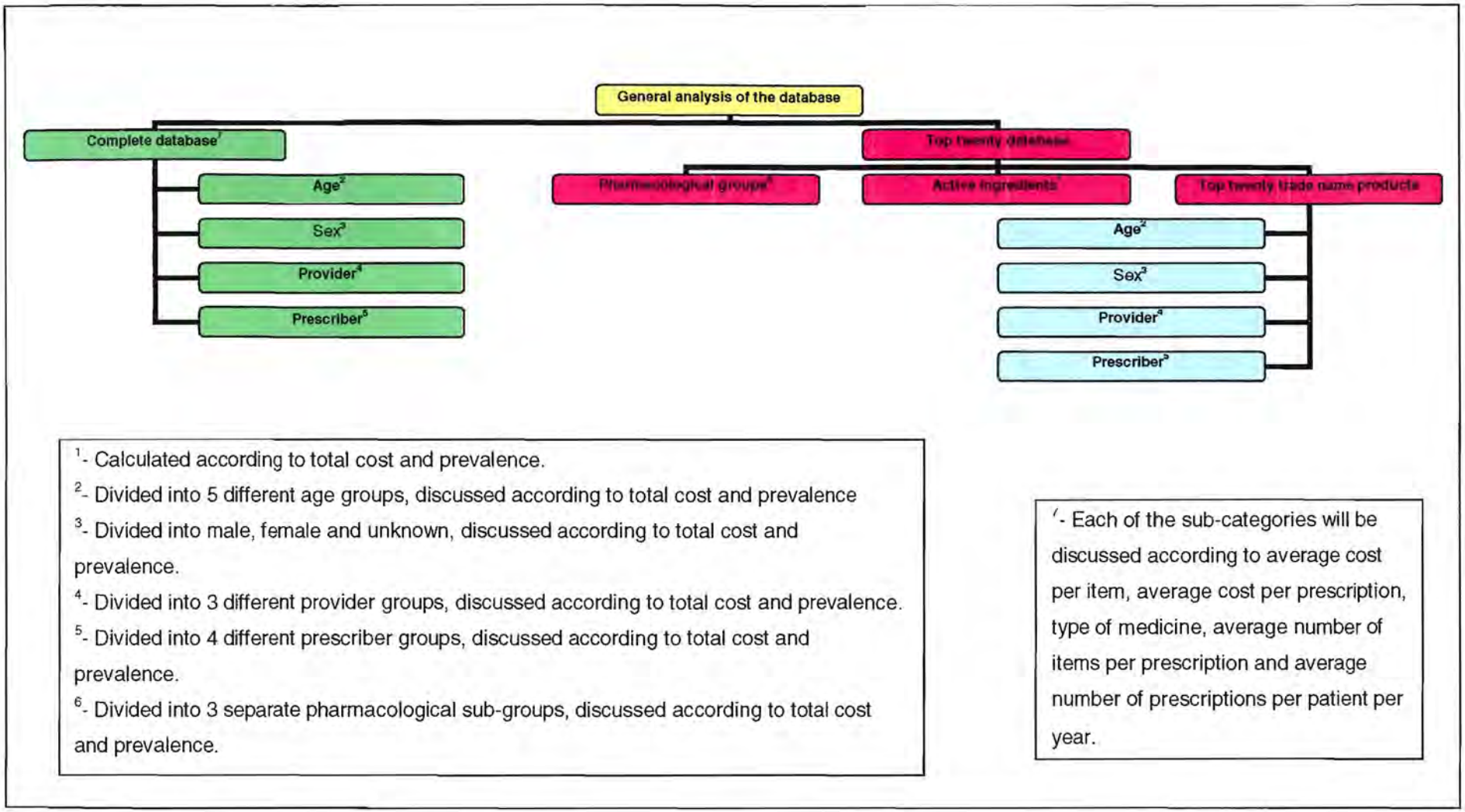

Figure 4.1: Flow diagram illustrating the analysis and presentation of the results

4.2 GENERAL ANALYSIS OF THE DATABASE

In this section, a general analysis of the complete database will be conducted. This overview will entail a brief discussion regarding the analysis according to demographic and geographic parameters.

The total cost in this section is divided into three variables namely: final prescription cost (a+b) which represents the total cost of the prescription, the final scheme amount (a) which represents the amount paid by the medical scheme and the final levy (b) which represents the amount that was payable by the patient.

4.2.1 General analysis of the complete database (all medicine items)

Table 4.1 is a summarised table, compiled from tables A.1, A.6, A.11 and A.16 in appendix A, reflecting the complete data of the complete database. Tables A.1, A.6, A.11, and A.16 (appendix A) refer to the complete data of both the study years and their individual periods.

Table 4.1: Analysis of the complete database (all claimed medicine items)

Average cost of all medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		19860679	Final prescription cost (a+b)	95.33 ± 192.21	1893376921
			Final scheme amount (a)	84.03 ± 185.15	1668952860
			Final levy (b)	11.30 ± 46.37	224424061
2006		21473074	Final prescription cost (a+b)	95.33 ± 227.99	2046944383
			Final scheme amount (a)	82.80 ± 221.90	1777954851
			Final levy (b)	12.53 ± 48.11	268989532
Average total cost per prescription					
2005		8522574	Final prescription cost (a+b)	222.16 ± 463.13	1893376921.00
			Final scheme amount (a)	195.83 ± 443.16	1668952860.00
			Final levy (b)	26.33 ± 102.70	224424061.00
2006		9046138	Final prescription cost (a+b)	226.28 ± 557.49	2046944383.00
			Final scheme amount (a)	196.54 ± 540.41	1777954851.00
			Final levy (b)	29.74 ± 103.96	268989532.00
Average cost according to type of medicines					
2005	M (Original with patent)	137965	Final prescription cost (a+b)	86.99 ± 86.82	12002167.01
			Final scheme amount (a)	78.43 ± 80.12	10820260.55
			Final levy (b)	8.57 ± 26.94	1181906.46
	N (Original with no generic)	8501370	Final prescription cost (a+b)	140.14 ± 267.20	1191350141
			Final scheme amount (a)	124.86 ± 258.87	1061482097
			Final levy (b)	15.28 ± 64.27	129868044
	O (Original)	2728603	Final prescription cost (a+b)	100.22 ± 139.34	273454160
			Final scheme amount (a)	81.76 ± 132.85	223097026
			Final levy (b)	18.46 ± 40.89	50357134.42
	Y (Generic)	8492741	Final prescription cost (a+b)	18.46 ± 40.89	416570452
			Final scheme amount (a)	49.05 ± 66.41	373553476
			Final levy (b)	5.07 ± 16.58	43016976
2006	M (Original with patent)	32866	Final prescription cost (a+b)	95.74 ± 38.57	3146633.19
			Final scheme amount (a)	82.53 ± 43.44	2712419.8
			Final levy (b)	13.21 ± 26.21	434213.39
	N (Original with no generic)	8133997	Final prescription cost (a+b)	145.55 ± 339.64	1183814105
			Final scheme amount (a)	128.10 ± 332.75	1041974386
			Final levy (b)	17.45 ± 68.46	141939719
	O (Original)	3281896	Final prescription cost (a+b)	102.98 ± 164.66	337960440
			Final scheme amount (a)	82.34 ± 157.41	270225948
			Final levy (b)	20.64 ± 46.76	67734492.61
	Y (Generic)	10024315	Final prescription cost (a+b)	52.07 ± 70.13	521923204
			Final scheme amount (a)	46.19 ± 67.17	463042097
			Final levy (b)	5.87 ± 18.74	58881106.83
Average number of medicine items per prescription					
		Frequency (N)		Average number of items per prescription	Total number of items
2005		8522574		2.33 ± 1.56	19860679
2006		9046138		2.37 ± 1.58	21473074
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		1218358		6.98 ± 7.83	8522574
2006		1259099		7.17 ± 8.05	9046138

A total number of 8 522 574 and 9 046 138 prescriptions were analysed during 2005 and 2006 respectively, with between 1 to 4 items per prescription in both the study periods.

According to table 4.1, the average cost per prescription for the total database was R222.16 ± R463.13 for 2005 and R226.25 ± R557.49 for 2006. Members had to co-pay an average of R26.33 ± R102.70 per prescription in 2005 compared to R29.74 ± R103.96 per prescription in 2006.

Original products with no available generic had the highest average final prescription cost as well as the highest final scheme amount. Generic products had an average final levy of R5.07 ± R16.58 and R5.87 ± R18.74 in 2005 and 2006 respectively. Original products with no generic equivalents furthermore represented R1 191 350 141 (62.92%), the largest contributor to medicine expenditure on the database, with generic products as the second largest contributor to medicine expenditure during 2005 with R416 570 452 (22.00%). Similar results were found in the analysis of the data of 2006. In 2005, original products had an average cost per item of R100.22 ± R139.34 compared to the average cost per item of R18.46 ± R40.89 of the generic products. The *d*-value was 0.59, and therefore had a medium practical significance.

Table 4.1 also shows that patients on the database received between 1 to 15 prescriptions per year during both the study periods. In 2005, 1 218 358 patients were analysed receiving 8 522 574 prescriptions, in 2006, the number of patients increased with 3.34%, and the number of prescription increased with 6.14%.

4.2.2. Analysis according to demographic parameters

The demographic parameters that will be discussed in this section, were age and sex. Age and sex were divided into different sub-categories (refer to paragraphs 3.3.3 and 3.3.4).

4.2.2.1 Analysis according to age

The various age categories were divided into five groups (refer to paragraph 3.3.3). Each of the age groups will be discussed individually in the subsequent paragraphs.

4.2.2.1.1 Analysis of age group one (≥ 9 years)

Age group one represents the patients 9 years and younger on the database. Table 4.2 is a summarised table compiled from tables A.2, A.7, A.12, and A.17 (appendix A). Tables A.2, A.7,

A.12, and A.17 (in appendix A) shows the complete data of the two study years and their individual periods.

According to table 4.2, 1 600 919 and 1 668 287 medicine items were claimed through the database for children aged nine years and younger at a total cost of R89 329 200.60 (4.72%) for 2005 and R92 540 896.32 (4.52%) for 2006. The average cost per item was R55.80 ± R72.66 in 2005 and R55.47 ± R90.50 in 2006. The total costs co-payable by members were R5.21 ± R23.37 and R6.74 ± R29.08 in 2005 and 2006 respectively.

A total number of 642 913 (7.54%) and 660 717 (7.30%) prescriptions were claimed through the database with an average final scheme amount of R125.00 ± R140.83 and R123.04 ± R172.18 for 2005 and 2006 respectively.

Table 4.2 also shows that children 9 years and younger; mostly received between 1 and 4 items per prescription and between 1 to 8 prescriptions per year for both the study periods.

Children received mostly generic products, a number of 694 078 (43%) and 763 745 (46.14%) products in 2005 and 2006 respectively with original products representing the second highest usage. In 2006, only 44 original patented products were used by children under the age of 9 with an average final prescription cost of R72.03 ± R62.42. The original patented products had a significantly lower final prescription cost in 2005 than in 2006, the *d*-values for original patented products difference in final prescription cost over the two years were 0.43, which indicates a small to medium effect, and may have practical significance.

Table 4.2: Analysis of age group 1 (≤ 9 years)

Average cost of all medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		1600919	Final prescription cost (a+b)	55.80 ± 72.66	89329200.60
			Final scheme amount (a)	50.59 ± 68.29	80988565.67
			Final levy (b)	5.21 ± 23.37	8340634.93
2006		1668287	Final prescription cost (a+b)	55.47 ± 90.50	92540896.32
			Final scheme amount (a)	48.78 ± 84.87	81292908.03
			Final levy (b)	6.74 ± 29.08	11247988.29
Average total cost per prescription					
2005		642913	Final prescription cost (a+b)	138.94 ± 149.17	26082529.32
			Final scheme amount (a)	125 ± 140.83	80988565.67
			Final levy (b)	12.97 ± 45.54	8340634.93
2006		660717	Final prescription cost (a+b)	140 ± 183.25	92540896.32
			Final scheme amount (a)	123.04 ± 172.18	81292908.03
			Final levy (b)	17.02 ± 58.54	11247988.29
Average cost according to the types of medicines					
2005	M (Original with patent)	16568	Final prescription cost (a+b)	44.97 ± 14.11	745045.63
			Final scheme amount (a)	42.08 ± 14.66	697170.52
			Final levy (b)	2.89 ± 7.48	47875.11
	N (Original with no generic)	655307	Final prescription cost (a+b)	75.56 ± 92.02	49515773.91
			Final scheme amount (a)	69.70 ± 86.35	45671828.9
			Final levy (b)	5.87 ± 31.39	3843945.01
	O (Original)	234966	Final prescription cost (a+b)	81.33 ± 71.62	19109497.73
			Final scheme amount (a)	69.11 ± 69.60	16237432.93
			Final levy (b)	12.22 ± 25.92	2872062.8
	Y (Generic)	694078	Final prescription cost (a+b)	28.76 ± 33.44	19958883.33
			Final scheme amount (a)	26.48 ± 32.07	18382131.32
			Final levy (b)	2.27 ± 8.67	1576752.01
2006	M (Original with patent)	44	Final prescription cost (a+b)	72.03 ± 62.42	3169.37
			Final scheme amount (a)	57.58 ± 60.53	2533.48
			Final levy (b)	14.45 ± 37.90	653.89
	N (Original with no generic)	632705	Final prescription cost (a+b)	78.11 ± 129.49	49420214.9
			Final scheme amount (a)	70.23 ± 122.21	44436527.52
			Final levy (b)	7.88 ± 41.12	4983687.38
	O (Original)	271793	Final prescription cost (a+b)	72.33 ± 65.40	19658481.98
			Final scheme amount (a)	57.25 ± 59.69	15560872.82
			Final levy (b)	15.08 ± 29.14	4097609.16
	Y (Generic)	763745	Final prescription cost (a+b)	30.72 ± 36.60	23459030.07
			Final scheme amount (a)	27.88 ± 35.35	21292974.21
			Final levy (b)	2.84 ± 10.49	2166055.86
Average number of medicine items per prescription					
		Frequency (N)		Average number of items per prescription	Total number of items
2005		642913		2.49 ± 1.35	1600919
2006		660717		2.52 ± 1.38	1668287
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		158450		4.06 ± 3.93	642913
2006		155133		4.26 ± 4.07	660717

In the following section the analysis of the adolescent group will be discussed.

4.2.2.1.2 Analysis of age group two (< 9 and ≥ 19 years)

Age group two represented the adolescents aged older than 9 years to 19 years on the database. Table 4.3 is a summarised table compiled from tables A.2, A.7, A.12, and A.17 (in appendix A). Tables A.2, A.7, A.12, and A.17 (in appendix A) show the complete data of the two study years and their individual periods.

According to table 4.3, a total number of 1 390 573 (7.00%) and 1 499 217 (6.98%) items were claimed through the database, at an average final prescription cost of R70.09 ± R113.40 and R69.48 ± R124.47 in 2005 and 2006 respectively. The total final cost paid by the scheme was R87 298 285.78 (4.61%) and R91 567 788.63 (4.47%) and the cumulated levies that were payable by patients amounted to R10 172 107.74 (4.53%) and R12 591 044.04 (4.68%) in 2005 and 2006 respectively.

Although original products with no generic equivalents were the biggest contributor to cost in this age group in 2005 with R55 147 447.65 (56.58%) and R55 913 320.95 (53.68%) in 2006, generic products had the highest prevalence during 2005 as well as 2006. Generic products represented as the lowest-priced with an average final prescription cost of R38.63 ± R52.79, average final scheme amount of R34.68 ± R49.66 and an average levy amount of R3.95 ± R16.04.

Adolescents received between 1 and 4 items per prescription and each patient received between 1 to 7 prescriptions per year in both the study periods.

Table 4.3: Analysis of age group 2 (< 9 and ≥ 19 years)

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		1390573	Final prescription cost [a+b]	70.09± 113.40	97470392.52
			Final scheme amount [a]	62.78 ± 107.71	87298285.78
			Final levy [b]	7.32 ± 29.58	10172107.74
2006		1499217	Final prescription cost [a+b]	69.48 ± 124.47	104158833.00
			Final scheme amount [a]	61.08 ± 118.90	91567788.63
			Final levy [b]	8.40 ± 32.58	12591044.04
Average cost per prescription					
2005		600163	Final prescription cost [a+b]	132.41 ± 223.06	97470392.52
			Final scheme amount [a]	145.46 ± 212.63	87298284.78
			Final levy [b]	16.95 ± 55.05	10172107.74
2006		633395	Final prescription cost [a+b]	164.45 ± 252.81	104158833.00
			Final scheme amount [a]	144.57 ± 244.02	91567788.63
			Final levy [b]	19.88 ± 60.53	12591044.04
Average cost according to type of medicine					
2005	M (Original with patent)	13740	Final prescription cost [a+b]	57.47 ± 36.35	789590.2
			Final scheme amount [a]	52.99 ± 35.99	728202.83
			Final levy [b]	4.47 ± 13.47	61387.37
	N (Original with no generic)	536056	Final prescription cost [a+b]	102.88 ± 153.01	55147447.65
			Final scheme amount [a]	94.55 ± 147.39	50681997.36
			Final levy [b]	8.33 ± 37.62	4465450.29
	O (Original)	192224	Final prescription cost [a+b]	89.78 ± 104.83	17258794.27
			Final scheme amount [a]	73.07 ± 95.62	14045498.59
			Final levy [b]	16.72 ± 38.24	3213295.68
	Y (Generic)	648553	Final prescription cost [a+b]	37.43 ± 53.50	24274560.4
			Final scheme amount [a]	33.68 ± 49.70	21842586
			Final levy [b]	3.75 ± 15.12	2431974.4
2006	M (Original with patent)	1051	Final prescription cost [a+b]	73.22 ± 25.98	76958.83
			Final scheme amount [a]	60.06 ± 35.92	63125.79
			Final levy [b]	13.16 ± 29.44	13833.04
	N (Original with no generic)	529141	Final prescription cost [a+b]	105.67 ± 182.78	55913320.95
			Final scheme amount [a]	95.46 ±177.71	50509993.52
			Final levy [b]	10.21 ± 42.38	5403327.43
	O (Original)	218700	Final prescription cost [a+b]	87.76 ± 95.08	19187178.08
			Final scheme amount [a]	68.48 ± 82.02	14976892.88
			Final levy [b]	19.5 ± 43.02	4210282.2
	Y (Generic)	750325	Final prescription cost [a+b]	38.63 ± 52.79	28981374.81
			Final scheme amount [a]	34.68 ± 49.66	26017776.44
			Final levy [b]	3.95 ± 16.04	2963598.37
Average number of medicine items per prescription					
		Frequency (N)		Average number of items per prescription	Total number of items
2005		600163		2.32 ± 1.32	1390573
2006		633395		2.37 ± 1.35	1499217
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		177330		3.38 ± 3.44	600163
2006		177978		3.56 ± 3.61	633395

In the following section the analysis of age group 3 will be discussed.

4.2.2.1.3 Analysis of age group three (< 19 and ≥ 45 years)

The following section will include a brief overview of the analysis of age group three, which represented the patients aged 20 to 45 years (*i.e.* economically active patients).

Table 4.4 is a summarised table compiled from tables A.2, A.7, A.12, and A.17 (in appendix A). Tables A.2, A.7, A.12, and A.17 (in appendix A) show the complete data of the two study years and their individual periods.

According to table 4.4, patients aged older than 19 to 45 years of age had a medicine expenditure of R478 014 067 (25.25%) and R506 572 855 (24.75%) in 2005 and 2006 respectively. The average cost per item was R80.56 ± R165.53 in 2005 and R79.44 ± R184.54 for 2006.

In 2005, a total of 2 666 906 (31.29%) prescriptions were claimed through the database at an average cost of R179.24 ± R366.08 per prescription and an average total levy cost of R17.54 ± R76.88 per prescription. In 2006, the total number of prescriptions increased but the average cost per prescriptions remained the same.

Table 4.4 also shows that 820 742 (13.83%) and 902 605(14.15%) original products were claimed through the database, at an average cost of R86.13 ± R129.64 and R89.97 ± R156.72 per item in 2005 and 2006 respectively. Only 63 251 (1.07%) and 13 332 (0.21%) original patented products were claimed through the database accounting for R40 716.42 (1.03%) and R972 547.26 (0.19%) of the medicine expenditure in 2005 and 2006 respectively.

A prescription contained between 1 to 4 items during both study periods, of which each patients received between 1 to 12 prescriptions during 2005 and 1 to 13 prescriptions during 2006.

Table 4.4: Analysis of age group 3 (< 19 and ≥ 45 years)

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		5933729	Final prescription cost [a+b]	80.56 ± 166.58	478014067.00
			Final scheme amount [a]	72.67 ± 160.31	431224951.00
			Final levy [b]	7.89 ± 40.68	46789116.09
2006		6377057	Final prescription cost [a+b]	79.44 ± 184.54	506572855
			Final scheme amount [a]	70.46 ± 178.22	449302785
			Final levy [b]	8.98 ± 44.00	57269969.62
Average cost per prescription					
2005		2666906	Final prescription cost [a+b]	179.24 ± 366.08	478014067
			Final scheme amount [a]	161.69 ± 353.51	431224951
			Final levy [b]	17.54 ± 76.88	46789116.09
2006		2817516	Final prescription cost [a+b]	179.79 ± 390.95	506572755.00
			Final scheme amount [a]	159.47 ± 377.59	449302785.00
			Final levy [b]	20.33 ± 83.30	57269969.62
Average cost according to type of medicine					
2005	M (Original with patent)	63251	Final prescription cost [a+b]	77.59 ± 67.19	4907916.42
			Final scheme amount [a]	71.59 ± 65.43	4524967.85
			Final levy [b]	6.05 ± 19.89	382948.57
	N (Original with no generic)	2426319	Final prescription cost [a+b]	120.40 ± 234.10	292126228
			Final scheme amount [a]	110.53 ± 226.29	268173192
			Final levy [b]	9.87 ± 56.65	23953036.17
	O (Original)	820742	Final prescription cost [a+b]	86.13 ± 129.64	70694191.4
			Final scheme amount [a]	70.69 ± 123.51	58021086.31
			Final levy [b]	15.44 ± 38.31	12673105.09
	Y (Generic)	2623417	Final prescription cost [a+b]	42.04 ± 60.94	110285731
			Final scheme amount [a]	38.31 ± 58.17	100505705
			Final levy [b]	3.73 ± 16.84	9780026.26
2006	M (Original with patent)	13332	Final prescription cost [a+b]	72.95 ± 27.85	972547.26
			Final scheme amount [a]	61.32 ± 37.10	817545.19
			Final levy [b]	11.63 ± 27.08	155002.07
	N (Original with no generic)	2389910	Final prescription cost [a+b]	120.43 ± 271.05	287805426
			Final scheme amount [a]	108.76 ± 263.35	259918455
			Final levy [b]	11.67 ± 62.02	27886971.04
	O (Original)	902605	Final prescription cost [a+b]	89.97 ± 156.72	81204371.12
			Final scheme amount [a]	71.61 ± 148.10	64636794.72
			Final levy [b]	18.36 ± 49.13	16567576.4
	Y (Generic)	3071210	Final prescription cost [a+b]	44.47 ± 61.30	136590411
			Final scheme amount [a]	40.35 ± 59.04	123929991
			Final levy [b]	4.12 ± 16.13	12660420.11
Average number of medicine items per prescription					
		Frequency (N)		Average number of items per prescription	Total number of items
2005		2666906		2.22 ± 1.35	5933729
2006		2817516		2.26 ± 1.38	6377057
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		459843		5.79 ± 6.44	2666906
2006		476211		5.91 ± 6.66	2817516

4.2.2.1.4 Analysis of age group four (< 45 and ≥ 59 years)

In the subsequent paragraphs the analysis of the medicine cost and prevalence of the patients aged 46 to 59 years will be discussed.

Table 4.5 is a summarised table compiled from tables A.2, A.7, A.12, and A.17 (in appendix A). Tables A.2, A.7, A.12, and A.17 (in appendix A) show the complete data of the two study years and their individual periods.

Table 4.5 shows that the medicine expenditure of patients aged 46 to 59 years amounted to R497 543 992 (26.28%) and R549 795 116 (26.86%) for 2005 and 2006 respectively. A total number of 4 901 485 (24.68%) and 5 447 080 (25.37%) items were claimed through the database in 2005 and 2006 respectively.

In 2006, the average final cost per item was R100.93 ± R248.34, the final scheme cost per item was R88.72 ± R242.46 and the final levy amount per item was R12.21 ± R50.48.

According to table 4.5, patients aged 46 to 59 years received 2 065 552 (42.14%) and 2 521 205 (46.29%) generic products in 2005 and 2006 respectively. Generic products represented the highest percentage of prevalence in 2006, but had the lowest average final prescription cost, final scheme amount and final levy compared to all the other products. In both the study periods the original products had an average cost per item of more than double the average cost per item of the generic products. The *d*-values for the average cost per item of the original products and the generic products were about 0.3 in both the study periods, indicating a small impact with no practical significance. The original products with no generic equivalents were also more expensive than the original patented products in both the study periods.

A total number of 2 157 378 (10.86%) and 2 339 543 (10.90%) items were claimed during 2005 and 2006, with between 1 and 4 items per prescription, each patient receiving between 1 to 17 prescriptions per year in both the study periods.

Table 4.5: Analysis of age group 4 (< 45 and ≥ 59 years)

Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
Average cost of medicine items					
2005		4901485	Final prescription cost [a+b]	101.51 ± 208.21	497543992.00
			Final scheme amount [a]	90.28 ± 201.68	442500604.00
			Final levy [b]	11.23 ± 48.58	55043388.78
2006		5447080	Final prescription cost [a+b]	100.93 ± 248.34	549795116
			Final scheme amount [a]	88.72 ± 242.46	483275506
			Final levy [b]	12.21 ± 50.48	66519610.05
Average cost per prescription					
2005		2157378	Final prescription cost [a+b]	230.62 ± 489.75	49753992
			Final scheme amount [a]	205.11 ± 471.57	442500604
			Final levy [b]	25.51 ± 99.60	55043388.78
2006		2339543	Final prescription cost [a+b]	235.00 ± 630.71	549795116.00
			Final scheme amount [a]	206.57 ± 617.05	483275506.00
			Final levy [b]	28.43 ± 100.47	66519610.05
Average cost according to type of medicine					
2005	M (Original with patent)	26794	Final prescription cost [a+b]	101.43 ± 99.32	2717829.95
			Final scheme amount [a]	92.05 ± 93.26	2466339.31
			Final levy [b]	9.39 ± 28.38	251490.64
	N (Original with no generic)	215233	Final prescription cost [a+b]	150.56 ± 286.21	324646528
			Final scheme amount [a]	135.29 ± 278.57	29172096
			Final levy [b]	15.27 ± 67.10	32925532.51
	O (Original)	652906	Final prescription cost [a+b]	100.91 ± 152.58	65882493.05
			Final scheme amount [a]	83.12 ± 147.30	54266786.3
			Final levy [b]	17.79 ± 41.18	11615706.75
	Y (Generic)	2065552	Final prescription cost [a+b]	50.49 ± 68.95	104297141
			Final scheme amount [a]	45.53 ± 66.45	94046482.21
			Final levy [b]	4.96 ± 16.82	10250658.88
2006	M (Original with patent)	9261	Final prescription cost [a+b]	112.38 ± 39.09	1040766.53
			Final scheme amount [a]	98.77 ± 44.58	914702.64
			Final levy [b]	13.61 ± 28.10	126063.89
	N (Original with no generic)	2090611	Final prescription cost [a+b]	156.77 ± 368.83	327754218
			Final scheme amount [a]	139.56 ± 362.01	291768401
			Final levy [b]	17.21 ± 72.28	35985816.59
	O (Original)	826003	Final prescription cost [a+b]	104.46 ± 170.77	86284674.37
			Final scheme amount [a]	84.61 ± 164.35	69889847.15
			Final levy [b]	19.85 ± 47.03	16394827.22
	Y (Generic)	2521205	Final prescription cost [a+b]	53.43 ± 77.72	134715457
			Final scheme amount [a]	47.87 ± 75.27	120702554
			Final levy [b]	5.56 ± 19.01	14012902.35
Average number of medicine items per prescription					
		Frequency (N)		Average number of medicine items per prescription	Total number of items
2005		2157378		2.27 ± 1.52	4901485
2006		2339543		2.33 ± 1.55	5447080
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		253018		8.51 ± 8.52	2157378
2006		269586		8.66 ± 8.73	2339543

In the following section the analysis of the last age group will be discussed.

4.2.2.1.5 Analysis of age group five (older than 59 years)

Age group five represents the patients 60 years and older on the database. Table 4.6 is a summarised table compiled from tables A.2, A.7, A.12, and A.17 (in appendix A). Tables A.2, A.7, A.12, and A.17 (in appendix A) show the complete data of the two study years and their individual periods.

According to table 4.6, the total medicine expenditure for patients aged 60 years and older amounted to R731 018 016 and R793 875 296 and comprised 6 033 952 and 6 481 394 medicine items in 2005 and 2006 respectively, which means that the geriatric age group represented about 39% of the overall medicine expenditure and approximately 30% of all the medicine items claimed on the database in both the study periods.

In 2005, the average total prescription cost per item was R121.15 ± R230.83, the final scheme amount per item was R103.90 ± R222.83 and the average final levy payable per item by the patient was R17.25 ± R55.92. During 2006, the average final prescription amount was R305.76 ± R723.08, the average cost the medical scheme paid was R259.02 ± R700.07 and the average final levy cost per prescription was R46.74 ± R137.15. The average cost per prescription from 2005 to 2006 showed an increase of 152.38%, but the *d*-value which was 0.26, indicated that the increase in cost had no practical significance.

Table 4.6 furthermore shows that in 2005, original products with no generic equivalents were the largest contributor to prevalence as well as cost, representing 64.28% of the overall medicine expenditure on the database and 45.20% of the overall medicine prevalence for this age group on the database. The generic products as well as the original products showed an increase in cost from 2005 to 2006, but the *d*-value of 0.01 for the price difference of the original products and the *d*-value of 0.04 for the price difference related to the generic products showed that the price increase had no practical impact.

For both study periods the total number of prescriptions claimed for this age group on the database represented about 12% of all the prescriptions claimed, containing 1 to 4 items per prescription.

The geriatric age group represented more than 16% of the total study population, each of these patients received 1 to 23 prescriptions per year in both the study periods.

Table 4.6: Analysis of age group 5 (< 59 years)

Average cost of medicine items					
Year	Generic Indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		6033952	Final prescription cost [a+b]	121.15 ± 230.83	731018016.00
			Final scheme amount [a]	103.90 ± 222.83	626939203.00
			Final levy [b]	17.25 ± 55.92	104078813.00
2006		6481394	Final prescription cost [a+b]	122.49 ± 282.13	793875296
			Final scheme amount [a]	103.76 ± 276.28	672514392
			Final levy [b]	18.72 ± 55.63	121360904
Average cost per prescription					
2005		2455291	Final prescription cost [a+b]	297.73 ± 599.80	731018016
			Final scheme amount [a]	255.34 ± 572.03	626939203
			Final levy [b]	42.39 ± 140.63	104078813
2006		2596377	Final prescription cost [a+b]	305.76 ± 723.08	793875296.00
			Final scheme amount [a]	259.02 ± 700.07	672514392.00
			Final levy [b]	46.74 ± 137.15	121360904.00
Average according to type of medicine					
2005	M (Original with patent)	17612	Final prescription cost [a+b]	161.36 ± 134.54	2841784.81
			Final scheme amount [a]	136.47 ± 122.04	2403580.04
			Final levy [b]	24.88 ± 50.13	438204.77
	N (Original with no generic)	2727440	Final prescription cost [a+b]	172.29 ± 315.68	469913228
			Final scheme amount [a]	148.58 ± 306.87	405233148
			Final levy [b]	23.71 ± 76.26	64680079.62
	O (Original)	827765	Final prescription cost [a+b]	121.42 ± 155.53	100509184
			Final scheme amount [a]	97.28 ± 148.43	80526219.91
			Final levy [b]	24.14 ± 46.22	19982964.1
	Y (Generic)	2461135	Final prescription cost [a+b]	64.10 ± 75.96	157753819
			Final scheme amount [a]	56.39 ± 73.22	138776255
			Final levy [b]	7.71 ± 18.25	18977564.64
2006	M (Original with patent)	9178	Final prescription cost [a+b]	114.75 ± 33.27	1053191.2
			Final scheme amount [a]	99.64 ± 36.63	914512.7
			Final levy [b]	15.11 ± 22.03	138678.5
	N (Original with no generic)	2491594	Final prescription cost [a+b]	185.83 ± 420.48	463019510
			Final scheme amount [a]	158.67 ± 414.74	39533597
			Final levy [b]	27.16 ± 79.10	67679913.49
	O (Original)	1062792	Final prescription cost [a+b]	123.85 ± 190.72	131625664
			Final scheme amount [a]	98.95 ± 184.43	105161482
			Final levy [b]	24.90 ± 48.51	26464182.04
	Y (Generic)	2917830	Final prescription cost [a+b]	67.92 ± 78.59	198176931
			Final scheme amount [a]	58.64 ± 75.23	171098801
			Final levy [b]	9.28 ± 22.55	27078130.14
Average number of medicine items per prescription					
		Frequency (N)		Average number of medicine items per prescription	Total number of items
2005		2455291		2.46 ± 1.87	6033952
2006		2596377		2.50 ± 1.88	6481394
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		198547		12.32 ± 10.47	2455291
2006		210030		12.31 ± 10.72	2596377

In the following section, a brief summary will be given of the age demographic parameter.

4.2.2.1.6 Summary of the demographic parameter: age

The summary will present a brief overview of sections 4.2.2.1.1 to 4.2.2.1.5.

Children under the age of nine accounted for approximately 13% of the total study population, and received about 8% of all the prescriptions claimed on the database, that represented about 4% of the overall medicine expenditure on the database for both the study periods. The average cost per item of products in 2005 amounted to R55.80 ± R72.66 compared to R55.47 ± R90.50 during 2006.

Adolescents, age group two (table 4.3), were responsible for approximately 7% of all the items claimed on the database as well as 7% of all the prescriptions claimed in both the study periods, but the teenager group only accounted for 5% of the total medicine expenditure on the database. The average cost per item was slightly higher than the average cost per item of age group one. The adolescents of age group two used mostly generic products.

Age group three had an average cost per prescription of R179.24 ± R366.08 in 2005 and in 2006 the average cost per prescription remained unchanged. Age group three, which can be seen as economic active patients, represented about 38% of the study population and accounted for over 25% of the total medicine expenditure on the database in both the study periods.

In comparison to age group three, age group four (< 45 and ≥ 59 years), which represents the other part of the economic active patients, represented about 21% of the overall study population, and 27% of all the prescriptions claimed on the database were for the *middle-aged* patients. During 2005, age group four received mostly original products with no generic equivalents, but in 2006 that changed, making generic products the biggest contributor to prevalence.

The geriatric age group, age group five (patients older than 59), showed the highest average cost per item as well as the highest average cost per prescription in both the study periods compared to the other age groups. Geriatric patients also received the most items per prescription with between 1 to 23 items per prescription in 2005 and 2006 respectively.

In general all the products showed a slight increase in cost from 2005 to 2006, but had a small, if any, practical significance.

In the following section the demographic parameter, sex, will be discussed.

4.2.2.2 Analysis according to demographic parameter: sex

The subsequent section will include the discussion and an analysis of the demographic parameter, sex. The sex of patients was divided into three individual categories namely: male, female and unknown. Only the analysis according to male and female will be discussed and the data of the unknown category will only be presented in appendix A (tables A.3, A.8, A.13, and A.18)

4.2.2.2.1 Analysis according to females

In the following section the analysis of the female population on the database will be discussed. Table 4.7 is a summarised table compiled from tables A.3, A.8, A.13, and A.18 (in appendix A). Tables A.3, A.8, A.13, and A.18 (in appendix A) show the complete data of the two study years and their individual periods.

According to table 4.7, a total number of 5 112 329 and 5 421 150 prescriptions were claimed, consisting of 11 974 255 and 12 924 812 medicine items which amounted to a total cost of R1 128 652 112 and R1 213 068 356 in 2005 and 2006 respectively. This indicates that females represented about 59.99% of all the prescriptions, approximately 60% of all the medicine items claimed and 59.50% of the overall medicine expenditure in both the study periods.

The average cost of medicine items for female patients was R94.26 ± R185.03 in 2005 compared to R93.56 ± R219.20 in 2006. The average final cost per prescription amounted to R220.77 ± R455.62 and R223.77 ± R532.49 in 2005 and 2006 respectively.

In 2005, women mostly received original products with no generic equivalents, but in 2006 *generic products* were the most frequently used by the female sex. Original products with no generic equivalent represented 63% in 2005 and 57% in 2006 of the overall medicine expenditure for female patients on the database. Although mostly all of the products experienced a slight increase in cost from 2005 to 2006, it had no practical significance due to the *d*-values which were all below 0.4.

Women received between 1 to 15 prescriptions per year, and prescriptions contained 1 to 4 items in 2005 and 2006 respectively.

Table 4.7: Analysis of the female sex

Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
Average cost of medicine items					
2005		11974255	Final prescription cost [a+b]	94.26 ± 185.03	1128652112.00
			Final scheme amount [a]	82.44 ± 177.74	987216773.00
			Final levy [b]	11.81 ± 45.97	141435339.00
2006		12924812	Final prescription cost [a+b]	93.56 ± 219.20	1213068356.00
			Final scheme amount [a]	80.84 ± 212.99	1044799555.00
			Final levy [b]	13.02 ± 47.77	168268801.00
Average cost per prescription					
2005		5112329	Final prescription cost [a+b]	220.77 ± 455.62	1128652112.00
			Final scheme amount [a]	193.11 ± 433.64	987216773.00
			Final levy [b]	27.67 ± 107.03	141435339.00
2006		5421150	Final prescription cost [a+b]	223.77 ± 532.49	1213068356.00
			Final scheme amount [a]	192.73 ± 516.50	104479955.00
			Final levy [b]	31.04 ± 97.98	168268801.00
Average cost according to types of medicines					
2005	M (Original with patent)	83787	Final prescription cost [a+b]	87.59 ± 85.04	7339137.64
			Final scheme amount [a]	78.51 ± 78.42	6578021.50
			Final levy [b]	9.08 ± 27.73	761116.14
	N (Original with no generic)	5249767	Final prescription cost [a+b]	135.93 ± 252.45	713591807.00
			Final scheme amount [a]	120.22 ± 243.86	631108054.00
			Final levy [b]	15.71 ± 62.82	82483753.19
	O (Original)	1613565	Final prescription cost [a+b]	101.29 ± 141.92	163437728.00
			Final scheme amount [a]	81.94 ± 135.65	1322222003.00
			Final levy [b]	19.35 ± 41.23	31215724.00
	Y (Generic)	5027136	Final prescription cost [a+b]	48.59 ± 67.04	244283440.00
			Final scheme amount [a]	43.23 ± 64.11	217308694.00
			Final levy [b]	5.37 ± 16.68	26974745.26
2006	M (Original with patent)	31879	Final prescription cost [a+b]	97.09 ± 34.64	3095085.64
			Final scheme amount [a]	83.72 ± 40.53	2668925.48
			Final levy [b]	13.37 ± 25.95	426160.16
	N (Original with no generic)	5004847	Final prescription cost [a+b]	139.06 ± 319.07	695969262.00
			Final scheme amount [a]	121.38 ± 312.11	607471299.00
			Final levy [b]	17.68 ± 66.51	88497962.55
	O (Original)	1976605	Final prescription cost [a+b]	105.94 ± 175.63	209395823.00
			Final scheme amount [a]	84.44 ± 168.61	166901760.00
			Final levy [b]	21.50 ± 48.21	42494063.00
	Y (Generic)	5911481	Final prescription cost [a+b]	51.53 ± 70.51	304608186.00
			Final scheme amount [a]	45.29 ± 67.38	267757570.00
			Final levy [b]	6.23 ± 19.34	36850615.61

	Frequency (N)	Average number of medicine items per prescription	Total number of items
Average number of medicine items per prescription			
2005	5112329	2.34 ± 1.59	11974255
2006	5421150	2.38 ± 1.61	12924812

	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
Average number of prescriptions per patient			
2005	675814	7.55 ± 8.27	5112329
2006	698477	7.74 ± 8.51	5421150

4.2.2.2.2 Analysis according to males

The following section a brief discussion of the medicine usage and the cost associated with medicine for the male sex will be given.

Table 4.8 is a summarised table compiled from tables A.3, A.8, A.13, and A.18 (in appendix A). Tables A.3, A.8, A.13, and A.18 (in appendix A) show the complete data of the two study years and their individual periods.

Table 4.8, shows that the male sex represented 44% (540874 patients in 2005 and 559535 in 2006) of the total study population. Men received 40% (3403193 prescriptions in 2005 and 3621060 in 2006) of the prescriptions claimed on the database, that accounted for approximately 40% (R763 226 111.00 in 2005 and R832 725 542.00 in 2006) of the total medicine expenditure on the database in both the study periods.

The average final prescription cost per item was R96.98 ± R202.27 in 2005 and R97.54 ± R240.49 in 2006. The final scheme amount concluded with R86.44 ± R195.46 and R85.71 ± R234.55 and the average final levy amount per year was R10.53 ± R47.01 and R11.78 ± R48.63 in 2005 and 2006 respectively. According to the analysis in table 4.8, men received between 1 to 13 prescriptions per year that contained 1 and 4 items per prescription in both the study periods.

Men received mostly generic products in 2005 as well as in 2006, with original products with no generic equivalents the second biggest contributor to medicine usage. Although generic products represented 44% (n=R171 966 601.00) in 2005 and 48% (n=R217 0.4 597.00) in 2006 of the overall medicine usage, original products with no generic equivalents were the highest contributor to cost, and represented 62% (n=R476 760 960.00) in 2005 and 58% (n=R487 260 211.00) in 2006 of the overall medicine cost on the database. In 2005, men received 54 069 (0.69%) original patented products compared to 970 (0.01%) original patented products received during 2006. Original products showed a decrease in average cost per item, compared to the increase in price of the generic products.

Table 4.8: Analysis of the male sex

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		7870112	Final prescription cost [a+b]	96.98 ± 202.27	763226111
			Final scheme amount [a]	86.44 ± 195.46	680319127
			Final levy [b]	10.53 ± 47.01	82906983.99
2006		8537499	Final prescription cost [a+b]	97.54 ± 240.49	832725542.00
			Final scheme amount [a]	85.75 ± 234.55	732117393.00
			Final levy [b]	11.78 ± 48.63	100608149.00
Average cost per prescription					
2005		3403193	Final prescription cost [a+b]	224.27 ± 473.73	763226111.00
			Final scheme amount [a]	199.91 ± 456.32	680319127.00
			Final levy [b]	24.36 ± 95.87	82906983.99.00
2006		3621060	Final prescription cost [a+b]	229.97 ± 592.88	832725542.00
			Final scheme amount [a]	202.18 ± 574.22	732117393.00
			Final levy [b]	27.78 ± 112.32	100608149.00
Average cost according to types of medicines					
2005	M (Original with patent)	54069	Final prescription cost [a+b]	86.13 ± 89.56	4657072.58
			Final scheme amount [a]	78.35 ± 82.73	4236472.16
			Final levy [b]	7.78 ± 26.17	420600.42
	N (Original with no generic)	3245727	Final prescription cost [a+b]	146.89 ± 288.67	476760960.00
			Final scheme amount [a]	132.30 ± 280.59	429405626.00
			Final levy [b]	14.59 ± 66.58	47355333.70
	O (Original)	1113072	Final prescription cost [a+b]	98.68 ± 135.56	109841479.00
			Final scheme amount [a]	81.52 ± 128.77	90738467.93.00
			Final levy [b]	17.16 ± 40.37	19103010.84
	Y (Generic)	3457244	Final prescription cost [a+b]	49.74 ± 65.51	171966601.00
			Final scheme amount [a]	45.10 ± 62.63	155938562
			Final levy [b]	4.64 ± 16.42	16028039.03
2006	M (Original with patent)	970	Final prescription cost [a+b]	51.01 ± 94.31	49478.63
			Final scheme amount [a]	42.76 ± 91.06	41476.96
			Final levy [b]	8.25 ± 33.48	8002.67
	N (Original with no generic)	3125443	Final prescription cost [a+b]	155.90 ± 369.65	487260211.00
			Final scheme amount [a]	138.82 ± 362.79	433873887.00
			Final levy [b]	17.08 ± 71.49	53386324.49
	O (Original)	1303611	Final prescription cost [a+b]	98.48 ± 146.41	128381254.00
			Final scheme amount [a]	79.15 ± 138.73	103177666.00
			Final levy [b]	19.33 ± 44.46	25203588.22
	Y (Generic)	4107475	Final prescription cost [a+b]	52.84 ± 69.60	217034597.00
			Final scheme amount [a]	47.48 ± 66.87	195024363.00
			Final levy [b]	5.36 ± 17.83	22010233.97.00
Average number of all medicine items per prescription					
		Frequency (N)		Average number of medicine items per prescription	Total number of items
2005		3403193		2.31 ± 1.51	7870112
2006		3621060		2.36 ± 1.53	8537499
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		540874		6.28 ± 7.18	3403193
2006		559535		6.46 ± 7.38	3621060

In the following section a brief summary of the sex groups analysis, will be provided.

4.2.2.2.3 Summary of the sex groups

The subsequent paragraphs will contain a brief overview of section 4.2.2.2.1 and section 4.2.2.2.2.

The female sex represented 56% of the study population and men accounted for 40% of all the patients on the database in both the study periods. The number of items, number of prescriptions as well as the total cost were divided in a 60 : 40 ratio for women compared to men in both the study periods. In 2005 the average final prescription cost for the male sex was R224.27 ± R473.73 compared to R220.77 ± R455.62 of the female sex. In 2006, the final prescription cost for women was R223.77 ± R532.49 compared to R229.97 ± R592.88 for men. No practical significant differences were found between the average cost per prescription between female and male patients (d=0.01).

The female sex received mostly original products with no generic equivalents compared to men who received mostly generic products during both the study periods. In both the sex groups original products with no generic equivalents were the biggest contributors to cost.

In the following section the general analysis of the prescriber groups will be discussed.

4.2.2.3 Analysis according to geographic parameter: prescribers

In the following section the general analysis of the various prescriber groups will be discussed. The various prescriber groups have been discussed in paragraph 3.3.6.

4.2.2.3.1 Analysis according to prescriber type: general medical practitioner

To follow is a brief discussion of the analysis of the prescriber type "general medical practitioners". Table 4.9 is a summarised table, compiled from tables A.4, A.9, A.14, and A.19 (in appendix A). Tables A.4, A.9, A.14, and A.19 in appendix A show the complete data of both the study years and their individual periods.

Table 4.9: Analysis of the prescriber type: general medical practitioner

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		14538227	Final prescription cost [a+b]	85.02 ± 109.11	1236028622.00
			Final scheme amount [a]	74.62 ± 102.21	1084860557.00
			Final levy [b]	10.40 ± 32.26	151198064.00
2006		15521292	Final prescription cost [a+b]	83.29 ± 110.56	1292764898.00
			Final scheme amount [a]	71.79 ± 103.31	1114305703.00
			Final levy [b]	11.50 ± 35.43	178459195.00
Average cost per prescription					
2005		6031354	Final prescription cost [a+b]	204.93 ± 248.39	1236028622.00
			Final scheme amount [a]	179.87 ± 228.20	1084830557
			Final levy [b]	25.07 ± 68.25	151198064.00
2006		6313792	Final prescription cost [a+b]	204.75 ± 253.50	1292764898.00
			Final scheme amount [a]	176.49 ± 232.93	1114305703.00
			Final levy [b]	28.26 ± 76.18	178459195.00
Average cost according to type of medicine					
2005	M (Original with patent)	93713	Final prescription cost [a+b]	85.48 ± 82.99	8010664.85
			Final scheme amount [a]	77.23 ± 76.57	7237545.58
			Final levy [b]	8.25 ± 25.16	773119.27
	N (Original with no generic)	5684039	Final prescription cost [a+b]	127.95 ± 142.66	727271844.00
			Final scheme amount [a]	113.53 ± 135.45	645289406.00
			Final levy [b]	14.42 ± 42.74	81982438.05
	O (Original)	1885462	Final prescription cost [a+b]	96.35 ± 94.67	181658369.00
			Final scheme amount [a]	77.36 ± 86.43	145852011.00
			Final levy [b]	18.99 ± 38.66	35806358.20
	Y (Generic)	6875013	Final prescription cost [a+b]	46.41 ± 52.41	319087744.00
			Final scheme amount [a]	41.67 ± 49.52	286451595
			Final levy [b]	4.75 ± 14.34	32636148.85
2006	M (Original with patent)	22569	Final prescription cost [a+b]	97.42 ± 35.75	2198731.85
			Final scheme amount [a]	84.32 ± 41.30	1902918.29
			Final levy [b]	13.11 ± 25.93	295813.56
	N (Original with no generic)	5301186	Final prescription cost [a+b]	127.16 ± 152.10	674121136.00
			Final scheme amount [a]	110.70 ± 144.84	586838317.00
			Final levy [b]	16.46 ± 48.92	87282819.36
	O (Original)	2222587	Final prescription cost [a+b]	99.90 ± 101.91	222035824.00
			Final scheme amount [a]	78.69 ± 91.99	174899312.00
			Final levy [b]	21.21 ± 43.41	47136512.14
	Y (Generic)	7974950	Final prescription cost [a+b]	49.46 ± 54.88	394409205.00
			Final scheme amount [a]	43.97 ± 51.67	350665155.00
			Final levy [b]	5.49 ± 16.99	43744049.75

Average number of medicine items per prescription				
		Frequency (N)	Average number of medicine items per prescription	Total number of items
2005		6031354	2.41 ± 1.54	14538227
2006		6313792	2.46 ± 1.56	15521292

Average number of prescriptions per patient				
		Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
2005		1026060	5.87 ± 6.56	6031354
2006		1037052	6.09 ± 6.69	6313792

According to table 4.9, general medical practitioners prescribed about 73% (n=14 538 227 in 2005 and n=15 521 292 in 2006) of all medicine items on the database. This contributed to 65% (n=R1 236 028 622.00 in 2005 and n=R1 292 764 898.00 in 2006) of the overall medicine expenditure during both the study periods. The average cost per medicine item for both the study periods were in the vicinity of R85 ± R110 and the average cost per prescription was about R204 ± R240 per prescription.

General medical practitioners prescribed generic products mostly, with original products with no generic equivalents in the second position and then original products. In 2005, the final levy payable by the member for an original product was R18.99 ± R38.66, where the levy payable on a generic product was merely R4.75 ± R14.34. The *d*-value of 0.37 indicates that the difference in levy amount had a small practical significance. All of the medicine products showed a slight increase in average cost per item, but this had a small to no practical significance.

Table 4.9 shows that general medical practitioners prescribed 6 313 792 prescriptions in 2006, with 1 to 4 items on each prescription. In both the study periods the patients received 1 to 13 prescriptions per year.

4.2.2.3.2 The general analysis of the prescriber group: other prescribers

The following section will include a brief discussion of the medicine cost and prevalence prescribed by other medical prescribers. Table 4.10 is a summarised table, compiled from tables A.4, A.9, A.14, and A.19 (in appendix A). These tables show the complete data of the two study periods as well as the individual periods' data.

According to table 4.10, other medical prescribers prescribed 18% (n=3 576 876 in 2005 and n=3 889 002 in 2006) of all the medicine items on the database, on 19% (n=1 634 788 in 2005 and n=1 734 895) of the prescriptions of the database. The cost of the medicine items prescribed by other medical prescribers represented 30% (n=R576 460 723.00 in 2005 and n=R659 728 894.00 in 2006) of the overall medicine cost on the database in both the study periods.

In 2005, a prescription had an average final prescription cost of R352.62 ± R921.62, the final scheme amount per prescription was R312.61 ± R893.74 and the final average levy amount was R40.01 ± R191.12.

Original patented products showed a decrease of 29.57% in price from 2005 to 2006, the *d*-value of 0.33 indicated that this price difference had a small to medium effect, with some

practical significance. Original products with no generic equivalents showed a 15.09% increase in price and a *d*-value of 0.05, original products showed an increase of 0.74% in price and had a *d*-value of 0.003, generic products also showed an increase of 5.08% in price from 2005 to 2006 and this resulted in a *d*-value of 0.03. The *d*-values of all the products which showed an increase in price from 2005 to 2006, had no effect and practical significance.

Table 4.10 shows that the average final prescription cost per item was R169.64 ± R479.17, the final scheme amount per item was R149.38 ± R471.60 and the final average levy amount per item was R20.26 ± R85.72 during 2006.

According to table 4.10, other medical prescribers prescribed mostly innovative medicine, in both the study years. Original products with no generic equivalents showed to be the biggest contributor to prevalence as well as cost although the frequency slightly decreased in 2006.

Other medical prescribers prescribed medicine to 33% (n= 404 203 in 2005 and n=410 011 in 2006) of the study population during both the study periods. Patients received between 1 and 10 prescriptions per year from other medical prescribers, which contained 1 and 4 items per prescription in both 2005 and 2006.

Table 4.10: Analysis of prescriber type: other prescribers

Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
Average cost of medicine items					
2005		3576876	Final prescription cost [a+b]	161.16 ± 387.26	576460723.00
			Final scheme amount [a]	142.88 ± 377.40	511046307.00
			Final levy [b]	18.29 ± 86.60	65414416.57
2006		3889002	Final prescription cost [a+b]	169.64 ± 479.17	659728894.00
			Final scheme amount [a]	149.38 ± 471.60	580942822.00
			Final levy [b]	20.26 ± 85.72	78786071.84
Average cost per prescription					
2005		1634788	Final prescription cost [a+b]	352.62 ± 921.62	576460723.00
			Final scheme amount [a]	312.61 ± 893.74	511046307.00
			Final levy [b]	40.01 ± 191.12	65414416.57
2006		1734895	Final prescription cost [a+b]	380.27 ± 1155.73	659728894.00
			Final scheme amount [a]	334.86 ± 1133.83	580942822.00
			Final levy [b]	45.41 ± 182.73	78786071.84
Average cost according to type of medicines					
2005	M (Original with patent)	21394	Final prescription cost [a+b]	131.36 ± 117.17	2810305.10
			Final scheme amount [a]	115.68 ± 109.26	2474951.35
			Final levy [b]	15.68 ± 41.19	335353.75
	N (Original with no generic)	1825186	Final prescription cost [a+b]	223.93 ± 506.55	408713648.00
			Final scheme amount [a]	200.60 ± 494.74	366122516.00
			Final levy [b]	23.34 ± 114.91	42591131.90
	O (Original)	568599	Final prescription cost [a+b]	139.75 ± 244.62	79459230.86
			Final scheme amount [a]	116.63 ± 239.42	66316513.18
			Final levy [b]	23.11 ± 53.44	13142717.68
	Y (Generic)	1161697	Final prescription cost [a+b]	73.58 ± 122.35	85477539.01
			Final scheme amount [a]	65.54 ± 118.98	76132325.77
			Final levy [b]	8.04 ± 27.48	9345213.24
2006	M (Original with patent)	10017	Final prescription cost [a+b]	92.52 ± 44.13	926776.94
			Final scheme amount [a]	78.76 ± 47.95	788897.45
			Final levy [b]	13.76 ± 28.39	137879.49
	N (Original with no generic)	1739154	Final prescription cost [a+b]	257.71 ± 669.58	448200598.00
			Final scheme amount [a]	230.74 ± 660.94	401299703.00
			Final levy [b]	26.97 ± 118.35	46900894.72
	O (Original)	711432	Final prescription cost [a+b]	140.79 ± 298.09	100164484.00
			Final scheme amount [a]	115.11 ± 291.90	81894606.18
			Final levy [b]	25.68 ± 62.74	18269877.87
	Y (Generic)	1428399	Final prescription cost [a+b]	77.32 ± 128.65	110437035.00
			Final scheme amount [a]	67.88 ± 125.95	96959614.79
			Final levy [b]	9.44 ± 28.24	13477419.76

		Frequency (N)		Average number of medicine items per prescription	Total number of items
Average number of all medicine items per prescription					
2005		1634788		2.19 ± 1.67	3576876
2006		1734895		2.24 ± 1.71	3889002

		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
Average number of prescriptions per patient					
2005		404203		4.04 ± 5.24	1634788
2006		410011		4.23 ± 5.44	1734895

The subsequent paragraphs a brief discussion of the analysis of the medicine cost and prevalence prescribed through pharmacotherapists will follow (refer to paragraph 4.3.6.2).

4.2.2.3.3 The general analysis of the prescriber group: pharmacotherapists

The following section will include a brief discussion of the medicine cost and prevalence prescribed by pharmacotherapists. Table 4.11 is a summarised table, compiled from tables A.4, A.9, A.14, and A.19 (in appendix A). These tables show the complete data of the two study periods as well as the individual periods' data.

Table 4.11 shows that pharmacotherapists prescribed the smallest number of items compared to the other prescribers; pharmacotherapists prescribed only 0.2% (n=39 358 in 2005 and n=38 956 in 2006) of all the medicine items on the database, that accounted for a mere 0.11% (n=R1 990 479.22 in 205 and n=R2 007 303.26 in 2006) of the overall medicine expenditure in both the study periods.

In comparison to the other prescribers, the average cost per prescription prescribed by pharmacotherapists presented with the lowest price. The average cost per prescription in 2005 was R91.88 ± R73.86 and R98.91 ± R83.66 in 2006.

Pharmacotherapists prescribed 49 original products with patent during 2005. The average final prescription cost per original product with patent was R52.80 ± R37.58 and the scheme reimbursed these products completely, therefore no levy was payable by the members.

A total number of 18 638 and 17 324 patients (0.3% of the study population) received prescriptions from a pharmacotherapist, 1 to 3 items per prescription, and each patient received 1 to 4 prescriptions per year in 2005 and 1 to 5 prescriptions per year in 2006.

Table 4.11: Analysis of prescriber type: pharmacotherapists

Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
Average cost of medicine items					
2005		39358	Final prescription cost [a+b]	50.57 ± 42.48	1990479.22
			Final scheme amount [a]	46.66 ± 40.59	1836436.81
			Final levy [b]	3.91 ± 13.34	154042.41
2006		38956	Final prescription cost [a+b]	51.53 ± 46.23	2007303.26
			Final scheme amount [a]	46.86 ± 44.08	1825334.28
			Final levy [b]	4.67 ± 15.37	181968.98
Average cost per prescription					
2005		21641	Final prescription cost [a+b]	91.98 ± 73.86	1990479.22
			Final scheme amount [a]	84.86 ± 70.57	1836436.81
			Final levy [b]	7.12 ± 22.10	154042.41
2006		20295	Final prescription cost [a+b]	98.91 ± 83.66	2007303.26
			Final scheme amount [a]	89.94 ± 79.63	18253334.28
			Final levy [b]	8.97 ± 26.91	181968.98
Average cost according to type of medicines					
2005	M (Original with patent)	507	Final prescription cost [a+b]	55.09 ± 22.22	27931.80
			Final scheme amount [a]	51.96 ± 22.81	26345.36
			Final levy [b]	3.13 ± 9.69	1586.44
	N (Original with no generic)	19874	Final prescription cost [a+b]	62.12 ± 47.33	1234549.12
			Final scheme amount [a]	58.09 ± 45.34	1154574.10
			Final levy [b]	4.02 ± 15.09	79975.02
	O (Original)	5615	Final prescription cost [a+b]	55.41 ± 40.75	311100.63
			Final scheme amount [a]	48.99 ± 38.59	275105.49
			Final levy [b]	6.41 ± 17.16	35995.14
	Y (Generic)	13362	Final prescription cost [a+b]	31.20 ± 26.15	416897.67
			Final scheme amount [a]	28.47 ± 24.93	380411.86
			Final levy [b]	2.73 ± 7.39	36485.81
2006	M (Original with patent)	49	Final prescription cost [a+b]	52.80 ± 37.58	2586.97
			Final scheme amount [a]	52.80±37.58	2586.97
			Final levy [b]	0 ± 0	0.00
	N (Original with no generic)	17852	Final prescription cost [a+b]	64.69 ± 54.31	1154884.05
			Final scheme amount [a]	59.62 ± 51.94	1064408.72
			Final levy [b]	5.07 ± 18.61	90475.33
	O (Original)	5610	Final prescription cost [a+b]	56.66 ± 44.26	317887.40
			Final scheme amount [a]	48.76 ± 41.93	273546.18
			Final levy [b]	7.90 ± 17.27	44341.22
	Y (Generic)	15445	Final prescription cost [a+b]	34.44 ± 27.63	531944.84
			Final scheme amount [a]	31.49 ± 26.66	484792.41
			Final levy [b]	3.05 ± 8.98	484792.41

		Frequency (N)		Average number of medicine items per prescription	Total number of items
Average number of all medicine items per prescription					
2005		21641		1.82 ± 1.03	39358
2006		20295		1.92 ± 1.10	38956
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		10498		2.06 ± 2.26	21641
2006		8805		2.54 ± 2.54	20295

In the following paragraphs the medicine prescribed by pharmacists cost and usage will be discussed.

4.2.2.3.4 The general analysis of the prescriber group: pharmacists

The following section will present a brief discussion of the medicine cost and prevalence of pharmacists initiated prescriptions. Table 4.12 is a summarised table, compiled from tables A.4, A.9, A.14, and A.19 (in appendix A). These tables show the complete data of the two study periods as well as the individual period's data.

According to table 4.12 pharmacists prescribed approximately 9% (n=1 704 808 in 2005 and n=2 020 781) of all medicine items on the database which accounted for about 5% (n=R78 739 814.70 in 2005 and n=R92 097 572.15 in 2006) of the overall medicine expenditure in both the study periods.

Prescriptions prescribed *via* pharmacists had an average prescription cost of about R76.50 ± R68.00 in both the study periods, an average scheme amount of R68.96 ± R61.47 and R67.03 ± R65.74 and a final average levy payable by the patient of R7.39 ± R25.95 and R9.54 ± R30.53 in 2005 and 2006 respectively.

Pharmacists prescribed mostly original products with no generic equivalents and generic products. Original patented products had the highest average cost and generic products were the least pricey medicine prescribed by pharmacists.

Each patient received 1 to 5 prescriptions per year and each of the prescriptions contained between 1 to 3 items in both the study periods.

In the following paragraphs the medicine prescribed by pharmacists cost and usage will be discussed.

4.2.2.3.4 The general analysis of the prescriber group: pharmacists

The following section will present a brief discussion of the medicine cost and prevalence of pharmacists initiated prescriptions. Table 4.12 is a summarised table, compiled from tables A.4, A.9, A.14, and A.19 (in appendix A). These tables show the complete data of the two study periods as well as the individual period's data.

According to table 4.12 pharmacists prescribed approximately 9% (n=1 704 808 in 2005 and n=2 020 781) of all medicine items on the database which accounted for about 5% (n=R78 739 814.70 in 2005 and n=R92 097 572.15 in 2006) of the overall medicine expenditure in both the study periods.

Prescriptions prescribed *via* pharmacists had an average prescription cost of about R76.50 ± R68.00 in both the study periods, an average scheme amount of R68.96 ± R61.47 and R67.03 ± R65.74 and a final average levy payable by the patient of R7.39 ± R25.95 and R9.54 ± R30.53 in 2005 and 2006 respectively.

Pharmacists prescribed mostly original products with no generic equivalents and generic products. Original patented products had the highest average cost and generic products were the least pricey medicine prescribed by pharmacists.

Each patient received 1 to 5 prescriptions per year and each of the prescriptions contained between 1 to 3 items in both the study periods.

Table 4.12: Analysis of prescriber type: pharmacists

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		1704808	Final prescription cost [a+b]	46.19 ± 40.98	78739814.70
			Final scheme amount [a]	41.72 ± 38.45	71123018.81
			Final levy [b]	4.47 ± 16.82	7616795.89
2006		2020781	Final prescription cost [a+b]	45.58 ± 44.71	92097572.15
			Final scheme amount [a]	39.90 ± 41.45	80624429.40
			Final levy [b]	5.68 ± 19.44	11473142.74
Average cost per prescription					
2005		1031344	Final prescription cost [a+b]	76.34 ± 66.26	78739814.70
			Final scheme amount [a]	68.96 ± 61.47	71123018.81
			Final levy [b]	7.39 ± 25.95	7616795.89
2006		1202756	Final prescription cost [a+b]	76.57 ± 72.21	92097572.14
			Final scheme amount [a]	67.03 ± 65.74	80624426.40
			Final levy [b]	9.54 ± 30.53	11473142.74
Average cost according to type of medicines					
2005	M (Original with patent)	22349	Final prescription cost [a+b]	51.60 ± 36.41	1153182.95
			Final scheme amount [a]	48.38 ± 36.73	1081335.95
			Final levy [b]	3.21 ± 11.10	71847.00
	N (Original with no generic)	971274	Final prescription cost [a+b]	55.60 ± 46.39	54007058.54
			Final scheme amount [a]	50.27 ± 43.47	48823926.76
			Final levy [b]	5.34 ± 20.08	5183131.78
	O (Original)	268838	Final prescription cost [a+b]	44.69 ± 32.48	12014336.60
			Final scheme amount [a]	39.60 ± 31.11	10644906.83
			Final levy [b]	5.09 ± 14.72	1369429.77
	Y (Generic)	442347	Final prescription cost [a+b]	26.15 ± 20.90	11565236.61
			Final scheme amount [a]	23.90 ± 20.24	10572849.27
			Final levy [b]	2.24 ± 7.72	992387.34
2006	M (Original with patent)	221	Final prescription cost [a+b]	81.21 ± 25.13	17947.29
			Final scheme amount [a]	79.52 ± 24.55	17572.87
			Final levy [b]	1.69 ± 9.95	374.42
	N (Original with no generic)	1073786	Final prescription cost [a+b]	56.02 ± 52.57	60154272.93.00
			Final scheme amount [a]	48.96 ± 48.80	52567375.59
			Final levy [b]	7.07 ± 23.81	7586897.34
	O (Original)	341986	Final prescription cost [a+b]	45.10 ± 37.04	15424348.78
			Final scheme amount [a]	38.44 ± 34.99	13144594.18
			Final levy [b]	6.67 ± 17.08	2279754.60
	Y (Generic)	604788	Final prescription cost [a+b]	27.28 ± 21.65	16501003.14
			Final scheme amount [a]	24.63 ± 20.94	14894886.76
			Final levy [b]	2.66 ± 8.86	1606116.38

Average number of medicine items per prescription				
		Frequency (N)	Average number of medicine items per prescription	Total number of items
2005		1031344	1.65 ± 0.94	1704808
2006		1202756	1.68 ± 0.98	2020781

Average number of prescriptions per patient				
		Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
2005		410270	2.51 ± 2.74	1031344
2006		472633	2.54 ± 2.84	1202756

The following section will include a brief summary of an analysis pertaining to the prescriber groups.

4.2.2.3.5 Summary of the geographic parameter: prescribers

A brief summary of sections 4.2.2.3.1 to 4.2.2.3.4 follows below.

General medical practitioners prescribed the largest quantity of medicine items and represented about 73% of all the medicine items on the database. The medicine prescribed by general medical prescribers accounted for 65% of the overall medicine expenditure on the database. General medical practitioners were the only prescribers who did not mainly prescribe original products with no generic equivalents; to the contrary, general medical practitioners prescribed generic equivalents the most frequently. General medical practitioners also prescribed on average the most items per prescription.

Other medical prescribers prescribed approximately 18% of all the medicine items on the database, which accounted for about 30% of the total medicine expenditure in both the study periods. Original products with no generic equivalents were the biggest contributor to cost and prevalence as prescribed by other medical prescribers. A possible explanation for the high average cost can be that the products prescribed by other medical prescribers frequently included oncology products, which have a high total cost.

Prescriptions from pharmacotherapists constituted the lowest number of items as well as the smallest amount of total cost to the overall medicine expenditure. Pharmacotherapists prescribed only a mere 49 original patented products in 2006. They also prescribed the highest number of prescriptions per patient per year, which can be an indication that patients tend to return to the pharmacotherapist for a prescription more often. This can be due to the fact that pharmacotherapists consultation fees are lower than those of other prescribers.

Pharmacists initiated prescriptions were the second smallest contributor to the overall medicine cost as well as the overall quantity of medicine. Pharmacists prescribed 9% of all the medicine items on the database which contributed to 5% of the overall medicine cost in both the study periods. Pharmacists also prescribed the smallest number of prescriptions per patient per year in both the study periods.

In the following section the cost and usage of medicine will be discussed according to the various providers.

4.2.2.4 Analysis according to geographic parameter: providers

In the following section the general analysis of the various provider groups will be discussed. The various provider groups have been discussed in paragraph 3.3.5.

4.2.2.4.1 Analysis according to provider type: general medical practitioner

Table 4.13 is a summarised table, compiled from tables A.5, A.10, A.15, and A.20 (in appendix A). These tables show the complete data of the two study periods as well as the individual periods data.

According to table 4.13, general medical practitioners provided 3 849 539 and 4 148 630 medicine items, which is about 19% of the total medicine items claimed in both the study periods. The average final prescription cost per item was R39.34 ± R63.97, the average final scheme amount was R32.91 ± R57.36 and the average final levy amount was R6.43 ± R22.96 in 2005. During 2006, the average final prescription amount was R101.70 ± R133.34, the average final scheme amount was R84.76 ± R118.01 and the average final levy amount was R16.94 ± R46.34 per prescription. The average final scheme cost per prescription of 2005 compared to 2006 had a *d*-value of 1.67, which indicated that it had a large impact of practical significance, meaning that the average prescription claimed during 2006 was less expensive than in 2005.

The type of medicines provided by general medical practitioners were divided as follows; 0.4% were original patented products, 27% original products with no generic equivalents, 14% original products and generic products represented 59% of the overall medicine items in 2005. During 2006, the total number of the various medications remained the same.

General medical practitioners provided approximately 19% of the overall medicine items to 34% of the study population during both the study periods. Patients received 1 or 7 prescriptions per year, which contained 1 to 4 medicine items per prescription in both 2005 and 2006.

Table 4.13: Analysis according to general medical practitioners as providers

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		3849539	Final prescription cost [a+b]	39.34 ± 63.97	151430854.00
			Final scheme amount [a]	32.91 ± 57.36	126693152.00
			Final levy [b]	6.43 ± 22.96	24737702.21
2006		4148630	Final prescription cost [a+b]	35.92 ± 57.82	149025448.00
			Final scheme amount [a]	29.94 ± 51.62	124208326.00
			Final levy [b]	5.98 ± 21.32	24817121.44
Average cost per prescription					
2005		1405928	Final prescription cost [a+b]	107.71 ± 139.40	151430854.00
			Final scheme amount [a]	290.11 ± 122.67	126693152.00
			Final levy [b]	17.60 ± 48.66	24737702.21
2006		1465402	Final prescription cost [a+b]	101.70 ± 133.34	149025448.00
			Final scheme amount [a]	84.76 ± 118.01	124208326.00
			Final levy [b]	16.94 ± 46.34	24817121.44
Average cost according to type of medicines					
2005	M (Original with patent)	1577	Final prescription cost [a+b]	54.78 ± 45.25	86393.96
			Final scheme amount [a]	45.16 ± 42.82	71219.19
			Final levy [b]	9.62 ± 20.54	15174.77
	N (Original with no generic)	980799	Final prescription cost [a+b]	53.01 ± 84.60	51991484.16
			Final scheme amount [a]	46.53 ± 77.00	45639594.49
			Final levy [b]	6.48 ± 28.58	6351889.67
	O (Original)	549638	Final prescription cost [a+b]	59.26 ± 78.54	32571150.63
			Final scheme amount [a]	40.05 ± 68.52	22013782.39
			Final levy [b]	19.21 ± 35.52	10557368.24
	Y (Generic)	2616616	Final prescription cost [a+b]	24.60 ± 31.13	64376419.00
			Final scheme amount [a]	21.59 ± 28.64	56483730.24
			Final levy [b]	3.02 ± 10.16	7892688.76
2006	M (Original with patent)	15883	Final prescription cost [a+b]	64.34 ± 63.50	1021947.26
			Final scheme amount [a]	58.60 ± 58.78	930791.76
			Final levy [b]	5.74 ± 19.96	91155.50
	N (Original with no generic)	1027982	Final prescription cost [a+b]	61.08 ± 95.36	62602849.34
			Final scheme amount [a]	53.45 ± 86.85	54784332.48
			Final levy [b]	7.63 ± 31.99	7818516.86
	O (Original)	531488	Final prescription cost [a+b]	59.45 ± 66.88	31595723.90
			Final scheme amount [a]	40.63 ± 56.44	21591877.43
			Final levy [b]	18.82 ± 34.42	10003846.47
	Y (Generic)	2277186	Final prescription cost [a+b]	24.68 ± 35.01	56210333.79
			Final scheme amount [a]	21.69 ± 32.55	49386150.41
			Final levy [b]	3.00 ± 10.14	6824183.38
Average number of all medicine items per prescription					
		Frequency (N)		Average number of medicine items per prescription	Total number of items
2005		1405928		2.74 ± 1.50	3849539
2006		1465402		2.83 ± 1.51	4148630
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		408230		3.44 ± 3.85	1405928
2006		423917		3.46 ± 3.78	1465402

In the following section the general analysis according to other medical providers will be discussed.

4.2.2.4.2 Analysis according to provider type: other medical providers

The following section includes a brief discussion of the medicine cost and prevalence as provided by general medical practitioners. Table 4.14 is a summarised table, compiled from tables A.5, A.10, A.15, and A.20 (in appendix A). These tables show the complete data of the two study periods as well as the individual period's data.

According to table 4.14, other medical providers, provided a very small portion of the medicine items in both the study periods. The medicine provided by these groups accounted for R14 786 584.36 (0.78%) and R9 002 585.31 (0.44%) in 2005 and 2006 respectively.

The average final prescription cost per prescription in 2005 was R356.24 ± R1472.91 compared to R304.75 ± R1350.77 in 2006. A possible explanation to the high standard deviations can be that other medical providers frequently provide oncology products, which are relatively expensive medicine items.

During 2005, other medical providers provided a total number of 78 612 medicine items, 0.90% of these items were original patented products, 64.15% were original products with no generic equivalent, 17.42% were original products and the remaining 17.52% were generic products. Original products with no generic equivalent revealed the highest pricing during 2006, with an average final prescription cost per item of R237.62 ± R749.29.

Other medical providers provided 1 to 5 prescriptions per patient per year and each prescription contained between 1 and 4 items in both 2005 and 2006.

Table 4.14: Analysis according to other medical providers

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		78612	Final prescription cost [a+b]	188.10 ± 625.09	14786584.36
			Final scheme amount [a]	157.42 ± 607.03	12374979.39
			Final levy [b]	30.68 ± 168.24	2411604.97
2006		56923	Final prescription cost [a+b]	158.15 ± 648.55	9002585.31
			Final scheme amount [a]	144.22 ± 628.93	8209625.86
			Final levy [b]	13.93 ± 136.96	792959345.00
Average cost per prescription					
2005		41507	Final prescription cost [a+b]	356.24 ± 1472.91	14786584.36
			Final scheme amount [a]	298.14 ± 1420.94	12374979.39
			Final levy [b]	58.10 ± 340.52	2411604.97
2006		29541	Final prescription cost [a+b]	304.75 ± 1350.77	9002585.31
			Final scheme amount [a]	277.91 ± 1327.08	8209325.86
			Final levy [b]	26.84 ± 206.52	792959.45
Average cost according to type of medicines					
2005	M (Original with patent)	560	Final prescription cost [a+b]	35.53 ± 19.41	19896.27
			Final scheme amount [a]	29.22 ± 21.38	16363.32
			Final levy [b]	6.31 ± 14.58	3532.95
	N (Original with no generic)	39308	Final prescription cost [a+b]	192.95 ± 742.35	7584607.26
			Final scheme amount [a]	176.39 ± 718.82	6933528.21
			Final levy [b]	16.56 ± 162.66	651079.05
	O (Original)	8114	Final prescription cost [a+b]	77.98 ± 401.07	632709.75
			Final scheme amount [a]	66.53 ± 392.89	539829.55
			Final levy [b]	11.45 ± 51.17	92880.20
	Y (Generic)	8941	Final prescription cost [a+b]	85.60 ± 302.89	765372.03
			Final scheme amount [a]	80.52 ± 302.73	719904.78
			Final levy [b]	5.09 ± 24.28	45467.25
2006	M (Original with patent)	706	Final prescription cost [a+b]	59.81 ± 65.26	42227.32
			Final scheme amount [a]	46.55 ± 51.78	32861.87
			Final levy [b]	13.27 ± 43.16	9365.45
	N (Original with no generic)	50432	Final prescription cost [a+b]	237.62 ± 749.29	11983569.21
			Final scheme amount [a]	201.47 ± 727.28	10160345.29
			Final levy [b]	36.15 ± 205.93	1823223.92
	O (Original)	13696	Final prescription cost [a+b]	121.44 ± 327.34	1663181.74
			Final scheme amount [a]	93.08 ± 325.26	1274836.22
			Final levy [b]	28.35 ± 62.94	388345.52
	Y (Generic)	13778	Final prescription cost [a+b]	79.66 ± 204.04	1097606.09
			Final scheme amount [a]	65.82 ± 202.09	906936.01
			Final levy [b]	13.84 ± 42.72	190670.08
Average number of medicine items per prescription					
		Frequency (N)		Average number of medicine items per prescription	Total number of items
2005		41507		1.89 ± 1.61	78612
2006		29541		1.93 ± 1.58	56923
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		19889		2.08 ± 2.95	41507
2006		16537		1.78 ± 2.45	29541

In the following section the last geographic parameter, "pharmacies as providers", will be discussed.

4.2.2.4.3 Analysis according to provider type: pharmacies

The following section will entail a brief discussion of the medicine cost and prevalence provided by pharmacies. Table 4.15 is a summarised table, compiled from tables A.5, A.10, A.15, and A.20 (in appendix A). These tables show the complete data of the two study periods as well as the individual periods' data.

Table 4.15 shows that pharmacies provided about 80% (n=15 926 285 in 2006 and n=17 262 616 in 2005) of all the medicine items in both the study periods, indicating the largest contribution to cost with R1 726 420 151 (91.18%) and R1 888 460 215 (92.26%) worth of medicine in 2005 and 2006 respectively.

A total number of 7 076 188 and 7 548 523 prescriptions were provided by pharmacies, which represented 83% of all the prescriptions on the database for both the study periods, with an average final prescription cost of R243.98 ± R488.33 and R250.18 ± R598.47 in 2005 and 2006 respectively. The average final levy payable by the customer to the pharmacy was R27.84 ± R107.21 in 2005 compared to R32.22 ± R110.89 in 2006.

Pharmacies provided a large portion of each of the different medicine types according to their generic indicators. Original products with no generic equivalents represented 59.52% (n=R1 123 917 736.00) in 2006 and 64.65% (n=R1 116 213 072.00) in 2005 of the overall medicine expenditure provided by pharmacies on the database. Generic products represented 38.93% (n=6 200 480) in 2005 and 42.85% (n=7 398 166) in 2006 of the overall medicine prevalence on the database.

A total number of 1 091 017 (89.55%) and 1 123 267 (89.21%) patients received medication from pharmacies, each receiving 1 to 14 prescriptions per year containing between 1 to 4 items per prescription in both 2005 and 2006.

Table 4.15: Analysis according to pharmacies as providers

Average cost of medicine items					
Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev (R)	Total cost (R)
2005		15926285	Final prescription cost [a+b]	108.40 ± 205.34	1726420151.00
			Final scheme amount [a]	96.03 ± 198.29	1529407736.00
			Final levy [b]	12.37 ± 48.99	197012414.00
2006		17262616	Final prescription cost [a+b]	109.40 ± 247.73	1888460215.00
			Final scheme amount [a]	95.30 ± 241.75	1645211424.00
			Final levy [b]	14.09 ± 51.79	243248791.00
Average cost per prescription					
2005		7076188	Final prescription cost [a+b]	243.98 ± 488.33	1726420151.00
			Final scheme amount [a]	216.13 ± 467.79	7076188.00
			Final levy [b]	27.84 ± 107.21	197012414.00
2006		7548523	Final prescription cost [a+b]	250.18 ± 598.47	1888460215.00
			Final scheme amount [a]	217.95 ± 580.87	1645211424.00
			Final levy [b]	32.22 ± 110.89	243248791.00
Average cost according to type of medicines					
2005	M (Original with patent)	121331	Final prescription cost [a+b]	90.13 ± 89.07	10935802.13
			Final scheme amount [a]	81.22 ± 82.24	9855031.68
			Final levy [b]	8.91 ± 27.57	1080770.45
	N (Original with no generic)	7422147	Final prescription cost [a+b]	150.39 ± 275.03	1116213072.00
			Final scheme amount [a]	134.22 ± 266.95	996187292.00
			Final levy [b]	16.17 ± 65.40	120025779.00
	O (Original)	2182327	Final prescription cost [a+b]	110.02 ± 148.33	240091182.00
			Final scheme amount [a]	91.72 ± 141.80	200165093.00
			Final levy [b]	18.30 ± 42.12	39926088.66
	Y (Generic)	6200480	Final prescription cost [a+b]	57.93 ± 72.09	359180095.00
			Final scheme amount [a]	52.13 ± 69.23	323200320.00
			Final levy [b]	5.80 ± 18.22	35979775.50
2006	M (Original with patent)	30682	Final prescription cost [a+b]	99.03 ± 36.25	3038292.32
			Final scheme amount [a]	85.49 ± 42.23	2622900.28
			Final levy [b]	13.54 ± 26.62	415392.04
	N (Original with no generic)	7110044	Final prescription cost [a+b]	158.07 ± 355.67	1123917736.00
			Final scheme amount [a]	139.11 ± 349.12	989104039.00
			Final levy [b]	18.96 ± 71.08	134813698.00
	O (Original)	2723724	Final prescription cost [a+b]	111.89 ± 174.57	304745645.00
			Final scheme amount [a]	90.93 ± 167.36	247664974.00
			Final levy [b]	20.96 ± 48.70	57080670.86
	Y (Generic)	7398166	Final prescription cost [a+b]	61.74 ± 76.48	456758542.00
			Final scheme amount [a]	54.85 ± 73.63	405819511.00
			Final levy [b]	6.89 ± 20.84	50939030.66
Average number of medicine items per prescription					
		Frequency (N)		Average number of medicine items per prescription	Total number of items
2005		7076188		2.25 ± 1.56	15926199
2006		7548523		2.29 ± 1.58	17262604
Average number of prescriptions per patient					
		Total number of patients		Average number of prescriptions per patient per year	Total number of prescriptions
2005		1091017		6.48 ± 7.48	7076473
2006		1123267		6.71 ± 7.77	7550990

A brief summary of the provider groups will follow in the subsequent paragraphs.

4.2.2.4.4 Summary of the geographic parameter: providers

To follow below is a brief overview of sections 4.2.2.4.1 to 4.2.2.4.3.

General medical practitioners provided about 19% of the overall medicine items, which represented approximately 8% of the overall medicine expenditure in both the study years. The average final cost per item was R39.34 ± R63.97 in 2005 and the average final prescription cost was R107.70 ± R139.40 in 2006. General medical practitioners provided over a million patients with medicine in both the study periods.

Other medical providers provided medicine to only about 20 000 patients which accounted for less than 2% of the total medicine items and 0.8% of the total medicine expenditure in both the study periods. Although other medical providers provided the least number of items, the items which they provided had the highest average total prescription cost, *i.e.* R188.10 ± R625.09 in 2005.

According to the data, pharmacies can be seen as the main providers of medicine items. Pharmacies provided approximately 80% of the medicine items and represented over 91% of the total medicine expenditure. Approximately 90% of the patients received their medicine items from pharmacies with an average final cost per item of R108.40 ± R205.34 in 2005 and R109.40 ± R247.73 in 2006.

The following section will focus on the general analysis of the top twenty trade name products.

4.3 GENERAL ANALYSIS OF THE TOP TWENTY PRODUCTS

In this section, a general analysis of the top twenty products available on the database will be conducted.

The top twenty products will be compiled for each of the following categories: active ingredient, trade names, age, sex, provider type and prescriber type (refer to appendix B for the complete lay-out of the top twenty trade name products).

The top twenty pharmacological groups will also be compiled. For each of these categories and their sub-categories the top twenty products will be given in appendix B. The top twenty lists were calculated according to prevalence and cost on the database.

Table 4.16 is a summarised table, compiled from the complete database, which illustrates each variable's total frequency and cost (n-values).

Table 4.16: Summarised table according to total cost and total frequency

Variable:	Measurement instrument:	2005	2006
Active ingredients:	Frequency	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
Trade name products:	Frequency	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
	Age:		
Age 1:	Frequency	1 600 919	1 668 287
	Total cost	R89 329 200.60	R95 240 896.32
Age 2:	Frequency	1 390 573	1 499 217
	Total cost	R97 468 107.60	R104 158 832.70
Age 3:	Frequency	5 933 729	6 377 057
	Total cost	R478 014 067.20	R506 572 754.89
Age 4:	Frequency	4 901 485	5 447 080
	Total cost	R497 543 992.28	R549 795 115.63
Age 5:	Frequency	6 033 952	6 481 394
	Total cost	R731 018 015.80	R793 875 296.06
Unknown:	Frequency	21	39
	Total cost	R3 537.60	R1 486.00
Total:	**Frequency**	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
	Sex:		
Female:	Frequency	11 974 255	12 924 812
	Total cost	R1 128 652 112.20	R1 213 068 355.90
Male:	Frequency	7 870 112	8 537 499
	Total cost	R763 226 111.40	R832 725 542.36
Unknown:	Frequency	16 312	10 763
	Total cost	R1 498 697.60	R1 150 484.70
Total:	**Frequency**	**19 860 679**	**21 473 074**

Table 4.16: Summarised table according to total cost and total frequency (continue)

Variable:	Measurement instrument:	2005	2006
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
	Prescriber groups:		
General medical practitioner:	Frequency	14 538 227	15 521 292
	Total cost	R1 236 028 621.90	R1 292 764 897.50
Other medical prescribers:	Frequency	3 576 876	3 889 002
	Total cost	R576 460 723.08	R659 728 893.70
Pharmacotherapists:	Frequency	39 358	38 956
	Total cost	R1 990 479.22	R2 007 303.26
Pharmacies:	Frequency	1 704 808	2 020 781
	Total cost	R78 739 814.70	R92 097 572.14
Unknown:	Frequency	1 410	3 043
	Total cost	R157 283.02	R345 715.90
Total:	**Frequency**	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
	Provider groups:		
Pharmacies:	Frequency	15 926 285	17 262 616
	Total cost	R1 726 420 150.50	R1 888 460 214.90
General medical practitioner:	Frequency	3 849 539	4 148 630
	Total cost	R151 430 854.29	R149 025 447.75
Other medical providers:	Frequency	78 612	56 923
	Total cost	R14 786 584.36	R9 002 585.31
Unknown:	Frequency	6 243	4 905
	Total cost	R739 332.44	R456 134.99
Total:	**Frequency**	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
	Pharmcodes:		
Main pharmacological group:	Frequency	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
Sub pharmacological group:	Frequency	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**
Sub therapeutic group:	Frequency	**19 860 679**	**21 473 074**
	Total cost	**R1 893 376 921.00**	**R2 046 944 382.50**

4.3.1 The top twenty active ingredients

In the following section; the top twenty active ingredients available on the database will be discussed. In section 4.3.1.1 the top twenty active ingredients according to cost will be discussed, followed by section 4.3.1.2 which presents an analysis of the prevalence of the top twenty active ingredients on the database.

4.3.1.1 The top twenty active ingredients according to cost

Refer to table B.1 (appendix B) for the complete list of the top twenty active ingredients on the database according to cost.

In table 4.17 the top five active ingredients claimed on the database according to cost are pointed out.

Table 4.17: The top five active ingredients on the database ranked according to total cost

Year	Active ingredient	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 N items=19 860 679 N total cost=R1 893 376 921.00	Atovastatin	1	56787636.19	260090	218.3384067	2.29
	Insulin	2	40088984.99	76934	521.0828111	5.44
	Fluticasone	3	33864477.66	124987	270.9439995	2.84
	Amoxycillin/Clavulanic	4	33392736.83	456820	73.09823745	0.77
	Simvastatin	5	33119294.18	284232	116.522046	1.22
Total:			197253129.9	1203063	1199.985501	
2006 N items=21 473 074 N total cost=R2 046 944 382.50	Atovastatin	1	59082942.42	266582	221.6314021	2.16
	Insulin	2	48707520.9	91455	532.5845596	5.17
	Simvastatin	3	36983938.41	325970	113.4581048	1.1
	Unknown (New products)	4	35345234.45	352386	100.3026069	0.98
	Amoxycillin/Clavulanic	5	34703599.73	483247	71.81337852	0.7
Total:			214823235.9	1519640	1039.790052	

According to table B.1 and table B.2 the top twenty active ingredients accounted for 23.76% (N=R1 893 376 679) and 24.05% (N=R2 046 944 382.50) of the overall medicine cost in 2005 and in 2006 respectively.

From table 4.17, it is evident that the top five active ingredients for both 2005 and 2006 are similar except for the minor change of fluticasone in 2005 and the unknown (new products) in 2006. In both of the study periods, three out of the top five active ingredients were substances used in chronic diseases i.e. cholesterol, diabetes and asthma. The top five active ingredients represented 10.42% (N=R1 893 376 679) and 10.49% (N=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively.

Atovastatin was ranked 1st in both study periods and represented about 3% of the overall medicine cost of each year. Atorvastatin and simvastatin are both hipolipidaemic agents and are used for the reduction of raised total cholesterol, low density lipoprotein (LDL) cholesterol and triglyceride levels (Gibbon *et al.*, 2008:167). Simvastatin also appeared in the top five for both years and represented about 1.80% of the overall medicine cost. According to Smith and McBurney (2003:22) atorvastatin is a cost-effective treatment for cholesterol, and although the initial cost is relatively high, the long-term advantages have proved to be beneficial.

Insulin was ranked 2nd in 2005 and in 2006 and represented 2.12% (N=R1 893 376 679) and 2.38% (N=R2 046 944 382.50) of the total cost each year respectively. Insulin is an anti-diabetic agent used to lower blood glucose levels in type I diabetes (Wells *et al.*, 2003:178). According to the World Health Organization (WHO) more than 180 million people worldwide suffer from

diabetes and that number is likely to more than double by 2030 (WHO, 2006). According to Bradshaw *et al.* an estimated 1 to 1.5 million South Africans suffer from diabetes and in the year 2000 approximately 13 500 deaths occurred with diabetes as the leading cause of death (2007:700). Steyn and co-workers (2007:29) showed that insulin and antidiabetic medicine in the private health care sector of South Africa are relatively expensive. In this study the cost prevalence ratio of these products was 1: 0.60.

In 2006 unknown "new products" received ranking in the fourth position and represented 1.73% of the total cost. Unknown "new products" can be seen as new products that were registered but not had yet been published in the latest monthly index of medical specialities (MIMS) at the time of analysis. Although these products incurred a cost amount, they could not be classified into pharmaceutical, pharmacological and therapeutic groups.

Amoxicilin/clavuanic acid-containing products ranked 5th in 2006 and 4th in 2005 respectively. Claims for this beta-lactam antibiotics represented 1.75% (N=R1 893 376 496) and 1.70% (N=R2 046 944 382.50) of the total medicine cost in the two study years. Table B.1 and B.2 (refer to appendix B) show that amoxicillin/clavuanic acid-containing products' total cost was higher in period two, (i.e. 01 May – 31 August) of both 2005 and 2006. The assumption can therefore be made that the total cost represented by amoxicillin/clavuanic acid-containing products was higher during the winter periods. The average cost per item for these medicines amounted to R73.09 and R71.81 in 2005 and in 2006 respectively. Amoxicillin/clavuanic acid-containing products had a CPI of about 0.7 in both the study periods and therefore these medicines can be seen as relatively inexpensive.

Table B.1 (appendix B) illustrated significant changes for clarithromycin and table B.2 for rituximab. Clarithromycin is a broad-spectrum antibiotic commonly used in upper respiratory tract infections (Walker & Edwards, 2006:591). Clarithromycin was ranked 20th and 21st in periods one and three of 2005 respectively, but 7th in period two. Clarithromycin followed a similar pattern during 2006. The CPI of clarithromycin was approximately 1.8 in both periods one and two and 1.6 in period three (September to December), the higher total cost of clarithromycin during period two, is mainly due to the higher frequency of this product, therefore this products can be seen as a resource driver during period two. According to Illett and co-workers (2000:172) there is a significant increase in broad-spectrum antibiotic prescribing during the winter periods, this can be an explanation as to why the frequency of clarithromycin showed an increase during period two.

From table B.2, rituximab was ranked 70th in period one, 29th in period two and 17th in period three of 2006. Rituximab is a cytostatic agent that is being used in the treatment of relapsed or

chemotherapy-resistant indolent B-cell non-Hodgkins lymphoma (Gibbon *et al.*, 2008:357). According to Bio-Medicine (2006) rituximab received the Food and Drug Administration's (FDA) approval in February 2006 for the treatment of diffuse large B-cell lymphoma (DLBCL). This can be the explanation for the sudden increase in the usage of rituximab during 2006, which contributed to the higher total cost of rituximab.

In the following section the top twenty active ingredients according to prevalence will be discussed.

4.3.1.2 The top twenty active ingredients according to prevalence

In table B.3 (refer to appendix B) the complete list of the top twenty active ingredients according to prevalence is depicted. Table 4.18 summarises the top five active ingredients ranked according to their prevalence on the database.

Table 4.18: The top five active ingredients on the database ranked according to prevalence

Year	Active ingredient	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 N items=19 860 679 N total cost=R1 893 376 921.00	Amoxycillin/Clavuanic	1	456820	73.10	33392736.83	0.77
	Diclofenac	2	405976	43.50	17658533.95	0.46
	Paracetamol/Codeine/Caffeine	3	357083	22.68	8100296.85	0.24
	Thyroxine	4	347380	36.80	12782636.95	0.39
	Asprin	5	329768	19.68	6490461.05	0.2
Total:			1897027	195.76	78424665.63	
2006 N items=21 473 074 N total cost=R2 046 944 382.50	Amoxycillin/Clavuanic	1	483247	71.81	34703599.73	0.76
	Diclofenac	2	424966	39.22	16666810.51	0.41
	Thyroxine	3	377586	35.55	13424233.01	0.38
	Asprin	4	363572	20.47	7443171.53	0.21
	Unknown (new products)	5	352386	100.30	35345234.45	1.05
Total:			2001757	267.35	107583049.23	

According to table 4.18 it is evident that the top five active ingredients ranked according to prevalence on the database were quite similar for both 2005 and in 2006; with the exceptions of the appearance of the combination of paracetamol, codeine and caffeine products in 2005 and "unknown" (new products) in 2006. The top five active ingredients represented 9.55% (N=19 860 679) and 9.32% (N= 21 473 074) of the overall medicine prevalence in 2005 and in 2006 respectively. It is also evident that most of the active ingredients that represent the top five active ingredients ranked according to prevalence, and are acute medication with the exception of thyroxine, compared to the top five active ingredients according to cost which are mostly indicated for chronic illnesses.

Amoxycillin/clavuanic acid-containing products were ranked 1st in both 2005 and in 2006 respectively and represented 2.3% (N=19 860 679) and 2.25% (N= 21 473 074) of the overall medicine prevalence. Amoxicillin/clavuanic acid-containing products also appeared in the top five active ingredients ranked according to total cost (refer to paragraph 4.3.1.1). The CPI of this treatment was 0.76 in 2005 and 0.77 in 2006. The assumption can therefore be made that amoxicillin/clavuanic acid-containing products are relatively inexpensive resource drivers.

Table B.4 and table B.5 (appendix B) also show that amoxicillin/clavuanic acid-containing products increased in frequency during period two (i.e. 01 May – 31 August), which represents the winter months. In 2005 amoxicillin/clavuanic acid-containing products had a frequency of 78 007 in period one (January to April), 115 596 in period two and 82 887 during period three (September to December). In 2006 period one had a frequency of 147 012, period two 206 876 and in period three this treatment was prescribed 129 359 times. The assumption can therefore be made that this beta-lactam antibiotic is more frequently used during the winter periods. According to a study done by Ferech *et al.* (2006:404), the usage of antibiotics, especially penicillin containing antibiotics, increased during the winter periods.

Diclofenac represented 2.04% (N=19 860 679) and 1.98% (N= 21 473 074) of the overall medicine prevalence and ranked 2nd in both 2005 and in 2006 respectively. Diclofenac is a nonsteroidal anti-inflammatory drug and can be indicated for acute pain or chronic conditions such as arthritis (Wells *et al.*, 2003:29).

According to Cantrill and Wood (2006b:636) between 2 and 4 per cent of the worldwide population suffers from hypothyroidism, a disease usually treated with thyroxine. Thyroxine was ranked 3rd and 4th in 2005 and in 2006 respectively and represented about 1.75% of the total medicine prevalence in both the study periods.

Cardiovascular disease is on the increase in South Africa and is determined to be the second most common cause for mortality (Anon., 2007:56). Aspirin is an anti-inflammatory product but can also be used chronically as a platelet aggregation inhibitor to minimise the risk for ischaemic heart disease (Gibbon *et al.*, 2008:102). Claims for aspirin represented 1.69% (N=19 860 679) and 1.66% (N=21 473 074) of the overall medicine prevalence.

The combination product of the active ingredients paracetamol, codeine and caffeine was ranked 3rd and represented 1.8% (N=19 860 679) of the total prevalence of all medicine items in 2005. This combination is commonly found in trade name products such as Syndol® and its generic and therapeutic equivalents, which are commonly used in the treatment of mild pain (Snyman, 2007:70).

Unknown "new products" were in the 5th position of 2006. The CPI of these products was 1.05, and the assumption can therefore be made that these new products, that had not yet, even appeared in the MIMS, are relatively expensive products.

According to tables B.4 and B.5 (appendix B) it is evident that the combination of the active ingredients theophylline and etophylline's prevalence turned out to be higher in period 2. Theophylline and etophylline were ranked 12th in period one, 4th in period two and 11th in period three of 2005; and 10th, 4th and 11th respectively in 2006. Period two represents the winter months. Theophylline and etophylline are the active ingredients for cough syrups, indicated for cough associated with respiratory infections, asthma and allergy (Snyman, 2007:189). According to Gelfand (2004) respiratory infections, such as colds and flu rise in early fall and their prevalence peak during winter months. These respiratory infections cause 80 per cent of all asthma attacks among children and 50 per cent among adults (Gelfand, 2004). Johnston *et al.* (2007:703) found in their study that children suffered more frequently from asthma attacks and coughs in the winter months. This can be an explanation for the more frequent usage of theophylline and etophylline containing products during period two of both study periods, as shown in table B.4 and table B.5 respectively.

4.3.1.3 Section summary: Top twenty active ingredients

The top twenty active ingredients ranked according to cost represented about 24% of the overall medicine cost for both study periods. The total medicine cost of the top twenty active ingredients according to cost presented R4 49 843 862.23 in 2005 and R4 92 357 608.34 in 2006. The list represents treatments for various conditions which included chronic as well as acute illnesses. Some of the chronic illnesses were diabetes, osteoperosis, cholesterol, hypertension and hormone replacement therapy. Active ingredients associated with the treatment of depression, pain, arthiritis, bacterial infections and peptic ulcers were also under the top twenty active ingredients ranked according to cost.

The top twenty active ingredients ranked according to prevalence represented about 25% of the overall medicine prevalence in both study periods. In 2005 the top twenty active ingredients amounted to 5 001 527 items and 5 347 809 items in 2005 and 2006 respectively, which means the total number of medicine items increased with 6.9%.

All of the top five active ingredients according to total cost of both study periods can be seen as cost drivers. Amoxyciilin and clavuanic containing products were the only active ingredient items on the top five active ingredient list according to cost with a CPI lower than one, with the highest

frequency and the lowest average cost per item, therefore the active ingredient amoxicillin/clavuanic can be seen as the only resource driver.

4.3.2 The top twenty products according to trade names

In the following section the top twenty products according to trade names will be examined. The analysis will include the distribution according to total cost and prevalence.

4.3.2.1 The top twenty trade name products according to total cost

This top twenty list was ranked according to individual total costs on the database. In table B.6 (refer to appendix B) the complete list of the top twenty trade name products according to total cost is given. The top twenty products constituted 13.22% (N=R1 893 376 921.00) and 13.06% (N=R2 046 944 382.50) of the total medicine cost in 2005 and in 2006 respectively.

Table 4.19 is a summarised table of the top five trade name products according to cost for 2005 and 2006.

Table 4.19: The top five trade name products on the database ranked according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 N items=19 860 679 N total cost=R1 893 376 921.00	Lipitor 10mg tab	1	31451055.35	166536	188.85	1.98
	Lipitor 20mg tab	2	19126984.68	70987	269.44	2.66
	Fosamax 70mg tab	3	17430911.77	51797	336.52	3.54
	Celebrex 200mg cap	4	15183633.29	67993	223.31	2.35
	Prexum 4mg tab	5	12654205.83	98180	128.89	1.37
Total:			95846790.92	455493	1147.02	
2006 N items=21 473 074 N total cost=R2 046 944 382.50	Lipitor 10mg tab	1	30440185.64	160500	189.66	1.99
	Lipitor 20mg tab	2	20436897.83	75542	270.54	2.86
	Prexum 4mg tab	3	16875170.18	131136	128.68	1.34
	Cipralex 10mg tab	4	16651805.26	65883	252.75	2.61
	Fosamax 70mg tab	5	15360158.66	45885	334.75	3.57
Total:			99764217.57	478946	1176.38	

According to table 4.19, the top five trade name products of 2005 and 2006 were similar except for the appearance of Celebrex 200mg in 2005 and Cipralex 10mg in 2006. The top five trade name products represented 5.06% (N=R1 893 376 921.00) and 4.87% (N=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively. The top five trade name products represented the following pharmacological groups:

- Hipolipidaemic agents
- Osteoporosis and bone disorders

- Non-Steroidal anti-inflammatory drugs (NSAIDs)
- Antihypertensives
- Antidepressants

Table 4.3 shows that Lipitor 10mg was ranked 1st in 2005 and in 2006. It represented 1.66% (N=R1 893 376 921.00) and 1.69% (N=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively. Lipitor 10mg is a product used in the treatment of elevated cholesterol (Snyman, 2007:167). Bester (2006:12) also reports that 3.8 per cent of all the beneficiaries that claimed through PBM. used at least one or more products in the Lipitor range.

Lipitor 20mg was ranked 2nd in both 2005 and 2006 and represented about 1% (in both the study periods) of the overall medicine cost for 2005 and 2006 respectively.

Prexum 4mg tablets were the only generic product in the top five trade name products and represented 0.67% (N=R1 893 376 921.00) and 0.82% (N=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively. Prexum 4mg tablets also ranked 5th and 3rd in 2005 and in 2006 respectively. This medicine is used to treat mild to moderate hypertension and is the generic equivalent of Coversyl (Snyman, 2007:144). The CPI indications of Prexum 4mg were 1.37 and 1.34 in 2005 and in 2006 respectively and had an average cost per item of about R127 in both the study periods. According to the CPI this hypertension treatment is relatively expensive and can be a possible explanation for the appearance of this medicine in the top five trade names ranked according to total cost.

Fosamax 4mg represented 0.92% (N=R1 893 376 921.00) and 0.75% (N=R2 046 944 382.50) of the total medicine cost for 2005 and 2006 respectively and was ranked 3rd in 2005 and 5th in 2006. This medicine had an average cost per item of about R335 and a CPI of about 3.5 for both study periods. The assumption can therefore be made that Fosamax 4mg is a relatively expensive treatment.

According to Van Schoor (2008:26) clarithromycin, moxifloxacin and levofloxacin are the antibiotics of choice used in respiratory infections where amoxicillin had proved not to be effective. According to tables B.6 and B.7 (appendix B) the following trade name products had shown extraordinary patterns. Avelon 400mg is indicated for lower respiratory tract infection, especially gram-positive organisms including *S. pneumoniae* (Gibbon *et al.*, 2008:289); ranked 29th in the first period, 12th in the second period and 20th in period three of 2005. In 2006 it ranked 22nd, 9th and 20th in period one, two and three respectively. Klacid XL with the active ingredient clarithromycin (refer to paragraph 4.3.1) ranked 21st in the first period, 5th during period two and 18th in period three of 2005, and showed a similar pattern during 2006. Tavanic

500mg, also used against gram-positive organisms and frequently used for sinusitis (Gibbon *et al.*, 2008:289), showed a similar pattern to Avelon 400mg and Klacid XL, where the cost increased during period two.

In table B.7 it is shown that Aspen Lamzid (which contains 150mg lamuvidine and 300mg zidovudine) and Stocrin 600mg appeared for the first time in the top twenty trade name products during 2006. These two medicines are antiretroviral (ARV) medication used in human immune deficiency virus – 1 (HIV) infection in combination with other ARV medication (Gibbon *et al.*, 2008:325). According to a South African National Health Survey, 10.8 per cent of the South African population over the age of two years is infected with HIV (Avert, 2005). On the first of July 2005 the general regulations made in terms of the Medical Schemes Act 131 of 1998 (CMS, 2005) was published and introduced ARVs as a prescribed minimum benefit for all medical schemes registered in South Africa. This may be the explanation for these two medicines appearing among the top twenty trade name products in 2006 for the first time.

The average cost per item for Stocrin 600mg tablets was R217.33 in 2006 and R328.69 for Aspen Lamzid. According to the Department of Health's, National ARV Guidelines (DoH, 2005b:19) the first-line therapy for HIV would be as follows: lamuvidine, stavudine and efavirenz. In resistant cases zidovudine can be given in the place of stavudine. Stocrin and Aspen Lamzid contains the active ingredients commonly used in the first-line regimen, and this can be an explanation to why these medicines are more frequently used. These products can thus be seen as activity drivers, which refers to the cost of the product that drives the total cost on the database.

In section 4.3.2.2 the top twenty trade name products will be discussed according to their prevalence on the database.

4.3.2.2 The top twenty trade name products according to prevalence

Table B.8 (appendix B) illustrates the complete list of the top twenty trade name products according to prevalence. According to table B.8 the top twenty trade name products represented 11.57% (N=19 860 679) and 11.18% (N=21 473 074) of the overall medicine prevalence in 2005 and in 2006 respectively.

Table 4.20 is a summarised table of the top five trade name products according to prevalence for 2005 and 2006.

Table 4.20: The top five trade name products ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 N items=19 860 679 N total cost=R1 893 376 921.00	Eltroxin 100mcg tab	1	247943	40.57	10060238.72	0.42
	Myprodol cap	2	183299	60.35	11061813.32	0.63
	Lipitor 10mg tab	3	166536	188.85	31451055.35	1.98
	Ecotrin 81mg tab	4	157340	19.55	3075933.44	0.2
	Alcopyllex syr	5	148635	10.39	1544224.46	0.11
Total:			903753	319.72	57193265.29	
2006 N items=21 473 074 N total cost=R2 046 944 382.50	Eltroxin 100mcg tab	1	264536	39.48	10444441.76	0.41
	Ecotrin 81mg tab	2	176553	20.59	3635173.90	0.22
	Lipitor 10mg tab	3	160500	189.66	30440185.64	1.99
	Alcopyllex syr	4	153362	9.88	1515762.83	0.1
	Mybulen tab	5	142194	38.98	5543017.28	0.41
Total:			897145	298.60	51578581.41	

Table 4.20 illustrates that the top five trade name products of 2005 according to their individual prevalence are similar to the top five trade name products of 2006. The top five trade name products represent acute medication as well as chronic medication. These products represented 4.55% (N=19 860 679) and 4.18% (N=21 473 074) of the overall medicine prevalence in 2005 and in 2006 respectively.

The following could be deducted from table 4.20:

- Eltroxin 100mcg (active ingredient thyroxine) was ranked 1st in both years and represented 1.25% (N=19 860 679) and 1.23% (N=21 473 074) in 2005 and 2006 respectively. The average cost per item calculated as R40.57 in 2005 and R39.48 in 2006. The CPI of this medicine was about 0.4 for both study periods and can be an indication that Eltroxin 100mcg tablets can be regarded as a relatively inexpensive treatment for hypothyroidism.
- Ecotrin 81mg (an aspirin containing trade name product), (see also paragraph 4.3.1) represented 0.79% (N=19 860 679) in 2005 and 0.82% (N=21 473 074) in 2006 and was accordingly ranked 4th and 2nd in the respective study years. The average cost per item for Ecotrin 81mg was R19.55 in 2005 and R20.59 in 2006 and had a CPI of approximately 0.2 for both study periods. It can be concluded that Ecotrin 81mg is a relatively inexpensive treatment.
- Alcophyllex is a theophylline and diphenhydramine containing cough syrup, commonly used for coughs associated with broncho-congestion (Snyman, 2007:207). From table 4.4 the conclusion can be made that Alcophyllex is a relatively inexpensive cough syrup (CPI=0.1). The average cost per item for Alcophyllex was R10.39 in 2005 and R9.88 in 2006. Alcophyllex was ranked 5th and represented 0.75% (N=19 860 679) of the overall medicine prevalence in 2005 and showed a similar pattern during 2006.

- Lipitor 10mg was the most expensive trade name product in the top five trade name products for both 2005 and 2006 with an average cost per item of R188.95 in 2005 and R189.66 in 2006. Lipitor 10mg featured 1st on the top five trade name product list according to overall medicine cost in 2005 as well as 2006 as shown in table 4.19 and was ranked 3rd for both years on the top trade name product list according to prevalence. The cost prevalence index for Lipitor 10mg was 1.97 for 2005 and 1.99 for 2006; indicating that the medicine was relatively expensive.

In table B.9 and table B.10 (appendix B) the complete list of the top twenty trade name products is illustrated and divided into the various study periods. According to table B.10 the prevalence of Mybulen tablets had a drastic decrease during period two (May – August). Mybulen was ranked 4th in period one (January - April), 34th in period two and 8th in period three of 2006. According to the annual report of Aspen-Pharmaceuticals the introduction of Mybulen capsules in mid 2006 "took the trade name market by storm" (Saad, 2006:22). Fierce marketing strategies may thus be one of the explanations for the sudden drop in usage of the Mybulen tablets versus the capsule dosage form during the second period of 2006 (refer to paragraph 2.7.1).

4.3.2.3 Section summary: Top twenty trade name products

The top twenty trade name products ranked according to total cost represented about 13% of the overall medicine cost. The top twenty trade name products amounted to R250 386 594.30 in 2005 and R267 296 427.97 in 2006.

The top twenty trade name products ranked according to prevalence represented about 11% of the total medicine prevalence for both study periods and approximately 2 298 491 items were prescribed in 2005 compared to the 2 399 831 items prescribed during 2006.

The only product on the top five trade name list which contained an active ingredient from the top five active ingredients list according to cost was Lipitor 10mg, which contained atorvastatin.

There were two products on the top five trade name list according to prevalence which contained active ingredients from the top five active ingredients list according to prevalence. These products were the thyroxine-containing tablets Eltroxin 100mcg, and the aspirin-containing tablets Ecotrin 81mg.

Due to the fact that all the products on the top five trade name list according to cost for both the study periods had CPI indications higher than one, all of them can be seen as activity drivers.

Eltroxin 100mcg with the highest prevalence had a very low CPI but can be seen as a resource driver.

In the following section the top twenty products (in the trade name format) calculated according to prevalence and total cost for the different age groups will be discussed.

4.3.3 The top twenty trade name products: age group analyses

In the following section the top twenty trade name products claimed in the different age groups will be discussed. The various age groups' top twenty trade name products will be presented according to cost and prevalence.

4.3.3.1 The top trade name products for the age group 1 (≤ 9 years)

Age group 1 consisted of all the children below the age of 9 years. The top trade name products were calculated separately according to cost and prevalence. In section 4.2.3.1.1 the top trade name products according to cost will be discussed.

4.3.3.1.1 The top twenty trade name products for age group 1 according to total cost

The complete list of the top twenty trade name products according to cost for children aged 9 years and younger for 2005 and 2006 respectively is illustrated in appendix B (table B.11 and B.12).

Table 4.21: The top five trade name products ranked according to total cost for age group ≤ 9 years

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=1 600 919 n total cost=R89 329 200.60	Orelox junior susp	1	4199290.20	31065	135.18	2.42
	Celestamine syr	2	2332724.08	17714	131.69	2.35
	Singulair 4mg	3	1801547.66	6643	271.19	4.93
	Zinnat 125mg/5ml susp	4	1660944.34	13772	120.60	2.16
	Myprodol susp	5	1607582.29	28626	56.16	1.01
Total:			11602088.57	97820	714.8216944	
2006 n items=1 668 287 n total cost=R95 240 896.32	Orelox junior susp	1	3053914.62	23647	129.15	2.32
	Celestamine syr	2	2574071.85	20051	128.38	2.32
	Singulair 4mg	3	2435068.87	9276	262.51	4.7
	Deselex 2.5mg/5ml syr	4	1804761.76	12737	141.69	2.57
	Cepodem susp	5	1781607.01	18651	95.52	1.72
Total:			11649424.11	84362	757.2528311	

According to table B.21 the top twenty trade name products represented 29.73% (n=R89 329 200.60) of the overall medicine cost of 2005 for this specific age group. Table B.12 illustrates

that the top twenty trade name products accounted for 30.04% (n=R92 540 896.32) of the overall medicine cost of 2006. Table 4.21 summarises the top five trade name products according to cost for the children.

The top five trade name products in this age group represented 12.99% (n=R89 329 200.60) and 12.59% (n=R92 540 896.32) of the overall medicine cost of 2005 and 2006 respectively. The top five trade name products consisted mainly of antibiotics, antihistamine and asthma medication. As expected for children aged 9 years and under, the dosage form of the top five trade name products is mainly suspensions and syrups.

The following deductions can also be made from table 4.21:

- Orelox junior suspension was ranked 1st in both years and represented 4.70% (n=R89 329 200.60) and 3.30% (n=R92 540 896.32) in 2005 and in 2006 respectively. Orelox junior suspension contains the active ingredient cefpodoxime, a third generation cephalosposin commonly used against *H.influenza* and *S.pneumoniae* infections as well as otitis media (Gibbon *et al.,* 2008:278). The average cost per item for Orelox suspension was about R130 for both study periods. This medicine had a calculated CPI of 2.42 and 2.32 for 2005 and 2006 respectively, therefore the assumption can be made that this medicine is a relatively high-priced treatment.
- During 2006, the generic equivalent of Orelox suspension, Cepodem suspension, was positioned 5th, had an average cost of R95.52 per item, which was R33.63 lower priced than the original product in that same year and had a CPI of 1.72. Although Cepodem suspension was also relatively expensive, it was lower priced than Orelox suspension.
- Celestamine syrup was ranked 2nd in both 2005 and in 2006 and represented 2.61% (N=R89 329 200.60) and 2.78% (N=R92 540 896.32) in 2005 and in 2006 respectively. Celestamine's indication is for acute allergic rhinitis and other allergic reactions (Snyman, 2007:380). Celestamine syrup had an average cost per item of about R130 and a CPI of about 2.3 for both study periods, therefore the conclusion can be made that this medicine is relatively pricey.
- Singulair 4mg tablets represented 2.02% (n=R89 329 200.60) and 2.63% (n=R92 540 896.32) and were ranked 3rd in both 2005 and in 2006 respectively. This medicine can be seen as relatively expensive due to the fact that the CPI was above 4.7 in both the study periods. Singulair (active ingredient montelukast), has a significant effect in the relieving of asthma symptoms in children aged 2 to 9 years (Johnston *et al.*, 2007:710). Results of this study showed that children under the age of 9 years on the montelukast treatment plan only had 0.4 per cent days with worse asthma symptoms compared with the 8.8 per cent worse asthma symptoms of the children on the placebo. According to Dal Negro *et al.* (2007:675) montelukast therapy has a high direct total cost, but this can be compensated by the

benefits this treatment provides to the patient. Although Singulair 4mg tablets can be seen as an expensive treatment for asthma, it can also be seen as very effective (Dal Negro *et al.*, 2007:675).

In the following section the top twenty trade name products for patients below the age of 9 years according to prevalence will be discussed.

4.2.3.1.2 The top twenty trade name products for the age group 1 according to prevalence

In table B.15 (refer to appendix B) the top twenty trade name products for patients aged 0 to 9 years in order of their rank for 2005 and 2006 are listed. According to table B.15 the top twenty trade name products represented 22.09% (n=1 600 919) and 21.43% (n=1 668 287) of the overall medicine prevalence for 2005 and 2006 respectively.

In table 4.22 the top five trade name products according to prevalence are portrayed.

Table 4.22: The top five trade name products according to prevalence for age group ≤ 9 years

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=1 600 919 n total cost=R89 329 200.60	Orelox junior susp	1	31065	135.18	4199290.2	2.51
	Myprodol susp	2	28626	56.16	1607582.29	1.04
	Lotem susp	3	27972	46.16	1291122.06	1.17
	Bronchoped P syr	4	26420	44.77	1182891.82	0.83
	Demazin syr alcohol free	5	23154	42.54	984910.6	0.79
Total:			137237	324.81	9265796.97	
2006 n items=1 668 287 n total cost=R95 240 896.32	Bronchoped P syr	1	28292	43.46	1229455.59	0.78
	Lotem susp	2	26733	44.28	1183664.81	0.8
	Orelox junior susp	3	23647	129.15	3053914.62	2.32
	Demazin syr alcohol free	4	22529	38.38	864740.98	0.69
	Alcophyllex syr	5	21629	7.75	167592.59	0.14
Total:			122830	263.02	6499368.59	

The top five trade name products accounted for 8.57% (n=1 600 919) and 7.36% (n=1 668 287) of the overall medicine prevalence for age group 1 in 2005 and in 2006 respectively. The top five trade name products represented acute medication associated with common infections or colds in children. The top five trade name products according to prevalence for patients below the age of 9 years stayed relatively the same in both 2005 and 2006. According to Kuehni *et al.* (2007:979) the top ten admissions to a specialist children's hospital in England are attributed to the following diseases: respiratory tract infections, chronic diseases of tonsils, asthma, abdominal and pelvic pain, viral infection and non-suppurative otitis media. The results of this top five analysis hold this statement as all of the top trade name products can be used for one or more of these conditions.

The following results are portrayed by table 4.22:

- Orelox junior suspension was ranked 1st in 2005 and represented 1.94% (n=1 600 919) of the overall medicine prevalence. In 2006, Orelox junior suspension represented 1.42% (n=1 668 287), was ranked 3rd and had an average cost per item of R129.15. Orelox junior suspension is an antibiotic and previously discussed in paragraph 4.3.3.1.1. Orelox junior suspension was also the trade name product ranked 1st in 2005 and 2006 according to the total medicine cost (refer to paragraph 4.3.3.1.1). The CPI was 2.42 and 2.32 for 2005 and 2006 respectively indicating that this medicine was relatively expensive during the study period.
- Lotem suspension represented 1.75% (n=1 600 919) and 1.60% (n=1 668 287) and was ranked 3rd and 2nd in 2005 and in 2006 respectively. The average cost per item for Lotem suspension was calculated as R46.16 in 2005 and R44.28 in 2006. Lotem is commonly used in mild to moderate pain and fever, and is classified as an antipyretic agent used in children, with the active ingredients of ibuprofen and paracetamol (Snyman, 2007:74).
- Bronchoped peadiatric (P) syrup was ranked 1st in 2006 and 4th in 2005 and represented 1.70% (n=1 600 919) of the overall medicine prevalence in 2006. Bronchoped P syrup had an average cost per item of R43.46 in 2006. Bronchoped P is a cough mixture used in coughs associated with bronchospasm in children and contains the active ingredient terbutaline which is a short-acting selective $beta_2$-adrenoceptor agonist (Gibbon *et al.*, 2008:516). Kamper-Jorgensen and co-workers (2006:1440) reported that respiratory conditions accounted for two-thirds of all the hospital admissions in children under the age of five in England. According to table 4.6, 36.28% of the trade name products in the top five for 2005 were indicated for respiratory conditions and 59.11% in 2006.

In the following section the top twenty trade name products for the age group < 9 and ≥19 years will be discussed.

4.3.3.2 The top trade name products for age group 2 (< 9 and ≥ 19 years)

The top trade name products claimed for patients aged < 9 and ≥ 19 years will be discussed according to cost and prevalence in the following section.

4.3.3.2.1 The top twenty trade name products for age group 2 according to total cost

Tables B.17 and B.18 (appendix B) give the complete list of the top twenty trade name products according to cost for the age group 9 to19 years for 2005 and 2006. According to table B.17 and table B.18, the top twenty trade name products represented 18.80% (n=R97 468 107.60) and 17.55% (n=R104 158 832.7) of the overall medicine cost for 2005 and 2006 respectively for the

age group 10 to19 years. The age group < 9 and ≥ 19 years represented the adolescent population of the PBM's data.

In table 4.23 the top five trade name products according to prevalence for adolescents aged < 9 and ≥ 19 years are illustrated.

Table 4.23: The top five trade name products ranked according to total cost for age < 9 and ≥ 19 years

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=1 390 573 n total cost=R97 468 107.60	Ritalin LA 20mg cap	1	1866445.78	6205	300.80	4.24
	Roaccutane 20mg cap	2	1412560.43	2852	495.29	6.90
	Seretide 50/250 accuhaler	3	1246918.69	3377	369.24	5.33
	Flixonase aq nasal spray	4	1184410.55	6203	190.94	2.71
	Myprodol cap	5	1018215.57	17940	56.76	0.81
Total:			6728551.02	36577	1413.021603	
2006 n items=1 499 217 n total cost=R104 158 832.70	Ritalin LA 20mg cap	1	1591478.42	5467	291.11	4.25
	Seretide 50/250 accuhaler	2	1232140.61	4100	300.52	4.37
	Concerta 36mg oros	3	1217363.80	3066	397.05	5.85
	Roaccutane 20mg cap	4	1208020.52	2624	460.37	6.44
	Deselex 5mg tab	5	1205020.52	8015	137.92	2.19
Total:			6454023.87	23272	1586.969954	

According to table 4.23, the top five trade name products represented 6.90% (n=R97 468 107.60) and 6.20% (n=R104 158 832.70) of the overall medicine costs for 2005 and 2006 respectively.

According to Leslie and co-workers (2008:163) the condition known as attention deficit/hyperactivity disorders (ADHD) is most frequent under school children and especially under teenagers. Olutunmbi *et al.* (2008:171) also state that acne affects mainly teenagers and adolescents. The appearance of Ritalin LA 20mg, Roaccutane 20mg and Concerta 36mg in the top five trade name list for adolescents aged 10 to 19 years is therefore expected.

Concerta is a once-daily extended release preparation of methylphenidate comparable to the immediate release methylphenidate dosage form administered three times daily (Hamer, 2002). Concerta 36mg was introduced to the South African market during 2004. Concerta portrayed a CPI of 5.85 during 2006 and had an average cost per item of R397. In comparison with Ritalin LA 20mg Concerta 36mg is an even more expensive treatment against ADHD. Concerta 36mg was ranked 3rd in 2006 and represented 1.17% (n=104 158 832.7) of the overall medicine cost for this age group. Concerta 36mg did not appear among the top five trade name products ranked according to cost in 2005, but showed the following pattern, 138th in period one, 18th in

period two and 8th in the last period. This pattern can be due to the fact that Concerta was a relatively unknown product in 2005, and became better known as time passed.

Concerta 36mg represented a bigger portion of the total cost each period. This increase in the percentage of total cost is shown in figure 4.2.

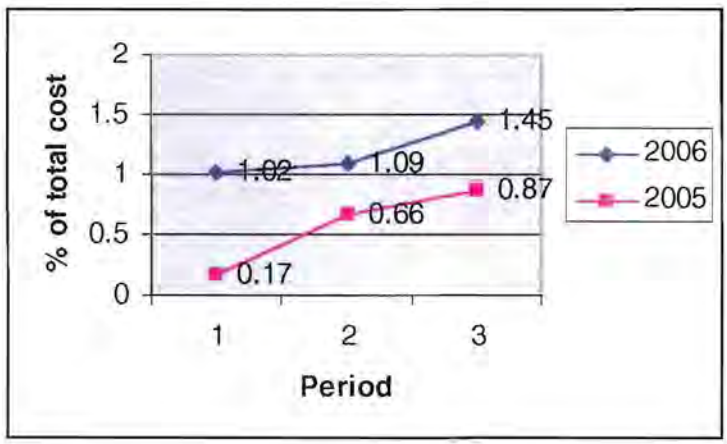

Figure 4.2: The increase in percentage of total cost of Concerta 36mg

Concerta 36mg had a total cost of R29 826 987.96 in period one (January to April) of 2005, period two (May to August) had a total cost of R37 039 365.60, and period three (September to December) had a total cost of R30 601 754.04. Figure 4.2, illustrates that Concerta 36 mg represented 0.17% (n=R29 826 987.96), 0.66% (n=R37 039 365.6) and 0.87% (n=R30 601 754.04) of the overall medicine cost in period one, two and three of 2005 respectively. Concerta 36mg showed a similar upwards pattern in 2006, representing 1.02% (n=R34 110 522.42), 1.09% (n=R40 631 512.75) and 1.45% (n=R29 416 797.5) in period one, two and three respectively.

Table B.17 and table B.18 (appendix B) portray the decrease in the cost of Ritalin LA 20mg in comparison with the increase in cost of Concerta 36mg. Figure 4.3 illustrates the decline of Ritalin's cost.

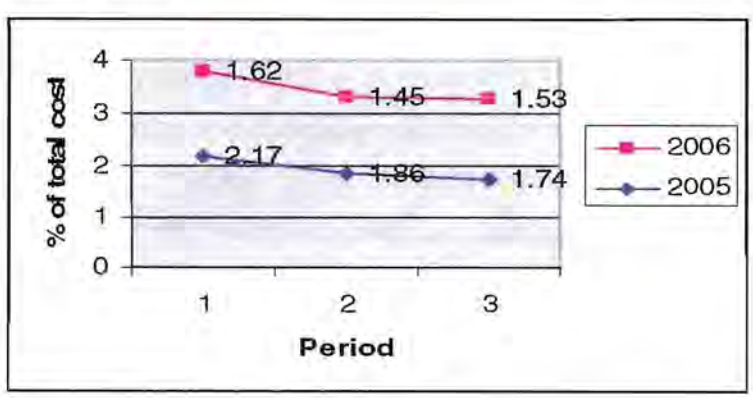

Figure 4.3: The decrease in Ritalin LA 20mg cost

None of these medicines (Ritalin LA 20mg and/or Concerta 36mg) appeared in the top twenty trade name products ranked according to prevalence (refer to paragraph 4.3.3.2.2), although they illustrated a similar pattern according to their prevalence as the pattern they illustrated according to cost. Figure 4.4 portrays the complete pattern which these two medicines followed during 2005 and 2006 respectively according to frequency.

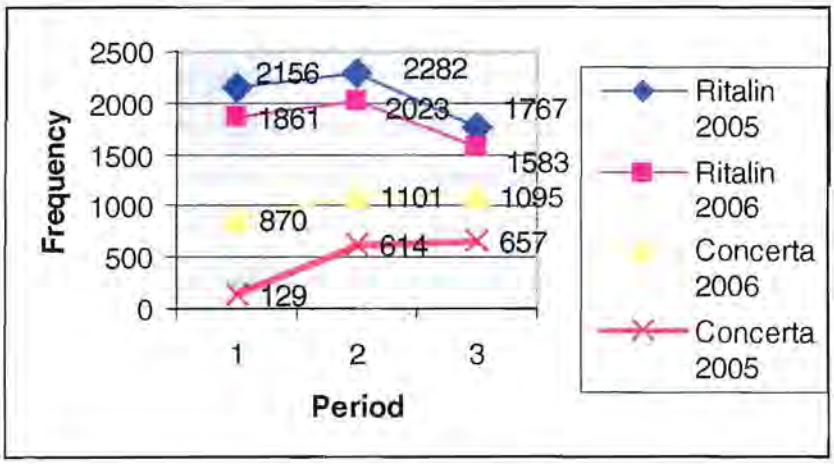

Figure 4.4: The frequency of Concerta and Ritalin during 2005 and 2006

Figure 4.4 illustrates that although Ritalin LA 20mg had a higher frequency throughout the two years, the product did show a decrease in usage, while Concerta illustrated an increase in frequency. This pattern can be a coincidence, but can also be due to the fact that Concerta 36mg and Ritalin LA 20mg are therapeutic equivalents and that some patients prefer the once daily dose of Concerta instead of the three times daily dose of Ritalin LA 20mg. Both Concerta and Ritalin LA 20mg tablets can be seen as activity drivers.

Seretide 50/250 accuhaler, indicated for asthma, was the only product indicated for a chronic disease list condition.

O'Sullivan (2005:302) reported that as many as 4 million school-aged children (between the age of 5-13 years) in the USA are taking Ritalin or a similar prescription stimulant. Ritalin LA 20mg contains the active ingredient methylphenidate and is effective in the short-term treatment of attention deficit/hyperactivity disorder (ADHD) (Mott, 2004:659). Ritalin LA 20mg ranked 1st in both years and represented 1.91% (n=R97 468 107.60) and 1.53% (n=R104 158 832.70) of the overall medicine cost. This medicine had an average cost per item of about R300 and a CPI of round about 4.24 for both the study periods. The assumption can be made that Ritalin LA 20mg tablets can be considered a relatively expensive treatment.

According to an utilisation study done by Chen *et al.* (2002:274), patients in the age group 10 to 19 years are the most frequent users of isotretinoin containing products. The results of this sensus also showed that male adolescents between the age of 10 to 19 years were one and a

half times more likely to use oral isotretinoin than their female counterparts. Chen and his co-workers also illustrated that in the year 2000, 11.3% (n=54 894) of the "acne population" received oral isotretinoin and received an average of 3.05 prescriptions per patient for this substance. Roaccutane, an isotretinoin containing product was approved in 1982 in the USA as a treatment for severe recalcitrant nodular acne that is unresponsive to conventional antibiotic treatment (Wysowski *et al.*, 2002:505).

Although isotretinoin containing products did not appear on the top twenty list of products according to prevalence for this age group; Roaccutane 20mg capsules were ranked 2nd in 2005 representing 1.28% (n=R97 468 107.60) in 2005 of the overall medicine cost and were ranked 4th and represented 1.16% (n=R104 158 832.70) of the overall medicine cost during 2006. The CPI calculated for this agent (6.90 for 2005 and 6.44 for 2006) indicates that this product was relatively expensive on the database.

Tables B.17 and B.18 (appendix B) portray Acnetane 20mg and Oratane 20mg, (generic equivalents of Roaccutane 20mg) in the top twenty trade name products ranked according to cost. Acnetane 20mg capsules ranked 9th and 8th in 2005 and in 2006 respectively, where Oratane ranked 12th in both the study periods. Roacutane 20mg capsules had the highest average cost per item in both 2005 and 2006, where Oratane and Acnetane had similar lower average costs per item. Table 2.24 portrays the potential cost saving if all the Roaccutane 20mg tablets were substituted for one of the generic products.

Table 4.24: The potential cost saving for Roaccutane 20mg

Year	Trade name product	Frequency	Average cost per item (R)	Total cost (R)	Potential cost savings (R)
2005	Roaccutane 20mg	2852	495.29	1 412 560.00	N/A
	Oratane 20mg	2347	352.09	826 345.60	408 399.32
	Acnetane 20mg	2581	347.36	896 528.20	421 889.28
2006	Roaccutane 20mg	2624	460.37	1 208 021.00	N/A
	Oratane 20mg	2601	308.60	802 656.00	398 254.60
	Acnetane 20mg	3100	307.72	953 927.60	400 256.72

* The formula for the potential cost saving is given in paragraph 3.5.5.

An estimated amount of approximately R400 000 could have been saved if Roaccutane 20mg tablets had been substituted for either Oratane 20mg or Acnetane 20mg in the adolescent age group for both the study periods.

The following deductions can also be made from table B.17 (appendix B) concerning the medicine cost for the age group 10 to 19 years during to 2005:

- The Ritalin brand had three products in the top twenty and together consisted of 3.78% (n=R97 470 392.52) of the overall medicine cost,

- Minerva, which is a hormonal contraceptive for systematic use (Gibbon *et al.*, 2008:231) came in at rank number 20, the first time substances of this kind appeared on the top twenty list according to cost. Minerva tablets appeared at rank 26th according to prevalence and showed an average cost per item of R103.92. The reason for the appearance of this medicine may be due to the fact that it is indicated for mild acne treatment in women as well as a method for contraception.

The following deductions could also be made from table B.18 (refer to appendix B) which illustrates the top twenty trade name products in patients aged 10 to 19 years during 2006:

- Ritalin, Concerta and Strattera, which are all indicated for ADHD, all appeared among the top twenty and together accounted for 4.83% (n=104 158 832.7) of the overall medicine cost for 2006.

- Roaccutane, Acnetane, Tetralysal, Oratane, Advantan cream and Differin gel also all appeared among the top twenty. According to Chen and co-workers (2002:274) all of these substances can be used in acne-associated conditions. These substances accounted for 4.84% (n=R104 158 832.70) of the overall medicine cost for 2006.

In the following section the medicine prevalence in adolescents will be discussed.

4.3.3.2.2 The top twenty trade name products for age group 2 according to prevalence

The following section presents a brief overview of the top twenty trade name products according to prevalence for the age group 10 to 19 years with the emphasis on the top five trade name products (table 4.25).

Table B.19, table B.20 and table B.21 (refer to appendix B) portray the complete list of the top twenty trade name products according to prevalence for the age group 10 to 19 years. According to table B.19, the top twenty trade name products accounted for 13.11% (n=1 390 573) and 12.22% (n=1 499 217) of the overall medicine prevalence in 2005 and 2006 respectively.

Table 4.25: The top five trade name products ranked according to prevalence for age group < 9 and ≥ 19 years

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=1 390 573 n total cost=R97 468 107.60	Alcophellex syr	1	20081	9.94	199604.82	0.14
	Myprodol cap	2	17940	56.76	1018215.57	0.81
	Mybulen tab	3	14235	37.63	535624.11	0.54
	Myprodol susp	4	11158	59.01	658431.25	0.85
	Solphellex syr	5	9928	49.82	494596.99	0.72
Total:			73342	213.15	2906472.74	
2006 n items=1 499 217 n total cost=R104 158 832.70	Alcophellex syr	1	20856	9.53	198779.71	0.16
	Mybulen tab	2	14612	37.57	548961.89	0.63
	Solphellex syr	3	11197	48.68	545069.24	0.81
	Flustat cap	4	10550	13.73	144853.38	0.23
	Be-tabs prednisone 5mg tab	5	10448	2.92	30510.09	0.04
Total:			67663	112.43	1468174.31	

According to table 4.25, the top five trade name products represented 5.27% (n=1 390 573) and 4.51% (n=1 499 217) of the overall medicine prevalence for 2005 and 2006 respectively. The top five substances all represented medication that can be used in acute conditions.

The following deductions can be made from table 4.25:

- Alcophyllex appeared 1st in both 2005 and in 2006 and represented 1.44% (n=1 390 573) and 1.39% (n=1 499 217) of the overall medicine prevalence during 2005 and 2006 respectively (refer also to paragraph 4.3.2.2).

- Mybulen tablets represented 1.02% (n=1 390 573) was ranked 3rd and had an average cost of R37.63 per item in 2005. In 2006 the average cost per item for Mybulen tablets was R37.57, it was ranked 2nd and represented 0.97% (n=1 499 217) of the overall medicine prevalence (refer to paragraph 4.2.2.2).

- Solphyllex syrup also appeared in both study years in the top five and represented 0.71% (n=1 390 573) in 2005 and 0.75% (n=1 499 217) in 2006 of the overall medicine prevalence. Solphyllex cough syrup had an average cost of R49.82 per item in 2005 and R48.68 in 2006.

According to table B.20 and table B.21 (refer to appendix B) the following noteworthy usage patterns were identified for 2005 and 2006:

- Bactroban topical ointment ranked 8th in the first period, 31st in period two and 18th in the last period of 2005. In period two, Bactroban topical ointment only represented 0.38% (n=407 425) of the overall medicine prevalence against the 0.59% (n=555 721) of period one and the 0.42% (n=427 418) of period three.

- Dilinct cough syrup, along with Coryx effervescent and Klacid XL tablets showed an increase in period two, which represented the winter months. According to Chestnutt and Prendergast (2007:222) all of these substances can be used in the treatment of respiratory infections associated symptoms. Ilett and co-workers (2000:172) stated that the incidence of respiratory tract infections proved to be higher during autumn and winter months, and this can be an explanation for the increase in the usage of these products.

- Allergex and Deselex tablets illustrated a pattern of higher occurrence during period one and period three, and a drastic lower prevalence during period two, Allergex tablets were ranked 10th, 21st and 15th in period one, two and three respectively and Deselex tablets were positioned 12th in period one, 20th in period two, and 4th in the last period of 2006. Allergex and Deselex are antihistamines which are indicated for the treatment of allergy and seasonal occurrence of sneezing, nasal purity, sinus, congestion and rhinorhhea (Kishiyama & Adelman, 2007:807). Period one represents the period January 1st to April 30th and period three represents the period September 1st to Desember 31st, which are predominantly summer and spring months in South Africa. This can be an explanation for the higher prevalence of this seasonal indicated allergy medication.

In the following section the top twenty trade name products for patients aged >19 and ≤ 45 years will be discussed.

4.3.3.3 The top twenty trade name products for the group 3 (>19 and ≤45 years)

The top trade name products for age group 3 will be discussed according to total cost and prevalence.

4.3.3.3.1 The top twenty trade name products for age group 3 according to total cost

Table B.22 and table B.23 (appendix B) show the complete list of the top twenty trade name products according to cost. These tables indicate that the top twenty trade name products represented 14.30% (n= R478 014 067.20) and 14.81% (n=R506 572 754.89) of the overall medicine cost in 2005 and 2006 respectively.

Table 4.26 summarises the top five trade name products according to total cost for age group 3.

Table 4.26: The top five trade name products ranked according to total cost for age group >19 and ≤45 years

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=5 933 729 n total cost=R478 014 067.20	Stocrin 600mg tab	1	5471390.26	22722	240.80	3.00
	Myprodol cap	2	5302055.19	90110	58.84	0.73
	Cipralex 10mg	3	5196832.59	20398	254.75	3.21
	Aspen Lamzid tab	4	4555111.57	13835	329.25	4.13
	Klacid XL 500mg tab	5	4213966.81	25599	164.61	2.05
Total:			24738856.42	172664	1048.244021	
2006 n items=6 377 057 n total cost=R506 572 754.89	Stocrin 600mg tab	1	8109884.56	37347	217.15	2.71
	Aspen Lamzid tab	2	7631247.20	23233	328.47	4.19
	Cipralex 10mg	3	6509621.47	25352	256.77	3.23
	Nexiam 40mg	4	4859944.13	17007	285.76	3.56
	Klacid XL 500mg tab	5	4126867.95	25434	162.26	2.03
Total:			31237565.31	128373	1250.404277	

According to table 4.26, the top five trade name products represented 5.18% (n=R478 014 067.20) and 6.17% (n=R506 572 754.89) of the overall medicine cost for 2005 and 2006 respectively. The top five trade name products consist of chronic medications as well as acute medications. With the exception of Nexiam 40mg tablets, the other products on the top five trade name list of 2005 and 2006 remained the same.

Stocrin 600mg tablets were ranked 1st in both 2005 and 2006 and represented 1.14% (n=R478 014 067.20) and 1.60% (n=R506 572 754.89) of the overall medicine cost for 2005 and 2006 respectively. Stocrin 600mg is an ARV medicine (refer to paragraph 4.3.2.1). Aspen Lamzid (which contains 150mg lamivudine and 300mg zidovudine) is also an ARV medication used in the treatment of HIV infection (refer paragraph 4.3.2.1). Aspen Lamzid was ranked 4th and 2nd in 2005 and 2006 respectively and represented 0.95% (n= R478 014 067.20) in 2005 and 1.51% (n=R506 572 754.89) in 2006 of the overall medicine cost. According to statistics from the United Nations (2005), 18.8 per cent of South Africans between the ages 15 to 49 years are infected with HIV. The most recent statistics from the Development Bank of South Africa (Momberg, 2008) indicated that 7.6 million people living in South Africa have HIV/Aids, upon which 6.1 million infected people are in the age group 20 to 64 years. According to Scholtz and co-workers (2006:63) ARV medicine represented 5.25 per cent of the total medicine cost during 2005, with an average cost of R798.37 per ARV prescription. Stocrin 600mg contains the active ingredient efavirenz and can be seen as an innovator medicine, whereas lamuvidine and zidovudine are generic medicines, Aspen Lamzid is however the only combination product of its kind, this can be an explanation to why these ARV products have a relatively high average cost per item. Scholtz *et al.* (2006:66) found that the effect sizes (*d*-values) between most of the innovator ARV and the generic ARV medicines were all greater than 0.8, and therefore of practical significance.

Cipralex 10mg was ranked 3rd in both years and represented 1.09% (N=R478 014 067.20) and 1.29% (N=R506 572 754.89) of the overall medicine cost for 2005 and 2006 respectively. Cipralex 10mg tablets contains the active ingredient escitalopram and is classified as a selective serotonin re-uptake inhibitor (SSRI) that is used for the treatment of depression (Eisendrath & Lichtmacher, 2007:1093). Croom and Plosker (2003:1186) found in a recent pharmacoeconomic analysis that although escitalopram is one of the most pricey treatments for depression it is also the most cost-effective treatment and showed cost-utility advantage over most of the other depression treatments. According to Murray and Fortinberry (2005), between 16 per cent and 17 per cent of the world's population suffered from some sort of depression and the average estimated age of depression onset would start in the late 20's. It is also estimated that medication usage for depression-related conditions peaks at the age of 35 to 45 years. According to these statistics the high frequency of depression contributed to the high cost of depression. Depression can, therefore, be seen as a resource driver, as reflected by the appearance of Cipralex 10mg among the top twenty trade name products for this age group. According to Bester *et al.* (2006:12) Cipralex 10mg tablets, being a "new" chemical entity, could easily enhance the perception that "newer is better" which could be the reasons for the appearance of Cipralex 10mg tablets among the top five trade name products.

Klacid XL tablets appeared among the top five, in position five for both 2005 and 2006. Klacid XL is a cephalosporine (refer to paragraph 4.3.2.3.1) and frequently used for respiratory tract infections.

According to table B.23 (appendix B), Ketek 400 mg tablets illustrated a higher total cost during period two, compared to period one and period three of 2006. The average cost per item of Ketek only showed small variations during these three periods, but the frequency of this medicine showed a drastic incline during period two (i.e. May 1st to August 31st). Ketek 400mg contains the active ingredient telithromycin, a ketolide, commonly used in *H.influenzae* infections. As previously discussed in paragraph 4.3.3.2.1, *H.influenzae* infections occur more frequently during the winter and autumn months. The higher prevalence can contribute to a higher total cost and can be an explanation for the rise in Ketek 400mg cost during the winter period of 2006.

According to table B.23, Herceptin showed a positive inclining trajectory as it was ranked 52nd, 27th, and 7th in period one, two and three of 2006 respectively. Herceptin contains the active ingredient trastuzumab and is commonly used in early-stage and metastatic breast cancer. According to Pienaar (2006:4), South African medical schemes' opinion of Herceptin was that it was too expensive and not cost-effective to cover Herceptin claims for early stage breast cancer. Discovery Health estimated that the full treatment of Herceptin would calculate up to R400 000 for a women weighing 70kg. Pienaar (2006:4), also stated that nearly 25 per cent of

people who suffered from this form of breast cancer were beneficiaries of Discovery Health. On 7 March 2006 Discovery Health changed their guidelines regarding this oncology product based on the recommended short-course treatment guideline from the South African Oncology Consortium (Financial news, 2006). This can be an explanation for the incline in the total amount claimed for Herceptin. Herceptin had a CPI of 89.79 during 2006, which indicates that this product was expensive, and can even be seen as a very high-priced product.

In the following section, the top twenty trade name products according to prevalence for the age group 20 to 45 year will be discussed.

4.3.3.3.2 The top twenty trade name products for age group 3 according to prevalence

The top twenty trade name products listed in table B.24, table B.25 and table B.26 (appendix B) were used as basis for the discussion in the following section.

Table B.25 shows that the top twenty trade name products accounted for 12.73% (n=5 933 729) and 12.16% (n=6 377 057) of the overall medicine cost during 2005 and 2006.

In table 4.27, the top five trade name products according to prevalence for the age group 20 to 45 years will be given.

Table 4.27: The top five trade name products ranked according to prevalence for age group >19 and ≤45 years

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=5 933 729 n total cost=R478 014 067.20	Myprodol cap	1	90110	58.84	5302055.19	0.73
	Mybulen tab	2	74795	38.91	2910423.42	0.48
	Alcophyllex syr	3	61463	10.86	667592.55	0.13
	Stilpane tab	4	50727	10.40	527609.28	0.13
	Solphyllex syr	5	36002	50.26	1809402.99	0.62
Total:			313097	169.27	11217083.43	
2006 n items=6 377 057 n total cost=R506 572 754.89	Mybulen tab	1	75199	38.39	2887248.45	0.48
	Alcophyllex syr	2	63199	10.28	649468.53	0.13
	Myprodol cap	3	50431	54.64	2755672.38	0.68
	Stilpane tab	4	46223	9.29	429489.08	0.11
	Solphyllex syr	5	42535	48.89	2079715.96	0.61
Total:			277587	161.50	8801594.40	

According to table 4.27, the top five trade name products accounted for 5.28% (n=5 933 729) and 4.35% (n=6 377 057) of the overall medicine prevalence for the year 2005 and 2006 respectively. The top five trade name products' list for both years contained exactly the same products only in different sequence. Three out of the five trade name products are indicated for the management of pain-related conditions in adults (Snyman, 2007:79), and the other two were indicated for coughs (Gibbon *et al.*, 2008:523).

Myprodol contains the active ingredients 200mg ibuprofen, 250mg paracetamol and 10mg codeine phosphate. This combination is used to treat mild to moderate pain with inflammation origin with or without fever (Snyman, 2007:76). Mybulen tablets are the generic similar product for Myprodol with two differences, Mybulen tablets are in a tablets dosage form and contain 100mg more paracetamol than Myprodol capsules. Myprodol capsules were ranked 1st and 3rd and represented 1.52% (n=5 933 729) and 0.79% (n=6 377 057) of the overall medicine prevalence in 2005 and in 2006 respectively. Myprodol capsules had an average cost of R58.84 per item in 2005 and R54.64 per item in 2006. Mybulen ranked 2nd and 1st in 2005 and 2006 respectively and represented 1.18% (n=5 933 729) and 1.26% (n=6 377 057) of the overall medicine prevalence in both 2005 and in 2006. The average cost per item for Mybulen tablets amounted to R36.91 in 2005 and R39.39 in 2006. Figure 4.5 illustrates the usage pattems of Myprodol capsules and Mybulen tablets during the 3 individual periods of both study years. Myprodol capsules had a CPI of 0.73 in 2005 and 0.68 in 2006 compared to the CPI of Mybulen tablets at 0.48 in both the study periods. Although both these products are relatively inexpensive, the assumption can be made that the tablet form of Mybulen is less expensive than the capsule form of Myprodol.

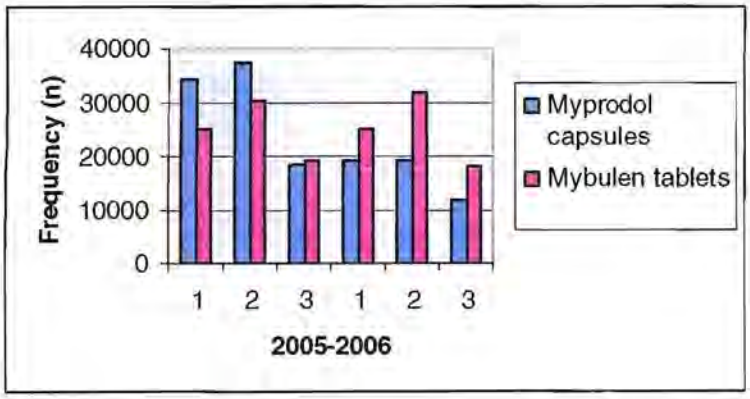

Figure 4.5: The frequency of Myprodol capsules and Mybulen tablets during 2005 and 2006

Figure 4.5 clearly illustrates that the usage of Myprodol capsules declined in response to the incline in the usage of Mybulen tablets.

Stilpane tablets maintained their position in 4th place in both years and showed similar percentages of the overall medicine prevalence as well as the average cost per item. Stilpane tablets contain nearly the same active ingredients as Mybulen tablets and Myprodol capsules except that it also contains 250 mg meprobamate and is indicated for the relieve of intense pain (Snyman, 2007:79). According to Meyer (2007:22), 27 per cent of men and 33 per cent of women experience chronic pain, and such chronic pain is one of the most recurrent reasons for medical attention. Clark (2002:133) states that 92 per cent of patients with chronic pain have taken pain medication for periods longer than three months.

Alcophyllex and Solphyllex also appeared on the top five trade name products list for both the study periods (also refer to paragraph 4.3.2.2).

According to table B.25 and table B.26 (appendix B) that list the prevalence of the top twenty pharmaceutical products for age group 3 (patients aged between 20 and 45 years), the following trade name products have shown an increase during period 2: Benylin Four Flu syrup, Coryx effervescent, Demazin NS and Dilinct cough syrup. All of these trade name products are indicated for the treatment of colds and flu symptoms. As previously stated (refer to paragraph 4.3.3.2.1) studies have shown that colds and flu conditions occur more frequently during the winter periods.

Tables B.25 and B.26 show that the prevalence of Allergex tablets decreased during period two in both of the study years. Allergex was ranked 15th, 23rd and 14th in periods one (January to April), two (May to August) and three (September to December) of 2005 respectively. In paragraph 4.3.3.2.2 a possible explanation for this pattern is given.

In the following section the top twenty trade name products for the age group < 45 and ≥ 59 years will be discussed.

4.3.3.4 The top twenty trade name products for age group < 45 and ≥ 59 years

In this section, the top twenty trade name products for the age group < 45 and ≥ 59 years will be calculated according to total cost and prevalence.

4.3.3.4.1 The top twenty trade name products for age group 4 according to total cost

Table B.27 shows the top twenty trade name products for the year 2005 and its individual periods; and table B.28 the top twenty trade name products for 2006 and its individual periods (refer to appendix B). According to tables B.25 and B.26 the top twenty trade name products represented 15.43% (n=R497 543 992.28) and 14.94% (n=R549 795 115.63) of the overall medicine cost for 2005 and 2006 respectively.

Table 4.28 is a summarised table of the top five trade name products for the age group < 45 and ≥ 59 years according to cost, and this table will be discussed in the following paragraphs.

Table 4.28 shows that the top five trade name products represented 5.89% (n=R497 543 992.28) and 5.87% (n=R549 795 115.63) of the overall medicine cost of 2005 and 2006 respectively. The top five trade name products for this age group included mostly chronic medication, with the exception of Nexiam 40mg tablets in the 4th and 5th place for 2005 and 2006, indicated for peptic ulcers and erosive esophagitis (Wells *et al.*, 2003:220).

Table 4.28: The top five trade name products ranked according to total cost for age group < 45 and ≥ 59 years

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=4 901 485 n total cost=R497 543 992.28	Lipitor 10mg tab	1	10178730.85	53408	190.49	1.87
	Lipitor 20mg tab	2	6957664.00	25573	272.07	2.69
	Coversyl plus tab	3	4254923.90	23335	182.34	1.79
	Nexiam 40mg	4	3983734.70	13301	299.51	2.96
	Premarin 0.625mg tab	5	3960078.70	40272	98.33	0.98
Total:			29330132.15	155889	1042.74203	
2006 n items=5 447 080 n total cost =R549 795 115.63	Lipitor 10mg tab	1	9697182.40	50711	191.22	1.89
	Lipitor 20mg tab	2	7364058.99	26929	273.46	2.78
	Cipralex 10mg	3	5386870.53	21098	255.33	2.51
	Prexum 4mg tab	4	4967796.70	38139	130.26	1.29
	Nexiam 40mg	5	4863464.65	15968	304.58	3.03
Total:			32279373.27	152845	1154.843313	

The Lipitor brand (Lipitor 10mg and 20mg) was ranked 1st and 2nd in both 2005 and 2006 and represented 3.44% (n=R497 543 992.28) and 2.10% (n=R549 795 115.63) of the overall medicine cost of 2005 and 2006 (refer to in paragraph 4.3.2.1.).

Coversyl Plus is the branded equivalent of Prexum Plus and commonly used in hypertension (Gibbon *et al.*, 2008:160). Coversyl Pus tablets were ranked 3rd in 2005 and represented 0.86% (n=R497 543 992.28) of the total medicine cost for that year.

Premarin 0.625mg tablets were ranked 5th in 2005 and represented 0.80% (n=R497 543 992.28) of the overall medicine cost. Premarin 0.625mg tablets are conjugated estrogen and frequently used in post-menopausal women. Premarin 0.625mg tablets can be seen as a resource driver, due to their high frequency, low average cost per item and CPI of lower than one. As the average age of menopause onset in women is at the age of 50 years, it can have an influence on the quantity which will influence the total cost. This could be an explanation for Premarin 0.625mg tablets only appearing in the top twenty trade name product list for age group 4 for the first time (MacKay, 2007:779).

Cipralex 10mg also appears in the 3rd position in 2006 and represented 0.98% (n=R549 795 115.63) of the total medicine cost (refer to paragraph 4.3.2.1. for a discussion concerning Cipralex 10mg tablets).

Following the analyses of tables B.27 and B.28, the following unusual medicine usage patterns were identified:

- Premarin 0.625mg, Livifem and Activelle are all used in hormonal replacement therapy in post-menopausal women (MacKay, 2007:779) and together accounted for 2.04% (n=R497 543 992.28) of the overall medicine cost in 2005.

- Gleevec 100mg made its first appearance among the top twenty trade name products and was ranked 34th in the first period, 17th in period two and 14th in period three. Gleevec contains the active ingredient imatinib and is prescribed as treatment for chronic myelogenous leukemia (Linker, 2007:517). Gleevec is a rather new treatment and has now replaced Interferon and Hydroxyurea as the standard treatment for myelogenous leukemia (Linker, 2007:517). According to Linker (2007:516) chronic myelogenous leukemia is a middle age disorder and the average patient suffering from this condition is aged 55. Gleevc 100mg was only prescribed 392 times during 2005, but had an average cost of R6721.22 per item. This can be an explanation for the appearance of Gleevec 100mg in this age group of 46-59 years ranked according to total cost.

- Herceptin also appeared in table B.28 which represents the data findings of the individual periods of 2006. Herceptin represented 0.72% of the overall medicine cost for 2006 and showed an increase in cost in age group four compared to age group three. The usage pattern of Herceptin showed an incline in cost during the three periods. This usage pattern of Herceptin was discussed in paragraph 4.3.3.3.1. Herceptin can be seen as an activity driver, due to the fact that its prevalence is low and its average cost per item is high.

- Avelon 400mg tablets showed the normal usage pattern of the broadspectrum antibiotics, indicating higher cost during period two of both the study years.

In the following section the prevalence of the top twenty trade name products in patients aged 46 to 59 years will be discussed.

4.3.3.4.2 The top twenty trade name products for age group 4 according to prevalence

Tables B.29, B.30 and B.31 (appendix B), list the top twenty trade name products for 2005 and 2006 and their individual periods according to prevalence for the patients aged 46 to 59 years. According to table B.29 the top twenty trade name products represented 13.53% (n=4 901 485) and 12.85% (n=5 447 080) of the overall medicine prevalence for 2005 and 2006 respectively.

Tables B.30 and B.31 show that most of the top twenty trade name products are substances used for the treatment of chronic diseases which include the following: antihypertensives, hipolipidaemic agents, antidepressants, sex hormones, osteoporosis and bone disorders medications.

Table 4.29 is a summary of the top five trade name products for age group < 45 and ≥ 59 years according to prevalence and will be discussed in subsequent paragraphs.

Table 4.29: The top five trade name products ranked according to prevalence for the age group < 45 and ≥ 59 years

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=4 901 485 n total cost=R497 543 992.28	Eltoxin 100mcg tab	1	77657	42.41	3293578.78	0.42
	Lipitor 10mg tab	2	53408	190.49	10173730.85	1.87
	Myprodol cap	3	48374	61.31	2965691.51	0.61
	Premarin 0.625mg tab	4	40272	98.33	3960078.70	0.98
	Ecotrin 81mg tab	5	36619	19.68	720515.92	0.19
Total:			256330	412.22	21113595.76	
2006 n items=5 447 080 n total cost=R549 795 115.63	Eltoxin 100mcg tab	1	81486	41.27	3363014.85	0.41
	Lipitor 10mg tab	2	50711	191.22	9697182.40	1.89
	Ecotrin 81mg tab	3	42135	20.63	869231.74	0.21
	Mybulen tab	4	38731	39.37	1524768.29	0.39
	Premarin 0.625mg tab	5	38270	96.89	3707932.42	0.96
Total:			251333	389.38	19162129.70	

According to table 4.29, the top five trade name products represented 5.23% (n=4 901 485) and 4.61% (n=5 447 080) of the overall medicine prevalence for 2005 and 2006 respectively. Most of the top five trade name products are chronic medications with the exception of Mybulen tablets in 2006 and Myprodol capsules in 2005.

Eltroxin 100mcg tablets were ranked 1st in both years and had an average cost per item of R42.41 in 2005 and R41.27 in 2006 (Eltroxin previously discussed in paragraph 4.3.2.2).

Lipitor 10mg again featured in the top five trade name products for patients aged 46 to 59 years at number two in both 2005 and 2006 and represented 1.09% (n=4 901 485) and 0.93% (n=5 447 080) of the overall medicine prevalence in 2005 and 2006 respectively. Lipitor 10mg tablets emerged as the product with the highest average cost per item of all the trade name products in the top five with an average cost of R190.49 and R191.22 per item in 2005 and 2006 respectively. As previously shown with the cost prevalence index, (paragraph 4.3.2.2) Lipitor 10mg is a relatively expensive drug. Lipitor is a combination of an activity driver as well as a resource driver, due to the fact that Lipitor 10mg tablets have a high prevalence as well as a high average cost per item.

Premarin 0.625mg was ranked 4th and 5th in 2005 and in 2006 respectively and represented 0.82% (n=4 901 485) and 0.70% (n=5 447 080) of the overall medicine cost (refer to paragraph 4.3.3.4.1).

In the following section the prevalence and cost of trade name products in geriatric patients will be discussed.

4.3.3.5 The top twenty trade name products in age group 5 (59 <)

In this section, the top twenty trade name products for the age group 59 < years were identified according to prevalence and total cost.

4.3.3.5.1 The top twenty trade name products for age group 5 according to total cost

According to Shetty and Woodhouse (2006:127) people over the age of 60 years accounted for 25 to 40 per cent of drug cost and therefore play a major role in drug usage.

The complete top twenty trade name products list according to total cost for the age group 59 < years is revealed in tables B.32 and B.33 for 2005 and 2006 respectively (refer to appendix B). The top twenty trade name products represented 17.76% (n=R731 018 015.80) in 2005 and 17.18% (n=R793 875 296.06) in 2006 of the overall medicine cost. The top twenty trade name products consisted essentially out of medication used for chronic illnesses.

In table 4.30, the top five trade name products for the patients aged 59 < years according to the total cost will be given and discussed in subsequent paragraphs.

Table 4.30: The top five trade name products ranked according to total cost for age group 59 < years

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=6 033 952 n total cost=R731 018 015.80	Lipitor 10mg tab	1	18356531.20	97775	187.74	1.55
	Fosamax 70mg tab	2	13906441.80	41401	335.90	2.75
	Celebrex 200mg cap	3	9978992.06	43296	230.48	1.90
	Lipitor 20mg tab	4	9901874.47	37086	267.00	2.21
	Adco-Simvastatin 20mg	5	7883224.10	70441	111.91	0.92
Total:			60027063.63	289999	1133.031943	
2006 n items=6 481 394 n total cost=R793 875 296.06	Lipitor 10mg tab	1	18228432.11	96583	188.73	1.54
	Fosamax 70mg tab	2	12330676.65	36811	334.97	2.72
	Lipitor 20mg tab	3	10872422.76	40601	267.79	2.17
	Prexum 4mg tab	4	10001917.07	78099	128.07	1.05
	Celebrex 200mg cap	5	9282263.38	40624	228.49	1.86
Total:			60715711.97	292718	1148.052282	

According to table 4.30, the top five trade name products represented 8.21% (n=R731 018 015.8) and 7.65% (n=R793 875 296.06) of the overall medicine cost for the year 2005 and 2006 respectively. All of the products in the top five pharmaceutical product list are indicated for chronic use.

The top five trade name products for 2005 and 2006 were very similar with the exception of Adco-Simvastatin 20mg tablets in 2005 and Prexum 4mg tablets in 2006.

Two trade name products made their first appearance in the top five trade name products list in this age group. These products are Fosamax 70mg and Celebrex 200mg. Fosamax 70mg contains the active ingredient alendronate which is used in the prevention and treatment of osteoporosis and is the most commonly used drug in South Africa for the treatment of osteoporosis (De Villiers, 2008:41). According to De Villiers (2008:41) osteoporosis and lowering in bone density is an age-related condition and will occur in one out of every three women over the age of fifty. Johnell and co-workers (2003:311) proved in their cost-effectiveness study that although alendronate is an expensive treatment, it is highly cost-effective and improves quality of life due to the fact that this treatment reduces the risk of major fractures with 50 per cent in elderly women. Fosamax 70mg was ranked 2nd in both years and represented 1.90% (n=R731 018 015.80) and 1.55% (n=R793 875 296.06) of the overall medicine cost in these two years respectively.

Celebrex 200mg capsules ranked 3rd and 5th in 2005 and in 2006 respectively and represented 1.37% (n=R731 018 015.80) in 2005 and 1.17% (n=R793 875 296.06) of the overall medicine cost for the age group 60 years and older. Celebrex 200mg capsules contain the active ingredient celecoxib and is classified as a NSAID and is frequently used in the symptomatic treatment of inflammation and pain associated with rheumatoid arthritis and osteoarthritis (Gibbon *et al.*, 2008:375). Celebrex 200mg had an average cost of about R230 per item for both the study years and a CPI of 1.90 and 1.86 in 2005 and 2006 respectively. The assumption can be made that this medicine was relatively expensive in both of the study years. According to Chancellor and co-workers (2001:72), although the initial treatment of arthritis with celecoxib is more expensive compared to other NSAIDs, it will be a cost-saving treatment in chronic use due to the fact that celecoxib has fewer gastro-intestinal adverse effects. According to Alldred and Kay (2006:791) about 2 per cent of men and 5 per cent of women over the age of 55 suffer from rheumatoid arthritis and at least 60 per cent of the population over the age of 60 has osteoarthritis. The fact that celecoxib is a relatively expensive medicine and the reasons stated by Alldred and Kay can be possible explanations for the appearance of Celebrex 200mg among the top five trade name products for the patients aged 60 years and older.

From tables B.32 and B.33 the following noteworthy usage patterns were identified (refer to appendix B):

- Both Mabthera and Herceptin showed a steady incline in the cost during 2006. Herceptin was ranked 27th, 8th, and 9th in period one, two and three respectively. Mabthera was ranked 44th in the first period of 2006, 11th in the second period and 7th in the last periods (refer to paragraph 4.3.1.1 and 4.3.3.3.1 for a discussion concerning Herceptin). According to a presentation done by Stander (2008), the active ingredient of Mabthera, rituximab, has an incremental cost-effectiveness ratio (ICER) of R103 000/QALY, and

can therefore be seen as a cost-effective oncology treatment. This treatment for indolent B-cell non-Hodgkins lymphoma falls predominantly in the upper, right quadrant of the cost-effectiveness plane, which illustrates that rituximab is more expensive, but also more effective (refer to paragraph 2.4.1.1.3, figure 2.10 for the complete discussion of the cost-effectiveness plane).

- Another interesting observation from the data pertaining the two trade name products Coversyl Plus and Prexum Plus. Prexum Plus is the generic equivalent for Coversyl Plus and is used for the treatment of hypertension (Snyman, 2007:140). Ranked according to total cost, Coversyl Plus was 11th in the first period of 2006, 34th in the second and 44th in the third period compared to the ranking of Prexum Plus (generic equivalent) at position 86th, 13th and 10th in periods one, two and three of 2006 respectively. Figure 4.6 demonstrates the usage pattern of these two pharmaceutical products.

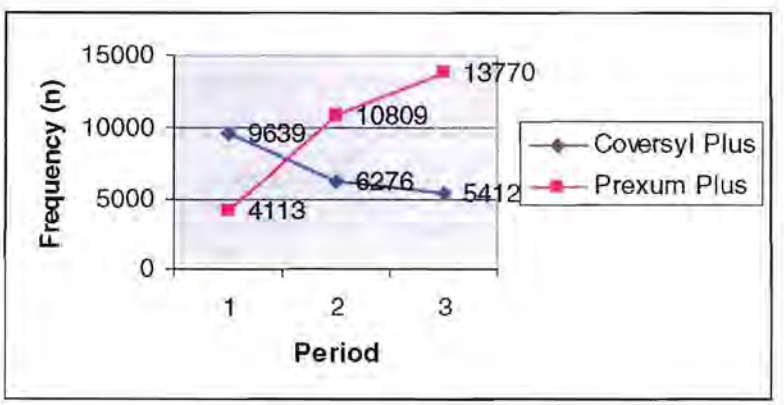

Figure 4.6: The usage pattern of Coversyl Plus and Prexum Plus during 2006

Figure 4.6 exhibits the drastic decrease in the frequency of Coversyl Plus that conceded the increase in the frequency of Prexum Plus. The usage pattern is in correlation with the total cost of these two medicines.

In the following section the top twenty trade name products claimed for patients over the age of 60 will be discussed according to prevalence.

4.3.3.5.2 The top twenty trade name products for age group 5 according to prevalence

In tables B.34, B.35 and B.36, the complete list of the top twenty trade name products according to prevalence for the age group 60 years and older is revealed (refer to appendix B). According to table B.34, the top twenty trade name products represented 18.56% (n=6 033 952) and 18.31% (n=6 481 394) of the overall medicine prevalence for 2005 and 2006 respectively.

Shetty and Woodhouse (2006:127) state that elderly people (people over the age of 60 years) often suffer from multiple chronic diseases, and they ranked the most frequently used medication in elderly in the United Kingdom in the following order: cardiovascular drugs which include the antihypertensives as well as the hipolipidaemic agents, central nervous system drugs, musculoskeletal system agents, gastrointestinal system medication, and respiratory indicated products.

The top twenty trade name products for patients aged over 60 according to prevalence mostly represented chronic disease medications, which are included in the prescribed minimum benefits (PMB) conditions.

Table 4.31 summarises the top five trade name products according to prevalence. A discussion follows in subsequent paragraphs.

Table 4.31: The top five trade name products ranked according to prevalence for age group 59 < years

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=6 033 952 n total cost=R731 018 015.80	Eltroxin 100mcg tab	1	134239	38.36	5149215.67	0.32
	Ecotrin 81mg tab	2	111415	19.48	2170267.86	0.16
	Lipitor 10mg tab	3	97775	187.74	18356531.20	1.55
	Disprin CV 100mg disp	4	73937	23.26	1719663.93	0.20
	Adco-Simvastatin 20mg tab	5	70441	111.91	7883224.10	0.92
Total:			487807	380.75	35278902.76	
2006 n items=6 481 394 n total cost=R793 875 296.06	Eltroxin 100mcg tab	1	145400	37.61	5468541.21	0.31
	Ecotrin 81mg tab	2	124124	20.56	2552277.92	0.17
	Lipitor 10mg tab	3	96583	188.73	18228432.11	1.54
	Adco-Simvastatin 20mg tab	4	82330	110.33	9083840.14	0.90
	Prexum 4mg tab	5	78099	128.07	10001917.07	1.05
Total:			526536	485.31	45335008.45	

According to table 4.31, the top five trade name products represented 8.08% (n=6 033 952) and 8.12% (n=6 481 394) of the overall medicine prevalence for 2005 and 2006 respectively. The top five trade name products for the age group 60 years and older included treatments for the following conditions: hyperlipidaemia, hypertension, hypothyroidism and platelet aggregation inhibitors. The top five trade name products of 2005 were very similar to those of 2006. A noteworthy finding was that all of the top five trade name products for this age group had already appeared multiple times among the other age groups' top five trade name products. This can possibly be due to the fact that all the medicine products are indicated for chronic illnesses.

Prexum 4mg was ranked 5th in 2006 and represented 1.20% (n=6 033 952) of the overall medicine cost and had an average cost per item of R128.07 during 2006. According to Bester (2006:12) Prexum 4mg tablets can currently be regarded as the product of choice for the treatment for hypertension in the private health care sector of South Africa. Coversyl (the branded product) was ranked 60th according to total cost and had an average cost of R179.87 per item during 2006.

Eltroxin 100mcg tablets represented 2.22% (n=6 033 952) in 2005 and 2.24% (n=6 481 394) in 2006 of the overall medicine cost, and ranked 1st in both these years. Eltroxin 100mcg showed an average cost per item of R36.36 in 2005 and R37.61 in 2006. Eltroxin 100mcg tablets frequently appeared in the top twenty trade name products list according to prevalence (refer to table B.32 and table B.33). The CPI of Eltroxin 100mcg was 0.32 and 0.31 in 2005 and 2006 respectively. The CPI for Eltroxin 100mcg was thus far below one, and the assumption can therefore be made that Eltroxin 100mcg is a relatively inexpensive drug and can be seen as a resource driver.

Lipitor 10mg as well as Adco-Simvastatin 20mg tablets appeared among the top five trade name products of both years. As previously stated in paragraph 4.3.2.1 both of these substances are hipolipidaemic agents and accounted for 2.79% (n=6 033 952) in 2005 and 2.76% (n=6 481 394) in 2006 of the overall medicine prevalence. Adco-Simvastatin 20mg had an average cost per item of R111.91 and R110.33 during 2005 and 2006 respectively, whereas Lipitor 10mg had an average cost of R187.74 in 2005 and R188.73 in 2006.

According to a study done in the United Kingdom the substitution of atorvastatin 10mg for simvastatin 20mg or 40mg can lead to a saving of up to £2 billion in five years (Moon & Bogle, 2006:1344). Table 4.32 illustrates the possible cost-savings if Lipitor 10mg tablets were completely substituted for the therapeutic equivalent Adco-Simvastatin 20mg tablets.

Table 4.32: The potential cost saving for Lipitor 10mg

Year	Trade name product	Frequency	Average cost per item (R)	Total cost (R)	Potential cost savings (R)
2005	Lipitor 10mg	97 775	187.74	18 356 531.20	
	Adco-Simvastatin 20mg	70 441	111.91	7 883 224.10	7 414 530.95*
2006	Lipitor 10mg	96 583	188.73	18 228 432.11	
	Adco-Simvastatin 20mg	82 330	110.33	9 083 840.14	7 572 429.72*

* The formula for the potential cost saving is given in paragraph 3.5.5.

Table 4.32 portrays that a staggering R7 414 530.95 and R7 572 429.72 could be saved in the age group 60 years and older if the 97 775 Lipitor 10mg prescriptions in 2005 and the 96 583 Lipitor 10mg prescriptions in 2006, had been substituted for the therapeutic equivalent, Adco-

Simvastatin 20mg tablets. According to the database the assumption can therefore be made that it will be more cost-effective to treat hyperlipidaemia with Adco-Simvastatin 20mg.

Ecotrin 81mg and Disprin CV tablets both were present in 2005's top five trade name list according to prevalence. These trade name products are used as platelet aggregation inhibitors (refer to paragraph 4.3.1.2) and together accounted for 3.08% (n=6 033 952) of the overall medicine cost in 2005.

According to Shetty and Woodhouse (2006:127) the most commonly used drugs in geriatrics are the following: diuretics, analgesics, hypnotics, sedatives and anxiolytics, antirheumatic drugs and ß-blockers. Results of this study hold this argument (refer to table B.35 and B.36) and show that there are indeed the most commonly used medications for the age group 60 years and older.

4.3.3.6 Summary of the different age groups

According to paragraphs 4.3.3.1 to 4.3.3.5 the following conclusions can be made:

- As expected the trade name products for age group one consisted mainly of suspensions and syrups. The majority of the medicine products were indicated for fever, acute pain or bacterial infections.
- Pharmaceutical products attributing to a great percentage of the medicine expenditure for age group two, which represents the adolescents between the age of 10 and 19 years, consisted mainly of treatments for acne-related problems and ADHD treatment.
- Age group three represented the middle-aged population or part of the economic active patients. ARV medication made its appearance for the first time in this age group ranked according to cost and was also one of the most frequently used medications. According to cost, Herceptin also appeared for the first time in this age group.
- For the age group 46 to 59 years, which represents the other part of the economic active patients, the trade name products entailed mostly chronic disease medication. Gleevec and Herceptin also appeared on this age groups' top trade name products list according to expenditure.
- For the geriatric age group, the trade name products were mainly indicated for chronic diseases. Fosamax, Premarin 0.625mg and Celebrex 200mg contributed a high percentage to the total medicine treatment cost.
- Most of the medicines on the top five trade name list according to cost of all the age groups can be seen as activity drivers, with the exception of Myprodol capsules, Premarin 0.625mg tablets, Eltroxin 100mcg tablets and Adco-Simvastatin 20mg tablets as resource drivers.

The following section will focus on a discussion about the top twenty trade name products in the different sex groups.

4.3.4 The top twenty trade name products according to sex

In the following section the top twenty trade name products will be investigated according to sex. The top twenty trade name products will be identified according to prevalence and total cost.

4.3.4.1 The top twenty trade name products for females

The top twenty trade names according to their prevalence and total cost will be discussed for the female sex group in the subsequent paragraphs.

4.3.4.1.1 The top twenty trade name products for females according to total cost

Tables B.37 and B.38 (appendix B), shows the complete list of the top twenty trade name products claimed for females according to total cost on the database. According to tables B.37 and B.38, the top twenty trade name products represented 14.14% (n=R1 128 652 112.20) and 13.81% (n=R1 213 068 355.90) in 2005 and in 2006 of the overall medicine cost respectively.

Table 4.33, portrays the top five trade name products for females according to total cost. The products will be discussed in the subsequent paragraphs.

Table 4.33: The top five trade name products ranked according to total cost for females

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=11 974 255 n total cost=R1 128 652 112.20	Fosamax 70mg tab	1	15875985.94	47197	336.36	3.62
	Lipitor 10mg tab	2	14585759.61	77623	187.91	1.98
	Celebrex 200mg cap	3	10797181.22	47911	225.36	2.40
	Premarin 0.625mg tab	4	10439514.9	106719	97.82	1.03
	Eltroxin 100mcg tab	5	8839796.6	219536	40.27	0.43
Total:			60538238.27	498986	887.73	
2006 n items =12 924 812 n total cost=R1 213 068 355.90	Lipitor 10mg tab	1	14277564.89	75676	188.67	2.00
	Fosamax 70mg tab	2	13993997.60	41823	334.60	3.59
	Cipralex 10mg	3	11906812.69	47170	252.42	2.72
	Herceptin	4	11365564.90	1609	7063.74	78.33
	Celebrex 200mg cap	5	10129318.57	45593	222.17	2.40
Total:			61673258.65	211871	8061.60	

According to table 4.33, the top five trade name products according to total cost represented 5.36% (n=R1 128 652 112.2) and 5.08% (n=R1 213 068 355.9) of the overall medicine cost for

2005 and 2006 respectively. The top two products stayed unchanged throughout 2005 and 2006. Most of the top five trade name products are medicine products prescribed for chronic use.

Fosamax is used in the treatment of osteoporosis (refer to paragraph 4.3.2.5.1). According to the National Osteoporosis Foundation (NOF) (2005), an estimated 10 million people suffer from osteoporosis in the world; 8 million are estimated to be women and 2 million men. Women furthermore lose up to 20 per cent of their bone mass in the five to seven years after menopause (NOF, 2005). Fosamax 4mg is the originator product containing alendronate. The NOF expressed concern about the long-term safety and efficacy of generic alendronate products, due to the fact that minimum research has been done on these generic products. According to the NOF report on generic alendronate, they advise osteoporosis patients to use the originator products (Fosamax 4mg) (Hough, 2006:696). Fosamax 40mg tablets represented 1.41% (n=R1 128 652 112.2) and 1.15% (n=R1 213 068 355.9) of the overall medicine cost in 2005 and in 2006 and was ranked 1st and 2nd respectively in these two years.
Although statistics showed that cholesterol is more frequent in men than in women, women also suffer from cholesterol. The National Centre of Health in the USA (2003) presented the following statistics about the prevalence of cholesterol in women:

- 9.3 per cent of women aged 20 to 34 have high cholesterol,
- 12.8 per cent of women between the ages 35 to 44 have high cholesterol,
- 23.7 per cent of women aged between 45 to 54 showed elevated cholesterol levels,
- 26.2 per cent of women aged 55 to 64 have high cholesterol,
- 37.4 per cent of women between the ages 65 to 74 have high cholesterol, and
- 27.6 per cent of women aged 75 and older showed elevated cholesterol levels.

Lipitor 10mg tablets ranked 2nd and 1st in 2005 and 2006 respectively and represented 1.29% (n=R1 128 652 112.20) and 1.18% (n=R1 213 068 355.90) of the overall medicine cost during these two years. Lipitor 10mg tablets were claimed more than 70 000 times and had a CPI of about 2 during both study periods. Lipitor 10mg is a rather expensive treatment for elevated blood cholesterol, and can be one of the explanations for Lipitor 10mg being ranked first according to cost.

Cipralex 10mg tablets ranked 3rd in 2006 and represented 0.98% (n=R1 213 068 355.90) of the overall medicine cost. As previously stated in paragraph 4.3.3.3.1; Cipralex 10mg is used in the treatment of depression. The CPI of Cipralex 10mg was 2.72 during 2006 and this shows that Cipralex 10mg is a relatively expensive treatment for depression.

According to Hootman *et al.* (2006:1092) 24.4 per cent of woman and 18.1 per cent of men were diagnosed with arthritis. This shows that arthritis occurs in both men and women but is estimated to occur slightly more in the female sex. Celebrex 200mg capsules were ranked 3rd and 5th in 2005 and in 2006 respectively. Celebrex 200mg represented 0.96% (n=R1 128 652 112.20) in 2005 and 0.84% (n=R1 213 068 355.90) in 2006 of the overall medicine cost. As previously stated in paragraph 4.3.2.5.1, Celebrex 200mg is used in the treatment of rheumatoid arthritis and osteoarthritis. Celebrex had an average cost of around R225 per item and a CPI of 2.40 for both the study periods. The assumption can therefore be made that Celebrex 200mg is a relatively expensive treatment.

In 2005, Eltroxin 100mcg tablets ranked 5th and represented 0.78% (n=R1 128 652 112.20) of the overall medicine cost. As previously shown in paragraph 4.2.1.1; Eltroxin 100mcg tablets are used in hypothyroidism. Eltroxin had an average cost of R40.27 per item and a CPI of 0.43. Although the CPI of this medicine is well below one and can be seen as a relatively low-priced treatment, the prevalence of Eltroxin 100mcg tablets was extremely high, and contributed to the total cost of this thyroxine containing product, therefore Eltroxin 100mcg tablets can be seen as a resource driver.

The main risk factor for developing breast cancer is sex; women tend to get breast cancer 100 times more likely than men (Anon., 2005:3). Millar and Millward (2007:436) compared the cost of trastuzumab with a non-trastuzumab treatment and found that apart from the first year of treatment (where the initial cost of the treatment with trasutuzumab is high), the remaining treatment cost is lower due to the fact that the risk of the cancer recurring is less and fewer relapse treatments are needed. Millar and Millward (2007:436) concluded that Herceptin treatment is cost-effective and adds valuable quality of life years to a patient's life (Millar & Millward, 2007:436). The breast cancer oncology drug Herceptin (refer to paragraph 4.2.3.3.1) was ranked 4th in 2006 and represented 0.94% (n=R1 213 068 355.9) of the overall medicine cost. Herceptin had an exceptionally high CPI of 78.33 and an average cost of R7063.74 per item during 2006. The assumption can be made that this oncology treatment is extremely expensive and is an activity driver.

According to table B.38 the following unusual patterns occurred:

- Herceptin was ranked 12th in the first period, 4th in the second period and 1st in the last period of 2006. A possible explanation for this trend was given in paragraph 4.3.3.3.1.
- Aspen Lamzid and Stocrin 600mg also made their appearance in 2006 onto the top twenty trade name products list according to total cost for the very first time. In paragraph 4.3.2.1 an explanation for this trend was given.

- Tavanic 500mg illustrated the recurrent pattern of higher cost during period two which includes the winter months (refer to paragraph 4.3.2.2).

In the following section the prevalence of the top twenty trade name products will be portrayed and discussed.

4.3.4.1.2 The top twenty trade name products for females according to prevalence

In the following section the top twenty trade name products will be discussed in general, with emphasis on the top five trade name products. Table B.39 (appendix B) lists the top twenty trade name products for 2005 and 2006, while tables B.40 and B.41 show the complete list of each individual period during 2005 and 2006.

According to table B.39, the top twenty trade name products represented 12.27% (n=11 974 255) and 11.86% (n=12 924 812) of the overall medicine prevalence. The top twenty trade name products entailed a variety of chronic as well as acute medications.

In table 4.34, the top five trade name products will be showcased and will be discussed in the subsequent paragraphs.

According to table 4.34, the top five trade name products claimed for females accounted for 5.03% (n=11 974 255) and 4.60% (n=12 924 812) of the overall medicine prevalence for 2005 and 2006.

Table 4.34: The top five trade name products ranked according to prevalence for females

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=11 974 255 n total cost=R1 128 652 112.20	Eltroxin 100mcg tab	1	219536	40.27	8839796.60	0.43
	Myprodol cap	2	108043	60.48	6534520.86	0.64
	Premarin 0.625mg tab	3	106719	97.82	10439514.90	1.03
	Eltroxin 50mcg tab	4	86843	27.33	2373494.64	0.29
	Mybulen tab	5	81101	39.47	3201243.64	0.41
Total:			602242	265.37	31388570.64	
2006 n items=12 924 812 n total cost=R1 213 068 355.90	Eltroxin 100mcg tab	1	233060	39.17	9129458.21	0.42
	Eltroxin 50mcg tab	2	98699	26.32	2597720.70	0.28
	Premarin 0.625mg tab	3	97157	96.88	9412145.45	1.04
	Ecotrin 81mg tab	4	90295	20.50	1851000.36	0.21
	Mybulen tab	5	83755	39.03	3268865.76	0.42
Total:			602966	221.90	26259190.48	

According to Pacchin (2004) hypothyroidism is one of the conditions that appear more frequently in the female sex (refer to paragraph 4.3.1.1). Olsen *et al.* (2004:653) found that 7 to

26 per cent of all women present with hypothyroidism. The authors furthermore revealed that women are at increased risk for developing hypothyroidism especially women over the age of 50 years. The results of this study hold the conclusion with the Eltroxin brand that was ranked 1st and 4th in 2005 and 1st and 2nd in 2006. Together the Eltroxin brand (50mcg and 100mcg) accounted for 2.56% of the overall medicine prevalence in both the study periods.

Premarin 0.625mg tablets are used in hormone replacement therapy (HRT). Premarin 0.625mg tablets ranked 3rd in both 2005 and in 2006 and represented 0.89% and 0.75% of the overall medicine prevalence as previously stated in paragraph 4.3.3.4.1.

Tables B.40 and B.41 (appendix B) did not show any irregular patterns that have not been obvious from the data previously discussed except the high occurrence of anti-depressants.

According to a study done by Becht *et al.* (2001:211) approximately 20.6 per cent of all women suffer from depression. Murray and Fortinberry (2005) stated that 30 per cent of women are depressed and it is estimated that men's figures are more than half of those of women. According to Murray and Fortinberry (2005) the number of depressed people can be higher, but an estimated 41 per cent of depressed women are too embarrassed to admit their depression. Another study showed that depression, anxiety and insomnia are twice as common in females as in their male counterparts, a possible explanation to this can be the hormonal imbalances that occur in women and the fact that females are more open about their feelings and do tend to share this more easily with their health care provider than men (Anon., 2006:42). In the top twenty products list according to prevalence for both study years there are two pharmaceutical products (Trepilene 25mg and Cilift 10mg tablets) which can be used in the treatment of depression.

In the following section the trade name products with the highest prevalence and the highest total cost used by the male sex will be investigated.

4.3.4.2 The top twenty trade name products for males

In this section, the top twenty trade name products according to total cost and prevalence will be investigated for the male sex.

4.3.4.2.1 The top twenty trade name products for males according to total cost

In tables B.42 and B.43 (refer to appendix B) the complete list of the top twenty trade name products' data are reflected. These tables indicate that the top twenty trade name products

accounted for 14.10% (n=R763 226 111.40) and 14.27% (n=R832 825 542.36) of the total medicine cost for the male sex on the database in 2006.

The top five trade name products according to total cost for the male sex was summarised into table 4.35 and will be discussed in the subsequent paragraphs.

According to table 4.35, the top five trade name products accounted for 6.07% (n=R763 226 111.40) and 6.12% (n=R832 825 542.36) of the total medicine cost for 2005 and 2006.

Table 4.35: The top five trade name products ranked according to total cost for males

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=7 870 112 n total cost=R763 226 111.40	Lipitor 10mg tab	1	16855208.2	88863	189.68	1.96
	Lipitor 20mg tab	2	11295518.88	41699	270.88	2.79
	Adco-Simvastatin 20mg tab	3	6376696.26	56746	112.37	1.17
	Prexum 4mg tab	4	6245368.67	48497	128.78	1.32
	Plavix 75mg filmcoat tab	5	5536539.12	13848	399.81	4.06
Total:			46309331.13	249653	1101.52	
2006 n items=8 537 499 n total cost=R832 725 542.36	Lipitor 10mg tab	1	16154064.45	84779	190.54	1.96
	Lipitor 20mg tab	2	12062518.39	44351	271.98	2.79
	Prexum 4mg tab	3	8403966.09	65264	128.77	1.33
	Adco-Simvastatin 20mg tab	4	7208438.15	64935	111.01	1.15
	Plavix 75mg filmcoat tab	5	7099216.14	17950	395.50	4.05
Total:			50928203.22	277279	1097.80	

The top five trade name products represented treatments for chronic conditions and were similar in 2005 and in 2006. The top five trade name products represented the following diseases, which were: cholesterol, hypertension and platelet aggregation inhibitors.

According to Plosker and Lyseng-Williamson (2007:1050) the high onset cost of atorvastatin was reduced with 31 to 86 per cent due to the far fewer cardiovascular complications patients experienced with the atorvastatin treatment in comparison with other statins and placebo, and can therefore be seen as a cost-effective treatment, because of the fact that it reduces any further cardiovascular risks. The Lipitor brand was ranked 1st and 2nd in both 2005 and 2006. Adco-Simvastatin 20mg which is also a hipolipidaemic agent was ranked 3rd in 2005 and 4th in 2006. All three of these trade name products can be used to lower blood cholesterol levels as well as blood pressure and together they accounted for 4.53% (n=R763 226 111.40) and 4.26% (n=R832 825 542.36) of the overall medicine cost for 2005 and 2006 respectively.

Prexum 4mg tablets ranked 4th in 2005 and 3rd in 2006 and represented 0.82% (n=R763 226 111.40) and 1.01% (n=R832 825 542.36) of the overall medicine cost in 2005 and in 2006 respectively. Prexum 4mg (an ACE inhibitor) is a substance used in the treatment of elevated blood pressure (refer to paragraph 4.3.3.4.1).

Prexum 4mg tablets appeared frequently among the top twenty trade name products according to cost and prevalence (refer to 4.3.2.1, 4.3.3.4.1, 4.3.2.5.1 and 4.3.2.5.2). According to a study done by Nordmann and co-workers (2003:580), ACE-inhibitors are more expensive than conventional hypertension treatment and the quality of adjusted life years (QALYs) with ACE-inhibitors as first-line therapy for hypertension prove to be slightly better than the conventional treatments. The cost prevalence index of Prexum 4mg in this study was determined as 1.32 for 2005 and 1.33 during 2006. The index number, is higher than 1, thus indicating that Prexum 4mg is a relatively expensive product on the South African PBM database.

Plavix 75mg (platelet aggregation inhibitor) was more often prescribed by cardiologist and neurologists during 2005 and 2006 (Bester, 2006:12). Lyseng-Williamson and Plosker (2006:710) conducted a pharmacoeconomic study on clopidrogel (the active ingredient of Plavix 75mg tablets) and found that the use of clopidrogel and aspirin for up to one year is a cost-effective treatment in comparison to aspirin alone. Plavix 75mg tablets ranked 5th in both study years and represented 0.73% (n=R763 226 111.40) and 0.85% (n=R832 825 542.36) of the overall medicine cost for 2005 and 2006 respectively.

According to tables B.42 and table B.43 the following pattems were observed:

- According to Gibbon *et al.* (2008:358) Gleevec contains imatinib and is a protein kinase inhibitor used in the treatment of myeloid leukemia (refer to paragraph 4.3.3.4.1). Gleevec 100mg was ranked 9th in 2006 and represented 0.59% (n=R763 226 111.40) of the overall medicine cost. Gleevec 100mg had a CPI of 67.82 and an average cost of R6550.19 in 2006. The assumption can be made that Gleevec 100mg is an expensive treatment. Gleevec 400mg represented 0.57% (n=R832 825 542.36) of the overall medicine cost, a CPI of 69.51 and an average cost of R6811.78 per item for 2006 therefore Gleevec 100mg as well as Gleevec 400mg can also be seen as expensive treatment.
- Stocrin 600mg appeared as number twenty in 2005 and was ranked 8th in 2006. Aspen Lamzid appeared for the first time in 2006 in 14th position. As previously stated the usage of ARV medications was influenced by the PMB legislation (refer to paragraph 4.3.2.1).
- Mabthera was ranked 19th in 2006, representing 0.46% (n=R832 825 542.36) of the overall medicine cost at an average cost of R6596.19 per item (refer to paragraph 4.3.1.1). According to Mabthera's high CPI of 67.65, the conclusion can be made that this medicine is an expensive treatment.
- Insulin Actraphane and insulin Novomix appeared among the top twenty of both 2005 and 2006. In 2006 insulin Novomix penset was ranked 7th. Together these insulins accounted for 0.96% and 1.17% of the overall medicine cost for 2005 and 2006

respectively. Both Actraphane and Novomix had a CPI of about 5.75 and their average cost per item was about R560 for both the study years, therefore the conclusion can be made that these medicine products are relatively expensive. According to Gale and Gillespie (2001:3) the male to female ratio for the incidence of type I diabetes is 3:2, this means that males will have a higher usage of insulin, which could contribute to the higher cost associated with insulin. This can be an explanation for the fact that insulin-containing products appeared among the top twenty trade name products for the male sex but not for the female sex.

In the following section the top twenty trade name products according to prevalence for the male sex will be investigated.

4.3.4.2.2 The top twenty trade name products for males according to prevalence

In appendix B, table B.45 depicts the top twenty trade name products according to prevalence for 2005 and 2006. Tables B.45 and B.46 give a complete description of the claims data for the individual periods of both 2005 and 2006.

According to table B.45, the top twenty trade name products accounted for 11.86% (n=7 870 112) and 11.33% (n=8 537 499) of the overall medicine prevalence for 2005 and 2006 respectively.

The top five trade name products for the male sex according to prevalence were summarised into table 4.36.

Table 4.36: The top five trade name products ranked according to prevalence for males

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=7 870 112 n total cost=R763 226 111.40	Lipitor 10mg tab	1	88863	189.68	16855208.20	1.96
	Ecotrin 81mg tab	2	76967	19.75	1520011.91	0.20
	Myprodol cap	3	75138	60.17	4521211.04	0.62
	Alcophyllex syr	4	68880	10.35	713235.66	0.10
	Disprin CV 100mg disp	5	63818	23.30	1487146.56	0.23
Total:			373666	303.26	25096813.37	
2006 n items=8 537 499 n total cost=R832 725 542.36	Ecotrin 81mg tab	1	86204	187.39	16154064.45	0.21
	Lipitor 10mg tab	2	84779	142.28	12062518.39	1.95
	Alcophyllex syr	3	70861	118.60	8403966.09	0.10
	Prexum 4mg tab	4	65264	110.45	7208438.15	1.32
	Adco-Simvastatin 20MG tab	5	64935	109.33	7099216.14	1.14
Total:			372043	668.05	50928203.22	

According to table 4.36, the top five trade name products accounted for 4.75% (n=7 870 112) and 4.36% (n=8 537 499) of the overall medicine cost for 2005 and 2006 respectively. The top five trade name products were similar for both years and represented treatments for chronic as well as acute conditions.

According to Pacchin (2004) diabetes, hypertension, asthma and chronic hepatitis are more frequent in the male sex. According to Norman and co-workers (2007:694) men are more likely to suffer from cardiovascular conditions than their female counterparts and about 24 per cent of men suffer from cardiovascular diseases and 71 per cent of those cases are attributable to high blood pressure.

According to a study done by Aguilar-Salinas *et al.* (2001:1302) the most common abnormalities in connection with cholesterol were decreased high density lipoproteiens (HDL) levels and increased low density lipoproteins (LDL). The results of the latter study illustrated that 46.2 per cent of men had decreased HDL levels in comparison with the 28.7 per cent for women, and 12.7 per cent of men had increased LDL levels in comparison with the 10.3 per cent for the female sex. Lipitor 10mg was ranked in the number one position for 2005 and in the number two position in 2006 for males. It represented 1.13% (n=7 870 112) in 2005 and 0.99% (n=8 537 499) in 2006 of the overall medicine prevalence. As previously stated in previous sections Lipitor 10mg is used in the treatment of cholesterol.

According to a study done by Van Minh *et al.* (2005:1038) the prevalence of hypertension is significantly higher among men than women. Results of the study by Van Minh and co-workers, showed that 18.1 per cent of men had hypertension in comparison with the 10.1 per cent of women. Prexum 4mg tablets was ranked 4th and represented 0.76% (n=7 870 112) of the total medicine prevalence claimed for male patients in 2006. The results of this study were in correlation with the findings of the study done by Van Minh and co-workers due to the fact, that neither Prexum 4mg tablets nor any other antihypertensive agents were present on the top five trade name list according to prevalence for females.

Ecotrin 81mg tablets represented 0.98% (n=7 870 112) and 1.01% (n=8 537 499) of the overall medicine prevalence and ranked 1st and 2nd in 2005 and 2006 respectively.

Alcophyllex syrup and in some cases, Myprodol capsules, are the two trade name products that can be used for acute treatments.

According to table B.44, Glucophage Forte (F) 850 mg tablets were ranked 16th and represented 0.38% (n=7 870 112) in 2005 and ranked 14th in 2006, representing 0.42% (n=8

537 499) of the overall medicine prevalence. According to Gibbon *et al.* (2008:74) Glucophage F 850mg tablets contain the active ingredient metformin, which is indicated for type II diabetes. Cantrill and Wood (2006a:657) stated that obesity and the incidence of type II diabetes correlate with each other. In the more obese societies, a sharp increase in diabetes prevalence can be seen. In the USA a 6 to 8 per cent incidence rate of diabetes can be seen, but in a country such as South Africa the figures can be estimated as high as 30 per cent (Cantrill & Wood, 2006a:657). According to Bradshaw *et al.* (2007:700) approximately 1 to 1.5 million South African are currently living with diabetes and the disease accounted for about 13 500 deaths in the year 2000. Contrary to what the results of this study have shown, Bradshaw and co-workers (2007:702) stated that the prevalence of diabetes is higher in the female sex than in the male sex.

According to tables B.45 and B.46, the normal trend of the cold and flu treatments, that are more frequent in the winter months, was also present in males on the database.

4.3.4.3 Summary of the top trade name products according to sex

This section concludes with a brief overview of the results that have been discussed in section 4.3.4.1 – 4.3.4.2.

The total medicine cost for the female sex represented 59.61% (n=R1 128 652 112.20) of the overall medicine cost in 2005 and consisted, of 60.29% (n=11 974 255) of all the items claimed. In 2006 the total medicine cost for females was 59.26% (n=R1 213 068 355.90) of the overall medicine expenditure on the database and consisted of 60.19% (n=12 924 812) of all the medicine items claimed. The male sex's medicine cost was significantly lower, for 2005 the total medicine cost was 40.31% (n=R763 226 111.40) of the overall medicine expenditure and consisted of 39.63% (n=7 870 112) of the medicine items claimed. In 2006 the total medicine cost for the male sex represented 40.68% (n=R832 725 542.36) of the overall medicine expenditure and consisted of 39.76% (n=8 537 499) of all the medicine items claimed through the database.

The trade name products that were among the top twenty trade name products that were not as frequently used by the male sex were hormone replacement therapy, antidepressants, cytostatics used in breast cancer and osteoporosis and bone disorder medication. Trade name products that were more frequently used by the male sex were hipolipidaemic agents and antihypertensives.

The ARV medication, Stocrin 600mg tablets and Aspen Lamzid, appeared in both 2005 and 2006's top twenty trade name products list according to total cost for the male sex, but only appeared among the top twenty trade name products according to cost for the female sex in 2005.

The following products can be seen as activity drivers: Fosamax 70mg tablets, Lipitor 10mg tablets, Celebrex 100mg capsules, Premarin 0.625mg tablets, Cipralex 10mg tablets, and Herceptin for the female sex. The resource drivers for the female sex were Eltroxin 100mcg, Myprodol capsules, Eltroxin 50mcg, Mybulen tablets and Ecotrin tablets.

Activity drivers for the male sex were Lipitor 10mg and 20mg tablets, Adco-Simvastatin 20mg tablets, Prexum 4mg tablets and Plavix 75mg tablets. Ecotrin 81mg tablets, Myprodol capsules, Alcophyllex syrup, and Disprin CV tablets can be seen as the resource drivers for the male sex.

4.3.5 The top twenty trade name products according to provider type

This section will include a discussion on the top twenty trade name products claimed on the database according to "provider type". The provider types were divided into three categories namely, pharmacies, general practitioners and other providers (refer to paragraph 3.3.5). The top twenty trade name products for each of these providers were calculated according to their cost and prevalence.

4.3.5.1 The top twenty trade name products provided through pharmacies

In this section the top twenty trade name products on the database provided *via* pharmacies will be discussed.

4.3.5.1.1 The top twenty trade name products provided by pharmacies according to total cost

Tables B.45 and B.46 (appendix B) portray the complete list of the top twenty trade name products provided by pharmacies according to cost. The top twenty trade name products represented 13.74% (n=R1 726 420 150.50) and 13.68% (n=R1 888 460 214.90) of the overall medicine cost for the medication provided by pharmacies during 2005 and 2006 respectively.

The top five trade name products according to cost provided by pharmacies are depicted in table 4.37.

Table 4.37: The top five trade name products provided by pharmacies according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=15 926 285 n total cost=R1 726 420 150.50	Lipitor 10mg tab	1	30437894.92	160827	189.26	1.74
	Lipitor 20mg tab	2	18530633.54	68615	270.07	2.49
	Fosamax 70mg tab	3	16685576.24	49502	337.07	3.13
	Celebrex 200mg cap	4	14284870.63	63496	224.97	2.08
	Prexum 4mg tab	5	12235601.52	94619	129.31	1.20
Total:			92174576.85	437059	1150.68	
2006 n items=17 262 616 n total cost=R1 888 460 214.90	Lipitor 10mg tab	1	29843991.75	157140	189.92	1.74
	Lipitor 20mg tab	2	20069245.17	74118	270.77	2.47
	Prexum 4mg tab	3	16356015.55	126682	129.11	1.19
	Cipralex 10mg	4	16185556.09	63752	253.88	2.32
	Fosamax 70mg tab	5	14981447.88	44692	335.22	3.04
Total:			97436256.44	466384	1178.90	

According to table 4.37, the top five trade name products represented 5.37% (n=R1 726 420 150.50) and 5.16% (n=R1 888 460 214.90) of the overall medicine cost provided by pharmacies in 2005 and in 2006 respectively. The top five trade name products stayed similar for both 2005 and 2006 with the exception of Celebrex 200mg tablets' appearance in 2005 and the appearance of Cipralex 10mg in 2006. The top five trade name products all represented treatments that can be used for chronic diseases which are included in the CDL, including the following:

- Hiperlipideamia
- Hypertension
- Depression
- Osteoporosis and bone disorders

In February 2007, Discovery Health and the manufacturers of the Lipitor brand, Pfizer pharmaceuticals, reached an agreement to make Lipitor more affordable. No single exit price will be charged by Pfizer pharmaceuticals and in retum Discovery Health decided to increase its amount payable to chronic diseases on some of its options, the only requirement being that all members have to obtain Lipitor from a pharmacy which charges the 26 per cent dispensing fee (Insurance news, 2007). The Lipitor brand was positioned 1st and 2nd in both years and together represented 2.83% (n=R1 726 420 150.50) and 2.64% (n=R1 888 460 214.90) of the overall medicine cost provided by pharmacies in 2005 and 2006 respectively. Lipitor 10mg tablets had an average cost of R189 and a CPI of 1.74 for both the study periods, where Lipitor 20mg tablets had a CPI of about 2.48 at an average cost of R270 per item. According to the index numbers of both these products the conclusion can be made that both are relatively expensive, with Lipitor 20mg the more expensive product of the two.

The antihypertensive treatment Prexum 4mg was positioned 5th in 2005 and 3rd in 2006. Prexum 4mg represented 0.71% (n=R1 726 420 150.50) and 0.87% (n=R1 888 460 214.90) of the overall medicine cost.

Fosamax 70mg tablets were positioned 3rd in 2005 and 5th in 2006 and represented 0.97% (n=R1 726 420 150.50) and 0.79% (n=R1 888 460 214.90) of the overall medicine cost for the products provided *via* pharmacies. Fosamax 70mg tablets had the highest CPI (about 3.10) of all the products among the top five, and therefore the conclusion can be made that this medicine product was the most expensive treatment in the top five trade name products list provided by pharmacies.

According to tables B.47 and B.48 (appendix B) the following usage patterns were identified:

- Avelon 400mg, Klacid XL and Tavanic 500mg (refer to paragraph 4.3.3.4.1) all illustrated higher cost during period two (May 1st – Agust 31st) of the study years.
- Herceptin was positioned 26th in period one, 11th in period two and 5th in period three of 2006. This pattern shown by Herceptin has been discussed in paragraph 4.3.3.3.1.

In the following section the top twenty trade name products provided by pharmacies according to prevalence will be discussed.

4.3.5.1.2 The top twenty trade name products provided by pharmacies according to prevalence

Tables B.49, B.50 and B.52 (refer to appendix B) showed the list of the top twenty trade name products according to prevalence provided by pharmacies.

According to table B.49 the top twenty trade name products represented 12.58% (n=15 926 285) and 12.06% (n=17 262 616) of the overall medicine prevalence. From table B.49 it can be seen that 15 926 285 and 17 262 616 medicine items were provided by pharmacies for 2005 and 2006 respectively.

A summarised table has been compiled of the top five trade name products provided by pharmacies according to prevalence.

Table 4.38: The top five trade name products according to prevalence provided by pharmacies

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=15 926 285 n total cost=R1 726 420 150.50	Eltroxin 100mcg tab	1	238721	40.69	9714183.26	0.37
	Lipitor 10mg tab	2	160827	189.26	30437894.92	1.74
	Ecotrin 81mg tab	3	151902	19.63	2982371.08	0.18
	Myprodol cap	4	149457	61.89	9249215.42	0.57
	Disprin CV 100mg disp	5	106617	23.40	2494865.73	0.21
Total:			807524	334.87	54878530.41	
2006 n items=17 262 616 n total cost=R1 888 460 214.90	Eltroxin 100mcg tab	1	257325	39.58	10184625.83	0.36
	Ecotrin 81mg tab	2	172098	20.64	3552305.49	0.19
	Lipitor 10mg tab	3	157140	189.92	29843991.75	1.74
	Prexum 4mg tab	4	126682	129.11	16356015.55	1.19
	Adco-Simvastatin 20mg	5	124905	111.02	13867023.57	1.01
Total:			838150	490.27	73803962.19	

Table 4.38 shows that the top five trade name products accounted for 5.07% (n=15 926 285) and 4.86% (n=17 262 616) of the overall medicine prevalence for 2005 and 2006 respectively. All of the top five trade name products are medication that can be used to treat chronic conditions.

Eltroxin 100mcg tablets ranked 1st in both 2005 as well as 2006. Eltroxin 100mcg tablets were provided by pharmacies 238 721 times during 2005 and 257 325 times during 2006, this was about 1.50% of the overall medicine prevalence in both study years. The CPI of Eltroxin 100mcg has been calculated as about 0.36 for both study periods and determined that Eltroxin 100mcg is a relatively inexpensive product.

Ecotrin 81mg was the lowest priced trade name product in the top five of both 2005 and 2006 with an average cost of R19.63 and R20.64 per item in 2005 and 2006 respectively, and had the lowest CPI (0.19) of all the trade name products in the top five list,

Table B.50 and B.51 portrayed the following usage patterns:

- Stilpane tablets showed an interesting increase in prevalence during period two. Stilpane tablets were ranked 23rd in period one (January to April), 11th in period two (May to August) and 47th in period three (September to December) of 2006. During 2005 the prevalence of Stilpane tablets remained constant and did not show a similar pattern as in 2006.
- Alcophyllex syrup had a higher frequency during the second period (May 1st – August 31st) of both 2005 and 2006. Alcophyllex syrup had an average cost of R11.95 per item in 2005 and R11.54 in 2006. The CPI of Alcophyllex syrup was determined as 0.12 in 2005 and 0.11 in 2006. The index numbers are an indication that Alcophyllex syrup is a

relatively inexpensive product. An explanation for the higher prevalence pattern of medicines indicated for the treatment of cold and flu-related symptoms has already been given in paragraphs 4.3.1.1, 4.3.1.2 and 4.3.2.1. Figure 4.7 is a graphical illustration of the prevalence pattern which Alcophyllex syrup followed during 2005 and 2006.

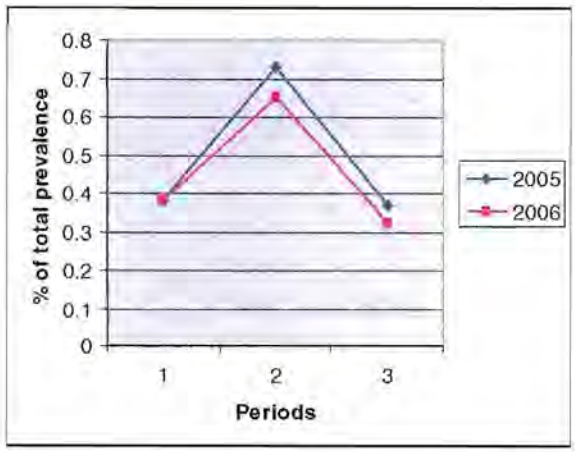

Figure 4.7 : The usage pattern of Alcophyllex syrup during 2005 and 2006

In figure 4.7 the usage pattern of Alcophyllex is illustrated. During 2005 Alcophyllex was positioned 21st in period one (January to April), 5th in the second period (May to August) and 32nd in the last period (September to December). In 2006 Alcophyllex showed a similar pattern and was ranked 19th, 6th and 32nd in periods one, two and three individually. A possible explanation to the high prevalence of Alcophyllex syrup can be that pharmacies can provide this product without a prescription. The high prevalence of Alcophyllex drives the total cost of Alcophyllex, which makes it a resource driver.

4.3.5.2 The top twenty trade name products provided by general medical practitioners

According to the Medicines and Related Substances act 101 of 1965 22C, a general medical practitioner may only dispense/provide medicine if the director general had issued an appropriate license to the applicant, after the applicant had completed the supplementary course by the South African Pharmacy Council (SAPC) (South Africa, 2007a:MAE-29).

4.3.5.2.1 The top twenty trade name products provided by general medical practitioners according to total cost

This section includes a discussion of the top twenty trade name products provided by general medical practitioners according to cost. Tables B.52 and B.53 (refer to appendix B) portray the complete list of the top twenty trade name products provided *via* general medical practitioners according to their cost.

According to tables B.52 and B.53 the top twenty trade name products represented 12.31% (n=R151 430 854.29) and 16.05% (n=R149 025 447.75) of the overall medicine cost on the database provided by general medical practitioners in 2005 and 2006 respectively.

Table 4.39 is a summarised table that depicts the top five trade name products provided by a general medical practitioner according to cost.

Table 4.39 shows that the top five trade name products consisted primarily of medication that can be used for the treatment of acute illnesses with the exception of Lipitor 10mg tablets. The top five trade name products represented 4.63% (n=R151 430 854.29) and 4.28% (n=R149 025 447.75) of the overall medicine cost provided by general medical practitioners during 2005 and 2006.

Table 4.39: The top five trade name products on the database according to cost provided by general medical practitioners

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=3 849 539 n total cost=R151 430 854.29	Mybulen tab	1	1803008.18	50055	36.02	0.92
	Myprodol cap	2	1793923.85	33520	53.52	1.36
	Amoxil 500mg cap	3	1450521.57	12605	115.08	3.00
	Clamentin 375mg	4	1028229.43	26000	39.55	1.00
	Lipitor 10mg tab	5	942065.28	5319	177.11	4.42
Total:			7017748.31	127499	421.27	
2006 n items=4 148 630 n total cost=R149 025 447.75	Mybulen tab	1	1731490.81	48616	35.62	0.99
	Myprodol cap	2	1322734.96	26104	50.67	1.41
	Amoxil 500mg cap	3	1249753.09	12028	103.90	2.90
	Clavumox 375mg	4	1049605.89	26473	39.65	1.09
	Avelon 400mg tab	5	1029162.79	5862	175.57	4.93
Total:			6382747.54	119083	405.40	

Mybulen tablets were positioned 1st in both the study years and represented 1.19% (n=R151 430 854.29) and 1.16% (n=R149 025 447.75) of the overall medicine cost for 2005 and 2006 respectively. Mybulen tablets had an average cost of about R36 and a CPI of approximately 0.95 in both study periods. From table 4.38 it can be seen as an activity driver due to its low average cost per item and high prevalence in both the study periods.

Myprodol capsules accounted for 1.18% (n=R151 430 854.29) and 0.89% (n=R149 025 447.75) of the overall medicine cost during 2005 and 2006 respectively and ranked 2nd in both these years. This medicine product had a CPI of about 1.38 and an average cost of approximately R51 for both study periods. According to the CPI of Mybulen and Myprodol the assumption can be made that Mybulen tablets were relatively inexpensive compared to Myprodol capsules that were relatively expensive. According to Snyman (2007:76) the only two differences between

these two trade name products are that Mybulen tablets are available in a tablet form compared to the capsule form of Myprodol, as well as the fact that Mybulen tablets contain 100mg more paracetamol than Myprodol capsules (refer to paragraph 4.3.3.3.2). These trade name products can be classified as combination analgesics and together they accounted for 2.37% (n=R151 430 854.29) and 2.05% (n=R149 025 447.75) of the overall medicine cost provided by general medical practitioners in 2005 and 2006 respectively.

Positions 3, 4 and 5 in 2006 were represented by Amoxil 250mg, Clavumox 375mg and Avelon 400mg respectively. In 2005, Amoxil 250mg was ranked 3rd and Clamentin 372mg was ranked 4th. Amoxil 250mg is an amoxicillin/clavuanic acid-containing product (refer to paragraph 4.3.1.1) as well as Clamentin 375mg and Clavumox 375mg. Avelon 400mg tablets are a broad-spectrum antibiotic which contain the active ingredient moxiflocacin and are indicated for the use in gram-positive infections (refer to paragraph 4.3.2.1). Avelon 400mg tablets represented the treatment with the highest CPI (4.42 in 2005 and 4.93 in 2006) of all the top five trade name products provided by general medical practitioners and had an average cost per item of approximately R176. According to table 4.38, the conclusion can be made that three out of the top five trade name products provided by general medical practitioners were antibiotics and accounted for 1.64% (n=R151 430 854.29) and 2.23% (n=R149 025 447.75) of the overall medicine cost during 2005 and 2006 respectively. All of these products can be seen as activity drivers, due to the high CPI and high average cost per item.

Tables B.52 and B.53 (appendix B) portray that seven of the top twenty trade name products provided by general medical practitioners were antibiotics and accounted for 4.4% (n=R151 430 854.29) of the overall medicine cost in 2005. In 2006, eight trade name products were antibiotics and accounted for 4.97% (n=R149 025 447.75) of the overall medicine cost. All of these products showed a similar upwards curve in cost during period two which represented the winter months. Antibiotics dominated the top twenty trade name products as illustrated in figure 4.8.

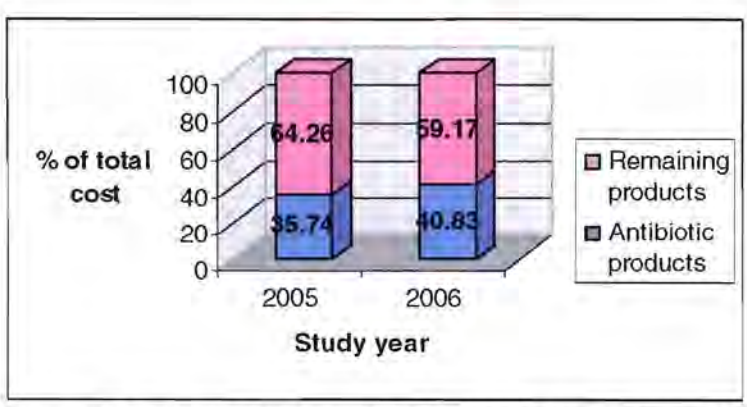

Figure 4.8: The cost of antibiotic products on the database

Figure 4.8 illustrates that antibiotic products accounted for 35.74% of the top twenty trade name products provided by general medical practitioners and the remaining products accounted for 64.26% in 2005. In 2006, antibiotic products accounted for 40.83% of the top twenty trade name products and the remaining products accounted for only 59.17% in 2006. The assumption can therefore be made that antibiotic treatment represented a relatively large percentage of the total cost towards medicine provided by general medical practitioners.

In the following section the top twenty trade name products provided by general medical practitioners according to prevalence will be illustrated and discussed.

4.3.5.2.2 The top twenty trade name products provided by general medical practitioners according to prevalence

In appendix B, tables B.54, B.55 and B.56 show the top twenty trade name products provided by general medical practitioners according to prevalence for 2005 and 2006. According to table B.54, the top twenty trade name products accounted for 15.19% (n=3 849 539) and 15.28% (n=4 148 630) of the overall medicine prevalence for 2005 and 2006 respectively. Table B.54 also indicated that 3 849 539 medicine items were provided by general medical practitioners in 2005 compared to 4 148 630 medicine items in 2006.

Table 4.40 is a summarised table of the top five trade name products provided by general medical practitioners according to prevalence.

Table 4.40: The top five trade name products provided by general medical practitioners ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=3 849 539 n total cost=R151 430 854,29	Alcophyllex syr	1	68094	8.55	582333.63	0.21
	Mybulen tab	2	50055	36.02	1803008.18	0.92
	Painagon tab	3	49336	10.67	526486.80	0.27
	Flustat cap	4	45319	13.98	633599.09	0.36
	Be-tabs Prednisone 5mg tab	5	34496	2.87	99124.08	0.08
Total:			247300	72.10	3644551.78	
2006 n items=4 148 630 n total cost=R149 025 447.75	Alcophyllex syr	1	73106	8.07	590119.06	0.23
	Flustat cap	2	54726	13.28	726761.06	0.37
	Painagon tab	3	53065	9.63	511113.84	0.27
	Mybulen tab	4	48616	35.62	1731490.81	0.99
	Be-tabs Prednisone 5mg tab	5	45234	2.65	119679.32	0.07
Total:			274747	69.25	3679163.59	

According to table 4.40, the top five trade name products accounted for 6.42% (n=3 849 539) and 6.62% (n=4 148 630) of the overall medicine prevalence provided by general medical

practitioners during 2005 and 2006 respectively. All of the top five trade name products for both years were medication frequently used in the treatment of acute illnesses except Prednisone, which is frequently used for the treatment of asthma.

Alcophyllex syrup was ranked 1st in both 2005 and 2006 and represented 1.77% (n=3 849 539) *and* 1.76% (n=4 148 630) of the overall medicine prevalence. General medical practitioners provided Alcophyllex syrup 68 094 times in 2005 and 73 106 times in 2006 (refer to paragraph 4.3.2.2). According to the CPI of Alcophyllex syrup, which was 0.21 in 2005 and 0.23 in 2006, this treatment can be seen as a low-priced cough mixture.

Painagon tablets contain the active ingredients promethazine hidrochloride (HCl), codeine phosphate and paracetamol and can therefore be seen as a combination analgesics, used to treat mild to moderate pain associated with fever (Snyman, 2007:76). Painagon was positioned 3rd in both years and represented 1.28% (n=3 849 539) and (n=4 148 630) of the overall medicine provided by general medical practitioners prevalence in both 2005 and 2006 respectively. Painagon had an average cost of R10.67 and R9.63 per item in 2005 in 2006 respectively. Painagon tablets also had a CPI well below 1 in both the study periods and can therefore be regarded as a relatively inexpensive pain and fever treatment.

Flustat capsules were positioned 4th in 2005 and 2nd in 2006. Flustat capsules represented 1.18% (n=3 849 539) and 1.32% (n=4 148 630) of the overall medicine prevalence in 2005 and 2006 respectively. According to Snyman (2007:194) Flustat capsules are indicated for the treatment of flu and cold symptoms.

Table 4.39 portrays that all of the top five trade name products in both study periods had a CPI below one. The assumption can therefore be made that the top five pharmaceutical products provided by general medical practitioners all are low-priced medication items.

According to tables B.55 and B.56, Betamox 500mg, Flustat capsules, Grippon syrup, Medifed linctus, Solphyllex syrup and Sinuend all had a higher prevalence during the winter months (period two). Figure 4.9 is a graphic illustration of the usage patterns of these cold and flu remedies.

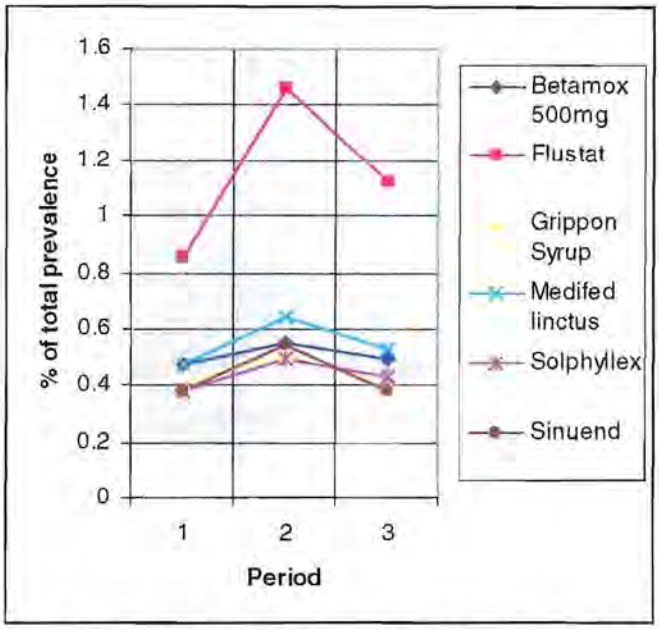

Figure 4.9: The higher prevalence of cold and flu treatments during May to August

Figure 4.9 illustrates that all of the cold and flu products listed in tables B.55 and B.56 showed a higher frequency during period two in both 2005 and 2006 (refer to paragraph 4.3.1.1, 4.3.1.2 and 4.3.2.1.). Flu and colds are more common during the winter months (refer to paragraph 4.3.1.1, 4.3.1.2 and 4.3.2.1.). All of the products showed in figure 4.8 can be used to relief some of the symptoms of colds and flu.

In the following section the top twenty trade name products provided by other medical providers will be discussed.

4.3.5.3 The top twenty trade name products: other medical providers

In this section the top twenty trade name products provided by other medical providers will be discussed. In paragraph 3.3.6 the complete list of all the medical providers which fell within this category for the purpose of this study is shown. The top twenty trade name products have been calculated according to prevalence and total cost.

4.3.5.3.1 The top twenty trade name products provided by other providers according to total cost

Tables B.57 and B.58 (appendix B) portray the complete list of the top twenty trade name products ranked according to cost on the database that were provided by other medical providers.

The top twenty trade name products provided by other medical practitioners accounted for 39.95% (n=R14 786 584.36) and 44.85% (n=R9 002 585.31) of the overall medicine cost in 2005 and 2006 respectively.

A summarised table has been compiled which illustrates the top five trade name products according to cost provided by other medical providers.

According to table 4.41 the top five trade name products accounted for 19.68% (n=R14 786 584.36) and 17.45% (n=R9 002 585.31) of the overall medicine cost of products provided by other medical providers.

According to Vorobiof and Abratt (2007:937) more than 7 million deaths worldwide are associated with cancer, and in African countries over a million new cancer cases will be reported each year.

Table 4.41: The top five trade name products provided by other medical providers ranked according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 N items=78 612 N total cost=R14 786 584.36	Herceptin	1	872133.10	128	872133.08	36.88
	Gemzar 1000mg inj	2	739674.10	170	739674.14	22.73
	Campto 5ML 20mg/ml inf	3	458585.70	83	458585.65	28.12
	Duovisc 0.4ml/0.35ml	4	454190.50	555	454190.48	4.32
	Zometa Inf (powder) 4mg	5	386072.80	154	386072.75	13.05
Total:			2910656.20	1090	2910656.10	
2006 N items=56 923 N total cost=R9 002 585.31	Taxotere 80mg inj	1	393782.67	62	393782.67	39.73
	Duovisc 0.4ml/0.35ml	2	316444.49	401	316444.49	5.03
	Zometa Inf (powder) 4mg	3	296375.02	122	296375.02	15.67
	Taxotere 20mg/1.5ml inj	4	292365.81	70	292365.81	27.08
	Campto 5ml 20mg/ml inj	5	271609.98	49	271609.98	33.56
Total:			1570577.97	704	1570577.97	

Table 4.41 shows that the top five pharmaceutical products provided by other providers consisted mainly of cancer treatments with the exception of Duovisc 0.4ml/0.35ml which is widely used in cataract procedures (Snyman, 2007:281).

Herceptin was positioned 1st in 2005 and represented 5.90% (n=R14 786 584.36) of the total medicine cost. This medicine had a CPI of 36.88 and an average cost of R6813.54 per item. (refer to paragraph 4.3.3.3.1). Herceptin is an activity driver, due to its high CPI and high average cost per item.

Gemzar 1000mg contains the active ingredient gemcitabine, which is indicated for the treatment of advanced or metastatic non-small cell lung, pancreatic, bladder and ovarian cancer (Gibbon *et al.,* 2008:354). Lees and co-workers (2002:331) performed a cost-effective analysis on gemcitabine/cisplatin in comparison with standard chemotherapy and the results showed gemcitabine/cisplatin to be extremely cost-effective and even a cost-saving treatment for non-small cell lung cancer (NSCLC) and this treatment showed a tumor response of 40.6 per cent in comparison with the alternative response of 39.6 per cent. Gemzar 1000mg injection only appeared in 2005, and was positioned 2nd on the top five list of trade name products provided by other medical providers according to total cost. The product represented 5% (n=R14 786 584.36) of the total medicine cost. Gemzar 1000mg injection had a CPI of 22.71 (which indicates that it is a relatively expensive medicine) for the purpose of this study.

Campto 5ml injection contains the active ingredient irinotecan, an anticancer drug commonly used in the treatment of colorectal cancer (Frank *et al.*, 2007:537). According to Frank and co-workers (2007:538) colorectal cancer is the fourth most frequent cancer-related cause of death worldwide, the third most frequent malignant disease; accounting for approximately $22 billion of the world's medicine expenditure. Frank and co-workers (2007:560) are also of the opinion that it is difficult to compare the cost-effectiveness of the various treatments for colorectal cancer but, that the assumption can be made that irinotecan is one of the more cost-effective treatments available. Campto 5ml 20mg/ml injection was in position 3 and 5 of 2005 and 2006 respectively and represented about 3% of the overall medicine cost of products provided by other medical providers for both the study periods. Campto 5ml injection had an average cost of approximately R5500 in both the study periods and had a CPI of 28. In reference to the index number, which is well above 1, the assumption can be made that this medicine product was relatively expensive.

Zometa powder (active ingredient zolendronic acid) is a product used to treat hypercalcemia induced by tumors, as well as in combination with other medications to treat myeloma, prevent bone fractures and to relieve pain when cancer has spread to the bone (McKeage & Plosker, 2008:252). McKeage and Plosker (2008:264) also found that the acquisition cost of zoledronic acid is high, but if the clinical outcomes are taken into consideration, this medicine is more cost-effective than most of the alternative cancer treatments. Zometa appeared in the top five trade name products list for both the study years at positions 5 and 3 and represented 2.62% (n=R14 786 584.36) and 3.52% (n=R9 002 585.31) of the overall medicine cost in 2005 and 2006 respectively. Zometa powder had a CPI of 13.05 and 15.67 in 2005 and in 2006 respectively and an average cost of R2 500 per item in both the study periods.

According to a study done by Holmes and co-workers (2004:582) Taxotere is a medication used to treat certain types of breast-, stomach-, prostate-, head- and neck cancer. The authors also came to the conclusion that Taxotere is a cost-effective treatment for NSCLC, due to the reduction in the hospitalisation period as well as an improvement in the quality-adjusted-life years (QALYs) of the patient. The brand Taxotere represented 7.62% (n=R9 002 585.31) of the overall medicine cost in 2006. Taxotere 80mg injection was positioned 1st and Taxotere 20mg/1.5ml injection 4th. Taxotere 80mg and Taxotere 20mg/1.5ml injections had CPI-values of 39.73 and 27.08 respectively. The assumption can therefore be made that this medicine is relatively expensive.

Duovisc (the only trade name product present in the top five products list which is not indicated for the treatment of cancer) was positioned at number 4 in 2005 and represented 3.07% (n=R14 786 584.36) of the overall medicine cost of products provided by other medical providers. In 2006 it was positioned 2nd and represented 3.52% (n=R9 002 585.31) of the overall medicine cost. Duovisc 0.4ml/0.35ml had the lowest CPI (about 4.5) of all the products on the top five products list of items provided by other medical providers and had an average cost of around R800 per item. Although this product had a lower CPI than the other products on the top five products list, the index number is still above one, and can therefore be seen as a relatively expensive product.

Table B.58 (refer to appendix B) shows that Temodal 100mg was the only product which showed an unusual expenditure pattern. Temodal 100mg was positioned 157th in the first period, 42nd in the second period and 5th in the last period of 2006. Temodal is a relatively new medication used to treat brain cancer and advanced metastatic malignant melanoma (Shering-Plough, 2005) and has been released in South Africa in late 2005. This can be one of the explanation for Temodal being positioned 157th at the beginning of 2006 and rising to the number 5 position.

Tables B.57 and B.58 (appendix B) portray that the top twenty trade name products provided by other medical providers accounted for 39.95% (n=R14 786 584.36) and 44.85% (n=R9 002 585.31) of the overall medicine cost in 2005 and 2006 respectively. According to tables B.57 and B.58 the top twenty trade name products consisted mainly of products that can be used in the treatment of cancer and cancer-related symptoms. Figure 4.10 illustrates the division of cancer and related symptoms treatment and the other products which appeared on the top twenty products list provided by other medical providers in both the study periods according to the percentage of cost presented.

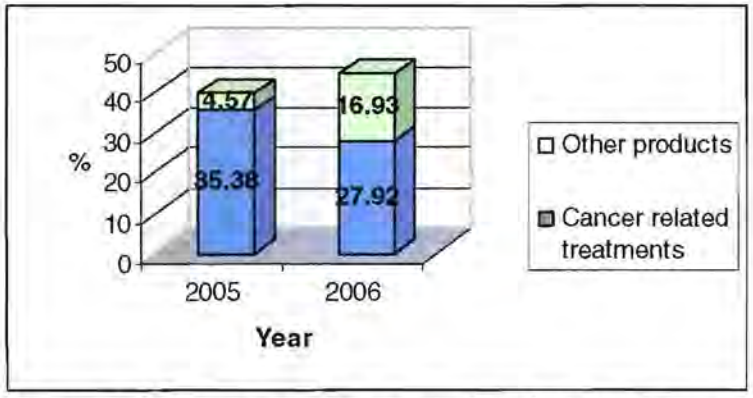

Figure 4.10: The cost of cancer-related treatment products

In the following section the top twenty trade name products provided by other providers ranked according to prevalence will be discussed.

4.3.5.3.2 The top twenty trade name products provided by other providers according to prevalence

Tables B.59, 60 and 61 (refer to appendix B), show the complete list of the top twenty trade name products on the database provided by other providers according to prevalence. On these tables there are various products which are not applicable for the purpose of this study, due to the fact that they are mostly used in medical procedures, such as cotton wool, alcohol swabs, gauze e.g. therefore they will only be illustrated in the appendix B, but will not be discussed.

Table 4.42 is a summarised table of the top five trade name products ranked according to prevalence provided by other providers. The original top five trade name products contained products not applicable to the study, therefore table 4.42 contains the top five trade name products which are applicable for the study.

Table 4.42 reveals that the top five trade name products provided by other providers according to prevalence represented 5.13% (n=78 612) and 8.42% (n=56 923) in 2005 and 2006 respectively of the overall medicine prevalence. From table 4.41 it is evident that all of the top five products were solutions for injections and both study periods were similar except for the appearance of Kytril 3ml in 2005 and Buscopan injection in 2006.

Table 4.42: The top five trade name products provided by other medical providers ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=78 612 n total cost=R14 786 584.36	Celestone soluspan 1ml inj	1	955	68.07	65003.07	0.36
	Remicaine 5ml 20mg/ml inj	2	848	14.01	11876.58	0.07
	Kytril 1mg/ml 3ml liinj	3	832	156.10	129876.96	0.83
	Xylotoc E 1.8ml 2% inj	12	705	8.23	5803.01	0.04
	Dormicum 5mg/5ml	12	695	25.31	17587.34	0.14
Total:			4035	271.71	230146.96	
2006 n items=56 923 n total cost=R9 002 585.31	Remicaine 5ml 20mg/ml inj	6	1203	11.89	14299.84	0.08
	Celestone soluspan 1ml inj	10	1030	60.51	62329.01	0.38
	Dormicum 5mg/5ml	11	956	26.33	25169.67	0.17
	Xylotoc E 1.8ml 2% inj	14	869	7.38	6415.01	0.05
	Buscopan 20mg/ml inj	15	736	12.24	9011.38	0.08
Total:			4794	118.35	117224.91	

Celestone soluspan 1ml injection was positioned 1st and 2nd and represented 1.21% (n=78 612) and 1.81% (n=56 923) in 2005 and 2006 respectively. Celestone soluspan is a combination of betamethasone sodium phosphate and betamethasone acetate and is used to treat inflammation due to certain conditions, including severe asthma, severe allergies and rheumatoid arthritis (Snyman, 2006:380).

Remicaine 20mg/ml 5ml injection was positioned 2nd and 1st and represented 1.08% (n=78 612) and 2.11% (n=56 923) in 2005 and 2006 respectively. Remicaine; as the product on the top five trade name product list with the lowest CPI of about 0.07, is regarded as a relatively low-priced product.

Lignocaine HCl is the active ingredient of Remicaine as well as Xylotox E. Remicaine is indicated for local anaesthesia, intravenous (IV) regional anaesthesia, nerve block, eye block, arrhytmia and local anaesthesia in dental practices, where Xylotox E is mainly used as a local anaesthesia in dental practices (Gibbon *et al.*, 2008:408). Xylotox E 1.8ml2% injection was positioned 4th in both the study periods and represented 0.90% (n=78 612) and 1.53% (n=56 923) of the overall medicine prevalence in 2005 and 2006 respectively.

Positioned 5th and 3rd was Dormicum 5mg/5ml injection, presenting 0.88% (n=78 612) and 1.68% (n=56 923) of the overall medicine prevalence in 2005 and 2006 respectively. Dormicum contains the active ingredient midazolam and is mainly indicated for the slow intravenous (IV) induction and maintenance of anaesthesia (Snyman, 2006:4). Dormicum injections can be seen as a relatively inexpensive trade name product due to a CPI-value of about 0.17 in both the study years.

Positions 3 and 5 on the 2005 and 2006 list of the top five products provided by other providers according to prevalence were respectively held by Kytril 3ml in 2005 and Buscopan injection in 2006. Kytril represented 1.06% (n=78 612) and Buscopan represented 1.29% (n=56 923) of the overall medicine prevalence of products provided by other medical providers in 2005 and 2006 respectively.

Tables B.59, B.60 and B.61 (appendix B) did not present any other unusual usage patterns.

4.3.5.4 Summary of trade name products according to the various providers

This section concludes with a brief overview of the results that have been discussed in sections 4.3.5.1 – 4.3.5.3.

- The top twenty trade name products provided by pharmacies ranked according to total cost consisted mainly of treatments indicated for chronic diseases such as: hiperlipideamia, hypertension, depression and bone disorders and osteoporosis. The products on the top five list according to prevalence were similar to the top five products according to cost with the inclusion of Eltroxin 100mcg and Ecotrin 81mg tablets.
- General medical practitioners primarily provided antibiotic products, analgesics and cold and flu treatments. Antibiotic treatment represented 38.74% and 40.83% of the top twenty trade name products according to total cost in 2005 and 2006 respectively. The top twenty trade name products according to prevalence provided by general medical practitioners consisted mainly of medicine indicated for the relief of cold and flu symptoms.
- The top twenty trade name products on the database according to total cost provided by other providers were mainly cancer treatments (88.86% and 62.21% in 2005 and 2006 respectively), where the products present on the top twenty list according to prevalence consisted mainly out of anaesthesia relating products.
- The following products can be seen as activity drivers for the various providers: Lipitor 10mg and 20mg tablets, Fosamax 70mg tablets, Celebrex 200mg capsules, Prexum 4mg tablets, Cipralex 10mg tablets, Adco-Simvastatin 20mg tablets, Amoxil 500mg capsules, Clamentin 375mg tablets, Avelon 400mg tablets, Herceptin, Gemzar 100mg injection, Campto injection, Duovisc injection, Zometa powder and Taxotere injection.
- The following medicine items can be seen as resource drivers for the different provider types: Eltroxin 100mcg tablets, Ecotrin 81mg tablets, Myprodol capsules, Disprin CV tablets, Mybulen tablets, Alcophyllex syrup, Painagon tablets, Flustat capsules, Be-tabs Prednisone tablets, Celestone soluspan injection, Remicaine injection, Kytril injection, Xylotoc injection, Dormicum injection and Buscopan injection.

Section 4.3.6 will include the complete lists for the top twenty trade name products according to the various prescriber types.

4.3.6 The top twenty trade name products according to prescriber type

This section will include a brief overlook of the different prescriber types, and the top twenty trade name products they prescribed according to prevalence and cost. The prescriber types were divided into four major categories namely, general medical practitioner, other medical prescribers, pharmacotherapists and pharmacists (refer to paragraph 3.4.7).

In the following section the top twenty trade name products on the database prescribed by pharmacists will be discussed.

4.3.6.1 The top twenty trade name products prescribed by pharmacists

According to Masenya (SAPC, 2008) there are currently 4 339 registered pharmacies and 11 901 pharmacists in South Africa. In the following section the top twenty trade name products prescribed by pharmacists according to cost and prevalence will be discussed.

4.3.6.1.1 The top twenty trade name products prescribed by pharmacists according to total cost

Tables B.62 and B.63 portray the complete list of the top twenty trade name products prescribed by pharmacists ranked according to cost. Table B.62 showed that the top twenty products represented 26.17% (n=R78 739 814.70) and 24.65% (n=R92 097 572.14) of the overall medicine cost in 2005 and 2006 respectively.

Table 4.43 is a summarised table of the top five trade name products on the database prescribed by pharmacies according to cost.

The top five trade name products represented 9.97% (n=R78 739 814.70) and 8.98% (n=R92 097 572.14) of the overall medicine cost in 2005 and 2006 respectively. Three of the top five trade name products stayed similar for both the study periods specifically, *i.e.* Benylin Four Flu syrup, Benylin and Codeine syrup and Corenza C effervescent tablets.

Table 4.43: The top five trade name products prescribed by pharmacists ranked according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items= 1 704 808 n total cost= R78 739 814.70	Lamisil cream	1	2075385.82	21999	94.34	2.05
	Mypaid cap	2	1530085.71	31507	48.56	1.05
	Corenza c eff tab	3	1442303.41	35795	40.29	0.87
	Benylin four flu syr	4	1406514.09	32152	43.75	0.95
	Benylin & Codeine syr	5	1396792.70	26222	53.27	1.15
Total:			7851081.73	147675	280.21	
2006 n items=2020781 n total cost=R92097572.14	Gaviscon Aniseed	1	1932494.98	27843	69.41	1.52
	Benylin four flu syr	2	1752010.50	40998	42.73	0.94
	Corenza c eff tab	3	1644425.06	42645	38.56	0.85
	Benylin & Codeine syr	4	1496061.40	28100	53.24	1.17
	Solphyllex syr	5	1444041.41	30093	47.99	1.05
Total:			8269033.35	169679	251.93	

Lamisil cream was positioned 1st and represented 2.54% (n=R78 739 814.70) in 2005. Lamisil cream had an average cost of R94.34 and a CPI of 2.05, therefore this medicine can be seen as a relatively expensive product. Lamisil cream contains the active ingredient terbinafine HCl, which is indicated for fungal skin infections (Snyman, 2006:256).

Corenza C effervescent tablets were positioned 3rd and represented about 1.80% of the overall medicine cost for both the study periods. This medicine had the lowest CPI (about 0.86) of all the products that appeared on the top five trade name products list and had an average cost of about R40 per item. Corenza C effervescent tablets, indicated for the relieve of cold and flu symptoms, contain the following active ingredients: aspirin 500mg, chloroprophenpyridamine 2mg and phenylephrine HCl 7.5mg (Snyman, 2006:192). Corenza C tablets are also present in both the study years' top five trade name list for medicine prescribed by pharmacists according to prevalence.

The cold and flu remedy (refer to paragraphs 4.3.3.2.1 and 4.3.3.3.2); Benylin Four Flu syrup was positioned 4th and 2nd in 2005 and 2006 respectively and represented about 1.78% of the overall medicine cost in both the study periods. Benylin Four Flu can be seen as a relatively inexpensive medicine due to its CPI of around 0.95.

Gaviscon Aniseed suspension was positioned 1st and represented 2.10% (n=R92 097 572.14) of the overall medicine cost in 2006. This medicine had the highest CPI (1.52) of all the products on the top five trade name products list in 2006 and can be seen as a moderately expensive medicine.

Tables B.62 and B.63 portray that 48.95% and 48.60% of the top twenty trade name products prescribed by pharmacists according to cost, acted as cold and flu treatments. In figure 4.11 the division of the top twenty trade name products prescribed by pharmacists is illustrated.

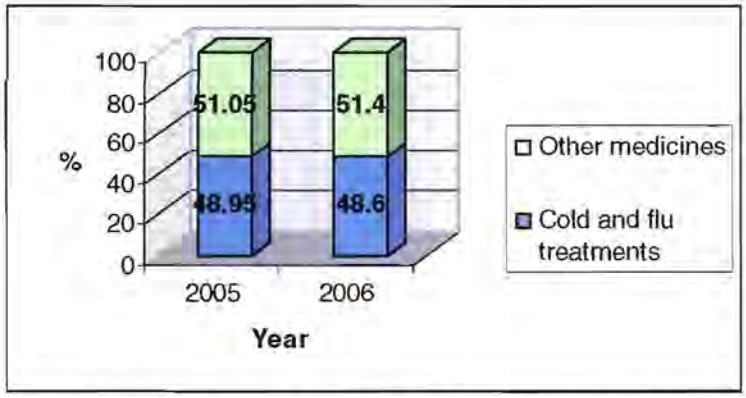

Figure 4.11: The cost of cold and flu remedies on the database

The following noteworthy cost patterns were observed in tables B.62 and B.63:

- In 2005, Cellfood liquid was positioned 49th in the first period, 10th in the second period and 3rd in the last period according to cost. Cellfood liquid was prescribed 210 times during period one, 1519 times during period two and 1993 times during period three.
- Immunadue capsules were positioned 253rd, 20th and 1st in period one, two and three of 2006 respectively according to cost. According to prevalence, Immunadue capsules showed a similar increase in usage during these three periods. The powerful marketing of antioxidants can be an explanation for the high prevalence of these two antioxidants (Cellfood and Immunadue).

In section 4.3.6.1.2 the top twenty trade name products on the database according to prevalence prescribed by pharmacists will be discussed.

4.3.6.1.2 The top twenty trade name products prescribed by pharmacists according to prevalence

This section will provide a brief discussion of the top twenty trade names analysed and prescribed by pharmacists according to prevalence and a thorough discussion about the top five trade name products.

Tables B.64, B.65 and B.66, (refer to appendix B) display the complete list of the top twenty trade name products according to prevalence as prescribed by pharmacists. According to these tables the top twenty trade name products represented 23.98% (n=1 704 808) and 21.99% (n=2 020 781) of the overall medicine prevalence in 2005 and 2006 respectively.

Table 4.44 portrays a summarised table of the top five trade name products according to prevalence prescribed by pharmacists.

Table 4.44: The top five trade name products prescribed by pharmacists ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=1 704 808 n total cost=R78 739 814.70	Corenza C eff tab	1	35795	40.29	1442803.41	0.87
	Benylin Four Flu syr	2	32152	43.75	1406514.09	0.95
	Mypaid cap	3	31507	48.56	1530085.71	1.05
	Adco-Dol tab	4	28279	27.09	766167.91	0.58
	Benylin & Codeine syr	5	26222	53.27	1396792.70	1.15
Total:			153955	212.96	6541863.82	
2006 n items=2 020 781 n total cost=R92097572.14	Corenza C eff tab	1	42645	38.56	1644425.06	0.85
	Benylin Four Flu syr	2	40998	42.73	1752010.50	0.94
	Adco-Dol tab	3	36336	27.38	994946.74	0.60
	Solphyllex syr	4	30093	47.99	1444041.41	1.05
	Benylin & Codeine syr	5	28100	53.24	1496061.40	1.17
Total:			178172	209.90	7331485.11	

Table 4.44 depicts the top five trade name products revealing that they represented 9.03% (n=1 704 808) and 8.82% (n=2 020 781) of the total medicine prevalence in 2005 and 2006 respectively. The top five trade name products remained quite similar in both the study periods with the exception of the appearance of Mypaid capsules in 2005 and Solphyllex syrup in 2006. Both study periods' top five trade name products were indicated for the treatment of pain and flu or the relief of pain. The top five trade name products according to prevalence are comparable with the top five trade names according to cost.

According to Jones and Jones (2008a:30) colds and flu lead to an estimated three to five million cases of severe illness in South Africa and affects about 15 to 20 per cent of the worldwide population each year. Corenza C effervescent tablets, Benylin Four Flu syrup, Benylin and Codeine syrup and Solphyllex syrup are all medicine products used in the treatment of cold and flu related symptoms (refer to paragraph 4.3.3.2.1, 4.3.3.3.2, 4.3.2.2 and 4.3.6.1.1).

Mypaid capsules were positioned 3rd and represented 1.85% (n=1 704 808) of the overall medicine prevalence in 2005. Adco-Dol tablets were positioned 4th and 3rd and represented 1.66% (n=1 704 808) and 1.80% (n=2 020 781) of the overall medicine prevalence. Both of these medicine products are indicated to treat mild to moderate pain. Pain is one of the most recurrent reasons for adults to visit a medical provider (refer to paragraph 4.3.3.3.2) and can be one of the explanations for these pain relieving medicine being present in the top five trade name products list.

Tables B.64, B.65 and B.66 did not present any unusual usage patterns.

In the following section the top twenty trade name products prescribed by pharmacotherapists will be discussed.

4.3.6.2 The top twenty trade name products prescribed by pharmacotherapists

This section will include a brief overview of the top twenty trade name products on the database prescribed by pharmacotherapists ranked according to cost and prevalence. A pharmacotherapist can be defined as a qualified pharmacist with an additional qualification permitting him/her to provide primary health services e.g. blood pressure monitoring, pregnancy tests, care of simple wounds, etc. (Fedhealth, 2008). "*The Director-General may, after consultation with the Interim Pharmacy Council of South Africa, issue a permit to any person or organisation performing a health service, authorising such person or organisation to acquire, possess, use or supply any specified Schedule 1, Schedule 2, Schedule 3, Schedule 4 or Schedule 5 substance, and such permit shall be subject to such conditions as the Director-General may determine*" (South Africa, 2007b:MAE-27.).

4.3.6.2.1 The top twenty trade name products prescribed by pharmacotherapists according to total cost

Tables B.67 and B.68 (appendix B) show the complete list of the top twenty trade name products on the database ranked according to total cost. The top twenty trade name products represented 28.07% (n=R1 990 479.22) and 27.50% (n=R2 007 303.26) of the overall medicine cost in 2005 and 2006 respectively.

Table 4.45 is a summarised table of the top five trade name products prescribed by pharmacotherapists ranked according to total cost.

According to table 4.45, it is evident that the top five trade name products represented 10.30% (n=R1 990 479.22) and 9.30% (n=R2 007 303.26) of the overall medicine cost in 2005 and 2006 respectively. The top five trade name products contained both Gaviscon Aniseed suspension and Corenza C effervescent tablets in both the study years. All of the top five trade name products in both the study periods are scheduled substances i.e. S_1, S_2 and S_3. Corenza C effervescent tablets and Mypaid capsules were the only resource drivers in the top five trade name list according to cost prescribed by pharmacotherapists, all the other medicine items on this list were activity drivers.

Table 4.45: The top five trade name products prescribed by pharmacotherapists ranked according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=39 358 n total cost=R1 990 479.22	Lamisil cream	1	48908.72	461	106.09	2.10
	Myprodol cap	2	45921.84	808	56.83	1.13
	Gaviscon Aniseed	3	42381.55	604	70.17	1.39
	Corenza C eff tab	4	35672.91	715	49.89	0.98
	Mypaid cap	5	32093.55	670	47.90	0.95
Total:			204978.57	3258	330.89	
2006 n items=38 956 n total cost=R2 007 303.26	Gaviscon Aniseed	1	42271.40	538	78.57	1.52
	Deselex 5mg tab	2	38759.16	259	149.65	2.88
	Corenza C eff tab	3	38555.06	751	51.34	0.99
	Ulsanic 1mg/5ml susp	4	34335.94	168	204.38	3.98
	Pevaryl 1mg/100mg cream	5	32795.35	197	166.17	3.20
Total 2006:			186656.91	1913	650.11	

Lamisil cream was positioned 1st in 2005 and represented 2.46% (n=R1 990 479.22) of the overall medicine cost. This medicine had a CPI of 2.10, which was the highest CPI of the top five trade name products in 2005. Lamisil cream has previously been discussed in paragraph 4.3.6.1.1.

The heartburn treatment (Gaviscon Aniseed suspension) was positioned 3rd and 1st in 2005 and 2006 respectively, represented about 2.12% of the overall medicine cost, had a CPI of about 1.4 and an average cost of approximately R75 for both the study periods.

Ulsanic suspension had the highest CPI (3.98) of the top five trade name products of both the study periods and had an average cost of R204.38 per item. The assumption can be made that this medicine is relatively expensive. Ulsanic suspension was positioned 4th and represented 1.71% (n=R2 007 303.26) of the overall medicine cost in 2006. According to Sonneberg (2000:395) Ulsanic suspension contains the active ingredient sucralfate and is indicated for gastric and duodenal ulcers, oesophagitis and gastro-oesophageal reflux disease (GORD). Sonneberg, however, found that sucralfate does not appear to be very cost-effective in the treatment of GORD.

Pevaryl cream was positioned 5th and represented 1.63% (n=R2 007 303.26) of the overall medicine cost in 2006. The econazaole-containing cream indicated for the treatment of dermatomycoses had a CPI of 3.20 and an average cost per item of R166.17. Due to the index numbers of Pevaryl cream which is above one, the assumption can be made that this is a relatively expensive treatment.

Tables B.67 and B.68 show the following noteworthy cost patterns:

- Daktarin oral gel was positioned 26th, 12th, and 3rd in periods one, two and three of 2005 respectively. During 2006 it was positioned 3rd in the first period, 17th in the second period and 6th in the last period.
- Myprodol capsules showed a decrease in cost in the last period of 2005 from R49.65 to R46.25.
- Benylin Four Flu syrup, Solphyllex syrup, Benylin cough syrup and Dilinct cough syrup all showed an increase in cost during period two (May 1st – August 31st) (refer to paragraph 4.3.3.2.1, 4.3.3.3.2, and 4.3.2.2) of both the study periods.
- Cataflam D tablets were positioned 11th, 15th and 32nd in periods one, two and three of 2005 respectively.
- Telfast 120mg tablets were positioned 6th in the first period, 34th in period two and 15th in the last period of 2005 (a possible explanation for this pattern is given in paragraph 4.3.3.2.2).
- Lamisil cream showed a steep decline in cost, in period one it was positioned 2nd, in period two 5th and in the last period 62nd.

In the following section the top twenty trade name products on the database prescribed by pharmacotherapists according to prevalence will be discussed.

4.3.6.2.2 The top twenty trade name products prescribed by pharmacotherapists according to prevalence

Tables B.69, B.70 and B.71 (appendix B) portray the complete list of top twenty trade name products on the database prescribed by pharmacotherapists according to the prevalence. The top twenty trade name products represented 23.90% (n=39 358) and 21.87% (n=38 956) of the overall medicine prevalence during 2005 and 2006 respectively.

Table 4.46 is a summarised table of the top five trade name products prescribed by pharmacotherapists.

Table 4.46: The top five trade name products prescribed by pharmacotherapists ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=39 358 n total cost=R1 990 479.22	Myprodol cap	1	808	56.83	45921.84	1.13
	Corenza C eff tab	2	715	49.89	35672.91	0.98
	Dilinct syr	3	673	46.73	31447.37	0.92
	Mypaid cap	4	670	47.90	32093.55	0.95
	Gaviscon Aniseed	5	604	70.17	42381.55	1.39
Total:			3470	271.52	187517.22	
2006 n items=38 956 n total cost=R2 007 303.26	Mybulen tab	1	812	38.13	30959.75	0.74
	Corenza C eff tab	2	751	51.34	38555.06	0.99
	Dilinct syr	3	611	45.61	27865.95	0.89
	Gaviscon Aniseed	4	538	78.57	42271.40	1.53
	Benylin Four Flu syr	5	509	45.15	22981.31	0.87
Total:			3221	258.79	162638.47	

Table 4.46, shows that the top five trade name products represented about 8.5% in both the study periods and were quite similar with the exception of Mypaid capsules in 2005 and Benylin Four Flu liquid in 2006.

Myprodol capsules were positioned 1st and represented 2.05% (n=39 358) of the total medicine prevalence in 2005. In 2006, Mybulen tablets were positioned first and represented 2.08% (n=38 956) of the overall medicine prevalence. Mybulen tablets had a lower CPI than Myprodol capsules, and although both Myprodol capsules as well as Mybulen tablets showed a CPI-value of lower than one, the assumption can be made that Mybulen tablets presented as the lower-priced product.

Corenza C effervescent tablets, Benylin Four Flu syrup, Dilinct syrup and Gaviscon Aniseed suspension were all present among the top five trade name products of both the study periods, and all of these medicines have been previously discussed (refer to paragraph 4.3.2.2, 4.3.3.2.1, 4.3.3.3.2, 4.3.6.1.1 and 4.3.6.1.2).

Tables B.69, B.70 and B.71 (appendix B) did not present with any noteworthy usage patterns.

The discussion concerning the top twenty trade name products prescribed by general medical practitioners will follow in the subsequent paragraphs.

4.3.6.3 The top twenty trade name products prescribed by general medical practitioners

The following section present a discussion about the top twenty trade name products prescribed by medical practitioners analysed according to total cost.

4.3.6.3.1 The top twenty trade name products prescribed by general medical practitioners according to total cost

Tables B.72 and B.73 (refer to appendix B), portray the complete list of the top twenty trade name products on the database prescribed by general medical practitioners ranked according to total cost. According to these tables the top twenty trade name products represented about 15% in both the study periods.

Table 4.47 is a summarised table of the top five trade name products prescribed by general medical practitioners analysed according to total cost.

Table 4.47 portrays that the top five trade name products represented 5.69% (n=R1 236 028 621.90) and 5.49% (n=R1 292 764 897.50) of the overall medicine total cost in 2005 and 2006 respectively. The top five trade name products list only changed slightly during the two study periods. All of these products can be seen as activity drivers.

Table 4.47: The top five trade name products prescribed by general medical practitioners ranked according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=14 538 227 n total cost=R1 236 028 621.90	Lipitor 10mg tab	1	23511150.01	124728	188.50	2.21
	Lipitor 20mg tab	2	13465381.45	50325	267.57	3.11
	Fosamax 70mg tab	3	12185119.52	36260	336.05	3.96
	Celebrex 200mg cap	4	11523372.72	52475	219.60	2.58
	Adco-Simvastatin 20mg tab	5	9598415.00	85664	112.05	1.32
Total:			70283438.7	349452	1123.76	
2006 n items=15 521 292 n total cost=R1 292 764 897.50	Lipitor 10mg tab	1	22729968.76	119878	189.61	2.29
	Lipitor 20mg tab	2	14166103.67	52586	269.39	3.24
	Prexum 4mg tab	3	12294278.49	95236	129.09	1.56
	Adco-Simvastatin 20mg tab	4	10925034.92	98884	110.48	1.33
	Cipralex 10mg tab	5	10745719.58	43900	244.78	2.96
Total:			70861105.42	410484	943.35	

The top five trade name products of 2005 were indicated for the following conditions:

- High blood cholesterol
- Bone disorders and osteoporosis
- Pain

In 2006 the top five trade name products represented treatments for the following conditions:

- High blood cholesterol
- High blood pressure
- Depression

Hipolipideamic agents (Lipitor 10mg and 20mg tablets, Adco-Simvastatin 20mg tablets) represented about 3.75% in both the study periods. (All of these trade name products have been discussed previously in paragraphs 4.3.2.1, 4.3.2.2, 4.3.3.4.2, 4.3.3.4.3, 4.3.3.5.2 and 4.3.3.5.3)

Fosamax 70mg tablets were positioned 3rd and represented 0.99% (n=R1 236 028 621.90) of the overall medicine cost in 2005. This medicine had the highest CPI (3.96) of all the top five trade name products and an average cost of R336.05 per item during 2005. The assumption can be made that Fosamax 70mg tablets can be regarded as relatively expensive (refer to paragraphs 4.3.2.1, 4.3.2.5.1, 4.3.4.1.1 and 4.3.5.1.1).

A total amount of R11 523 372.72 was claimed during 2005 for Celebrex 200mg capsules. This product had a CPI of 2.58 and was positioned 4th on the top five trade name list according to cost. The assumption can be made that Celebrex 200mg capsules were relatively expensive during 2005 (refer to paragraphs 4.3.5.1.1, 4.3.2.1, 4.3.2.5.1 and 4.3.4.1.1).

According to Bester (2008a) the reason for the appearance of Cipralex 10mg tablets as one of the cost-driving products may be due to powerful marketing strategies and the impression of "newer is better". Bester also stated that Cipralex 10mg is frequently prescribed by psychiatrist seeking newer and more effective treatment for depression. Cipralex 10mg tablets were positioned 5th and represented 0.83% (n=R1 292 764 897.50) of the overall medicine cost in 2006. This medicine can be seen as a relatively expensive treatment for depression due to the index numbers (2.96) that were higher than one.

Tables B.72 and B.73 portrayed the following notable usage patterns:

- The antibiotic products (Klacid XL, Avelon 400mg, and Ketek 400mg) all showed an increase in cost during the second period (01 May – 31 August) of both the study years. (An explanation for this trend is given in paragraphs 4.3.2.1, 4.3.2.3.1 and 4.3.3.4.1.)
- Myprodol capsules showed a decline in expenditure during 2005 (a possible explanation was given in paragraph 4.3.3.3.2).
- Stocrin 600mg tablets showed an increase in the cost during both the study periods (a possible explanations was given in paragraph 4.3.2.1).
- Prexum Plus tablets showed an upwards curve in expensiture, while Coversyl Plus showed a decline in frequency during 2006 (refer to figure 4.6).

In the following section the top twenty trade name products prescribed by general *medical* practitioners analysed according to their prevalence will be discussed.

4.3.6.3.2 The top twenty trade name products prescribed by general medical practitioners according to prevalence

Tables B.74, B.75 and B.76 (appendix B), portray the complete list of the top twenty trade name products prescribed by general medical practitioners ranked according to prevalence. According to these tables the top twenty trade name products represented 12.09% (n=14 538 227) and 11.78% (n=15 521 292) of the overall medicine prevalence for 2005 and 2006 respectively.

Table 4.48 is a summarised table of the top five trade name products on the database prescribed by general medical practitioners according to prevalence.

The top five trade name products list remained the same for both the study periods with the exception of Ecotrin 81mg tablets in 2006 and Myprodol capsules in 2005, and represented about 4.5% of the overall medicine prevalence in both the study periods.

Table 4.48: The top five trade name products prescribed by general medical practitioners ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=14 538 227 n total cost=R1 236 028 621.90	Eltroxin 100mcg tab	1	195899	40.73	7979721.58	0.48
	Myprodol cap	2	131184	61.04	8007923.40	0.72
	Lipitor 10mg tab	3	124728	188.50	23511150.01	2.21
	Alcophyllex syr	4	122518	10.11	1239039.69	0.12
	Mybulen tab	5	116547	39.28	4578006.96	0.46
Total:			690876	339.67	45315241.64	
2006 n items=15 521 292 n total cost=R1 292 764 897.50	Eltroxin 100mcg tab	1	207607	39.72	8245968.92	0.48
	Alcophyllex syr	2	125414	9.57	1199593.91	0.11
	Lipitor 10mg tab	3	119878	189.61	22729968.76	2.29
	Mybulen tab	4	115030	38.94	4478957.65	0.47
	Ecotrin 81mg tab	5	114598	20.59	2359305.35	0.24
Total:			682527	298.42	39013794.59	

The Eltroxin 100mcg tablets represented about 1.87% and this product was positioned 1st in both the study periods and had a CPI-value of approximately 0.48, and can therefore be seen as relatively inexpensive.

Alcophyllex syrup was positioned 4th and 2nd, and represented 0.84% (n=14 538 227) and 0.81% (n=15 521 292) of the overall medicine prevalence in 2005 and 2006 respectively. Alcophyllex syrup has been discussed in paragraphs 4.3.2.2, 4.3.2.1, 4.3.3.1.2 and figure 4.7.

According to Maritz (2005:97), hypercholesteroleamia is one of the diseases with the highest prevalence in South Africa. There are also studies that show a correlation between elevated

total cholesterol (TC) levels, the HIV epidemic and diabetes. Approximately 5.5 million South Africans over the age of 30 years are expected to have elevated TC levels (Maritz, 2005:101). Lipitor 10mg, which can be seen as one of the main cost driving medicine products was positioned 3rd, represented about 0.8% and had a CPI of approximately 2.2 for both the study periods.

Tables B.74, B.75 and B.76 did not portray any noteworthy usage patterns.

In the following section the top twenty trade name products prescribed by other prescribers will be discussed.

4.3.6.4 The top twenty trade name product prescribed by other prescribers

The complete list of the other prescribers is shown in paragraph 3.3.6. In the subsequent paragraphs the top twenty trade name products prescribed by other prescribers will be discussed according to their total cost and prevalence.

4.3.6.4.1 Top twenty trade name product prescribed by other prescribers according to total cost

In appendix B, tables B.77 and B.78, show the complete list of the top twenty trade name products on the database prescribed by other prescribers analysed according to cost. The top twenty trade name products represented 14.72% (n=R576 460 723.8) and 16.28% (n=R659 128 893.7) of the overall medicine cost for 2005 and 2006 respectively.

Table B.48 is a summarised table of the top five trade name products prescribed by other prescribers according to total cost.

Table 4.49 portrays that the top five trade name products represented 5.19% (n=R576 460 723.8) and 6.05% (n=R659 128 893.7) of the total medicine cost for 2005 and 2006 respectively. The top five trade name list of 2005 contained four treatments for chronic diseases and one oncology medicine product compared to the two oncology medicine products and three treatments for chronic diseases on the top five trade name list of 2006.

Table 4.49: The top five trade name products prescribed by other medical prescribers ranked according to total cost

Year	Trade name product	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=3 576 876 n total cost=R576 460 723.08	Lipitor 10mg tab	1	7928041.55	41743	189.93	1.18
	Gleevec 100mg cap	2	5727701.07	867	6606.34	49.50
	Lipitor 20mg tab	3	5653545.17	20632	274.02	1.64
	Plavix 75mg filmcoat tab	4	5368389.78	13453	399.05	2.45
	Fosamax 70mg tab	5	5238280.27	15515	337.63	2.12
Total:			29915957.84	92210	7806.96	
2006 n items=3 889 002 n total cost=R659 728 893.70	Herceptin	1	11326081.86	1604	7061.15	43.00
	Mabthera 500mg vial	2	7778859.80	1164	6682.87	39.33
	Lipitor 10mg tab	3	7693538.39	40529	189.83	1.13
	Plavix 75mg filmcoat tab	4	6843326.87	17396	393.39	1.93
	Lipitor 20mg tab	5	6262973.68	22926	273.18	1.61
Total:			39904780.6	83619	14600.41	

Lipitor 10mg tablets were positioned 1st and 3rd, represented 1.38% (n=R576 460 723.08) and 1.17% (n=R659 128 893.70) of the overall medicine cost; and had CPI-values of 1.18 and 1.13 for 2005 and 2006 respectively. Lipitor 20mg was positioned 3rd and 5th in 2005 and 2006 respectively. This Lipitor strength had a CPI of about 1.6 and represented about 0.98% of the overall medicine cost in both the study periods.

The leukaemia treatment, Gleevec 100mg was positioned 2nd in 2005 and represented 0.99% (n=R576 460 723.08) of the overall medicine cost. This medicine can be seen as expensive due to its extremely high CPI (49.50). It also had an average cost of R6606.34 per item during 2005. According to Reed and co-workers (2008:441), imatinib (the active ingredient of Gleevec) is more cost-effective than originally estimated due to the increase in the 60 month survival rate from 80 per cent to 89.4 per cent.

Plavix 75mg film coat tablets were positioned 4th and represented about 1% in both the study periods. Cardiologists and neurologists (classified within this prescriber group) prescribed Plavix 75mg film coated tablets the most (refer to paragraph 4.3.4.2.1).

In 2006 the two oncology products, Herceptin and Mabthera, were positioned 1st and 2nd and represented 1.72% (n=R576 460 723.08) and 1.18% (n=R659 128 893.70) of the overall medicine cost of products prescribed by other medical prescribers in 2005 and 2006 respectively. Mabthera had a CPI of 39.33, therefore the assumption can be made that it was relatively expensive. Both of these treatments have been discussed in previous paragraphs (Herceptin refer to paragraphs 4.3.3.3.1, 4.3.4.1.1 and 4.3.5.3.1, and Mabthera refer to paragraphs 4.3.2.5.1 and 4.3.1.1).

Interesting is the fact that according to the number of Herceptin injections prescribed by other medical prescribers it had a CPI-value of 43, compared to a CPI-value of 78.33 according to all the Herceptin injections claimed for the female sex. A possible explanation to the difference in the CPI-value can be due to the fact that Herceptin represented only 0.01% (n=12 924 812) of all the medicine claimed for women compared to the 0.04% (n=3 889 002) Herceptin represented of all the items prescribed by other medical providers.

Tables B.77 and B.78 (appendix B), showed that Herceptin, Mabthera, Taxotere and Eprex (products used to treat cancer or cancer-related symptoms) all followed an upwards curve in the cost patterns during both the study periods.

A discussion of the top twenty trade name products prescribed by other prescribers according to prevalence will follow in the subsequent paragraphs.

4.3.6.4.2 Top twenty trade name products prescribed by other prescribers according to prevalence

Tables B.79, B.80 and B.81 (appendix B), depict the complete list of the top twenty trade name products on the database prescribed by other prescribers analysed according to prevalence. According to these tables the top twenty trade name products represented 14.56% (n=3 576 876) and 14.18% (n=3 889 002) of the overall medicine prevalence in 2005 and 2006 respectively.

Table 4.50 is a summarised table of the top five trade name products prescribed by other prescribers on the database ranked according to prevalence.

Table 4.50: The top five trade name products prescribed by other medical prescribers ranked according to prevalence

Year	Trade name products	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=3 576 876 n total cost=R576 460 723.08	Ecotrin 81mg tab	1	52861	19.38	1024501.14	0.12
	Eltroxin 100mcg tab	2	51924	39.97	2075475.26	0.25
	Lipitor 10mg tab	3	41743	189.93	7928041.55	1.18
	Disprin CV 100mg disp	4	37549	23.19	870704.95	0.14
	Myprodol cap	5	33007	62.46	2061637.88	0.39
Total:			217084	334.93	13960360.78	
2006 n items=3 889 002 n total cost=R659 728 893.70	Ecotrin 81mg tab	1	60479	20.47	1237869.58	0.12
	Eltroxin 100mcg tab	2	56789	38.62	2193081.04	0.23
	Lipitor 10mg tab	3	40529	189.83	7693538.39	1.13
	Disprin CV 100mg disp	4	39004	24.15	941915.60	0.14
	Prexum 4mg tab	5	35842	127.60	4573597.00	0.75
Total:			232643	400.67	16640001.61	

Table 4.50 indicates that the top five trade name products prescribed by other prescribers represented 6.07% (n=3 576 876) and 5.98% (n=3 889 002) of the overall medicine prevalence prescribed by other medical prescribers in 2005 and 2006 respectively.

The top five trade name list of both the study years were very similar except the 5th position of both the years, that included Myprodol capsules and Prexum 4mg tablets. The top five trade name list was a combination of acute and chronic condition treatments.

Ecotrin 81mg tablets were positioned 1st and represented about 1.50% of the overall medicine prevalence for both the study periods (refer to paragraphs 4.3.1.2, 4.3.2.2 and 4.3.4.2.2).

In the 2nd position of both the study periods were Eltroxin 100mcg tablets that represented approximately 1.45% of the overall medicine prevalence (refer to paragraphs 4.3.2.2, 4.3.4.1.1 and 4.3.2.5.2).

Lipitor 10mg tablets were positioned 3rd according to prevalence and represented 1.17% (n=3 576 876) and 1.04% (n=3 889 002) in 2005 and 2006 respectively (refer to paragraphs 4.3.2.1, 4.3.2.2, 4.3.3.4.2 and 4.3.2.5.2.).

Disprin CV dispersible tablets represented about 1% of the overall medicine prevalence and were positioned 4th in both the study periods (refer to paragraphs 4.3.1.2, 4.3.2.2 and 4.3.4.2.2).

Table B.80 (appendix B), showed the following notable usage patterns:

- Cipralex 10mg tablets were positioned 19th in the first period, 14th in the second period and 43rd in the last period of 2005.
- Concor 5mg was positioned 12th, 13th and 63rd in periods one, two and three of 2005 respectively.
- Fosamax 70mg tablets were positioned 17th in the first period, 19th and 46th in the second and third periods respectively of 2005.

4.3.6.5 Summary of the top trade name products according to the various prescribers

This section concludes with a brief overview of the results that have been discussed in sections 4.3.6.1 to 4.3.6.4.

Pharmacists initiated prescriptions, (which included pharmacists, pharmacist assistants and pharmacist interns) prescribed a total of 1 704 808 and 2 020 781 items in 2005 and 2006 respectively, and claimed R78 739 814.7 and R92 097 572.14 of medications worth through the

database for 2005 and 2006 respectively. The trade name products prescribed by pharmacies consisted mainly of cold and flu remedies and pain medication. All of the top twenty trade name products according to cost and prevalence were not scheduled substances to substances scheduled one to schedule three.

Totals of R1 990 479.22 and R2 007 303.26 were claimed through the database for medication prescribed by pharmacotherapists, a total number of 39 358 and 38 956 medicine items. The top twenty trade name products prescribed by pharmacotherapists were similar to the medicine items prescribed by pharmacies. A possible explanation for this can be that pharmacotherapists are advanced pharmacist practitioners.

General medical prescribers prescribed 14 538 227 and 15 521 292 medicine items for 2005 and 2006 respectively and accounted for claims worth R1 236 028 621.90 and R1 292 764 897.50. The most expensive trade name products prescribed by general medical practitioners were mostly medicine indicated for the treatment of chronic conditions, with the exception of a few antibiotic and cold and flu products.

Other medical prescribed a wide variety of medication, which varied from acute schedule two pain medication to highly expensive oncology medicine. A total number of 3 576 876 and 3 889 002 medicine items prescribed by other medical prescribers were claimed through the database and accounted for R576 460 723.08 and R659 728 893.7 in 2005 and 2006 respectively.

The activity drivers for prescribers were the following medicine items: Lamisil cream, Benylin and codeine syrup, Solphyllex syrup, Gaviscon Aniseed liquid, Deselex tablets, Ulsanic suspension, Pevaryl cream, Myprodol capsules, Lipitor 10mg and 20mg tablets, Fosamax 70mg tablets, Celebrex 200mg tablets, Adco-Simvastatin 20mg tablets, Prexum 4mg tablets, Cipralex 10mg tablets, Gleevec capsules, Plavix tablets, Herceptin- and Mabthera injections.

The following products were resource drivers for the various prescriber types: Mypaid capsules, Corenza C effervescent tablets, Benylin four flu syrup, Adco-Dol tablets, Dilinct syrup, Mybulen tablets, Eltroxin 100mcg tablets, Alcophyllex syrup, Myprodol capsules, Ecotrin 81mg tablets, Disprin CV tablets and Prexum 4mg tablets.

In the following section the different pharmacological groups will be investigated and will be discussed according to prevalence and cost.

4.3.7 The top twenty pharmacological groups

In the following section a brief discussion on the top twenty pharmacological groups will be provided. The pharmacological groups were divided into three separate categories, *i.e.* main pharmacological group, pharmacological/therapeutic sub-group and chemical/therapeutic sub-group (refer to paragraph 3.3.7).

In appendix C (1.4) the complete list of the division of the pharmacological groups is shown. An example of the division of the pharmacological groups is shown in the subsequent paragraph.

1. CENTRAL NERVOUS SYSTEM
    1.1 Central nervous system stimulants
        1.1.1 Central analeptics

Were: 1. Is the main pharmacological group, 1.1 is the pharmacological/therapeutic sub-group and 1.1.1 is the chemical/therapeutic sub-group.

4.3.7.1 The top twenty main pharmacological groups

In the following section the main pharmacological groups will be discussed according to cost and prevalence.

4.3.7.1.1 The main pharmacological groups according to total cost

Tables B.82 and B.83 (appendix B) portray the complete list of the top twenty main pharmacological groups. According to these tables the top twenty main pharmacological groups represented 99.41% (n=R1 893 376 921.00) and 99.39% (N=R2 046 944 382.50) of the overall medicine prevalence in 2005 and 2006 respectively.

Table 4.51 is a summarised table of the top five main pharmacological groups on the database ranked according to cost.

Table 4.51 portrays that the top five main pharmacological groups represented 61.29% (n=R1 893 376 921.00) and 60.51% (N=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively.

The top five main pharmacological groups of both the study periods contained the same main pharmacological groups ranked in identical order.

Table 4.51: The top five main pharmacological groups ranked according to total cost

Year	Main pharmacological group	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=19 860 679 n total cost=R1 893 376 921.00	7 – Cardiovascular agents	1	365056222.79	2705492	134.93	1.42
	1 - Central nervous system agents	2	240615075.29	1909643	126.00	1.32
	18 - Antimicrobial products	3	211903054.26	2355856	89.95	0.94
	19 - Endocrine system products	4	198418443.99	1807283	109.79	1.15
	10 - Respiratory system agents	5	144383959.07	2495347	57.86	0.61
Total:			1160376755	11273621	518.53	
2006 n items=2 147 3074 n total cost=R2 046 944 383	7 – Cardiovascular agents	1	389890466.01	2983099	130.70	1.37
	1 - Central nervous system agents	2	251266044.96	2041082	123.10	1.29
	18 - Antimicrobial products	3	231387923.36	2549936	90.74	0.95
	19 - Endocrine system products	4	213278998.89	1930711	110.47	1.16
	10 - Respiratory system agents	5	152866052.91	2748488	55.62	0.58
Total:			1238689486	12253316	510.63	

Cardiovascular agents ended in the 1st position and represented about 19.10% of the overall medicine cost in both the study periods. Cardiovascular agents had an average cost of approximately R132 per item and had a CPI of above 1 in both the study periods. The assumption can therefore be made that the main pharmacological group of cardiovascular agents is relatively expensive. In 1991, 25 per cent of all health care expenditure already went to the treatment of cardiovascular problems and according to Steyn (2007:28) cardiovascular cost has risen remarkably every year and is a great concern for the South African health care sector. According to Jamison and co-workers (2006:103) the following cardiovascular treatments are cost-effective in low and middle income countries:

- Anticlotting agents such as aspirin and heparin (preventing thrombosis).
- Angiotension-converting enzyme inhibitors for congestive heart failure.
- Anticoagulants for mitral stenosis and atrial fibrillation.
- Products such as beta-blockers, statins and calcium channel blockers (Jamison *et al.*, 2006:103).

All of the above-mentioned products fall predominantly within the main pharmacological group 7 which indicates the cardiovascular agents (appendix C-1.4).

Central nervous system agents were in the 2nd position and represented 12.71% (n=R1 893 376 921.00) and 12.28% (N=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively. The central nervous system agents had an average cost of about R125 per item and a CPI of about 1.3 for both the study periods. For this pharmacological group the assumption can therefore be made that the central nervous agents were relatively expensive.

Antimicrobial products were positioned 3rd and represented 11.19% (n=R1 893 376 921.00) and 12.28% (N=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively.

Antimicrobial products had an average cost of R90 per item and a CPI of about 0.95 for both the study periods. Due to the CPI of the anti-microbial products which is below one, antimicrobial products can be regarded as a relatively inexpensive pharmacological group of agents.

In the 4th position of both the study periods were the endocrine system products, representing *about 10.45%* of the overall medicine cost. This main pharmacological group can be seen as relatively expensive due to its CPI which was above one in both the study periods. The various insulin products as well as hormone replacement therapies frequently appeared in the top twenty trade name products list according to cost and can be an explanation to why the endocrine system is one of the top main pharmacological groups according to total expenditure (refer to paragraphs 4.3.3.4.1, 4.3.4.2.1 and 4.3.3.5).

The respiratory system agents were positioned 5th and represented about 7.40% of the overall medicine cost. This main pharmacological group had the lowest CPI on the top five main pharmacological groups list.

Tables B.82 and B.83 (appendix B) show no remarkable changes for the main pharmacological groups according to cost in the individual study periods.

In the next section the top twenty main pharmacological groups according to prevalence will be discussed.

4.3.7.1.2 The main pharmacological groups according to prevalence

Tables B.84, B.85 and B.86 (appendix B), portray the complete list of the top twenty main pharmacological groups according to prevalence. The top twenty main pharmacological groups represented 99.36% (n=19 860 679) and 99.56% (n=21 473 074) of the overall medicine prevalence in 2005 and in 2006 respectively.

Table 4.52 is a summary of the top five main pharmacological groups according to prevalence.

Table 4.52: The top five main pharmacological groups ranked according to prevalence

Year	Main pharmacological group	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=19 860 679 n total cost=R1 893 376 921.00	7 – Cardiovascular agents	1	2705492	134.93	365056222.79	1.42
	10 - Respiratory system agents	2	2495347	57.86	144383959.07	0.61
	18 - Antimicrobial products	3	2355856	89.95	211903054.26	0.94
	1 - Central nervous system agents	4	1909643	126.00	240615075.29	1.32
	19 - Endocrine system products	5	1807283	109.79	198418443.99	1.15
Total:			11273621	518.53	1160376755.40	
2006 n items=2 147 3074 n total cost=R2 046 944 383	7 – Cardiovascular agents	1	2983099	130.70	389890466.01	1.37
	10 - Respiratory system agents	2	2748488	55.62	152866052.91	0.58
	18 - Antimicrobial products	3	2549936	90.74	231387923.36	0.95
	1 - Central nervous system agents	4	2041082	123.10	251266044.96	1.29
	19 - Endocrine system products	5	1930711	110.47	213278998.89	1.16
Total:			12253316	510.63	1238689486.14	

The top five main pharmacological groups represented 56.76% (n=19 860 679) and 57.06% (n=21 473 074) of the overall medicine prevalence for 2005 and 2006 respectively. The top five main pharmacological groups of both study periods were alike and positioned in the same order.

Cardiovascular agents were positioned 1st and represented about 13.70% of the overall medicine prevalence in both the study periods. According to Jamison *et al.* (2006:98) cardiovascular diseases is the world's leading cause of death and accounts for 28 per cent of deaths worldwide. The burden of cardiovascular disease is thus extremely high on low and middle income countries such as South Africa.

In the 2nd position of both the study periods were the respiratory system agents which included remedies for coughs and colds as well as broncodilators, mucolytics, anti-asthmatics and surfactants (refer to appendix C-1.4). The respiratory pharmacological group represented 12.56% (n=19 860 679) and 12.80% (n=21 473 074) of the overall medicine prevalence. As seen in previous sections, cold and flu remedies as well as cough mixtures are frequently, dispensed, prescribed and provided (refer to paragraphs 4.3.2.2, 4.3.3.2.1, 4.3.3.3.2 and 4.3.6.1.1.).

Antimicrobial agents (main pharmacological group 18) maintained a steady 3rd position through both study periods and represented about 11.80% of the overall medicine prevalence in both 2005 and 2006. This main pharmacological group is indicated mostly for acute conditions and include the following: beta-lactam containing products, erythromycin and other macrolides, aminoglycosides, tetracyclines, chloramphenicols, sulphonamides, quinolones, mycobacteria and other antiviral agents (refer to appendix C-1.4). According to Jones and Jones (2008b:38) one of the principal causes of mortality in the South African health sector is bacterial infections,

which include conditions such as pneumonia and wound infections that affects all the age groups.

Central nervous system agents were positioned 4th and represented about 9.62% (n=19 860 679) of the overall medicine prevalence in 2005. In 2006 the central nervous system agents represented about 9.50% (n=21 473 074) of the overall medicine prevalence. Central nervous system agents include the following: sedative hypnotics, anxiolytics, antidepressants, antipsychotics, antiepileptics, antiparkinson agents, alzheimer's disease agents, etc. (refer to appendix C-1.4). According to Jamison and co-workers (2006:124) depression, schizophrenia, bipolar disorders, epilepsy, anxiety disorders and dementia are frequently misdiagnosed and untreated in developing countries and the prevalence of these conditions is higher than estimated. Globally these various conditions do not appear as significant causes of death but, they have an enormous negative effect on the quality of life of the patients. This statement made by Jamison and co-workers that the prevalence of these central nervous system conditions is in actual fact higher than estimated can be seen as a concern as central nervous system agents are already highly positioned according to prevalence in our developing country, South Africa.

In the 5th position of both the study years were the endocrine system agents that represented about 9%. The endocrine system includes the following: antidiabetic agents, antihipoglycaemic agents, thyroid, parathyroid and calcitonin, corticosteroids, sex hormones, tropic hormones and hormone inhibitors (refer to appendix C-1.4). Thyroxine, hormone replacement therapy and antidiabetic agents appeared frequently in the various categories according to prevalence (refer to paragraphs 4.3.2.2, 4.3.2.5.2 and 4.3.4.1.1) and can be an explanation for this main pharmacological group being one of the top five main pharmacological groups according to prevalence.

Tables B.84, B.85 and B.86 portray the top twenty main pharmacological groups. According to these tables the top ten main pharmacological groups also included analgesics, muscolo-skeletal agents, ear-, nose- and throat products, gastro-intestinal tract agents, and urinary system agents in both the study periods.

Figures 4.12 and 4.13 illustrate the prevalence of the top twenty main pharmacological groups for 2005 and 2006.

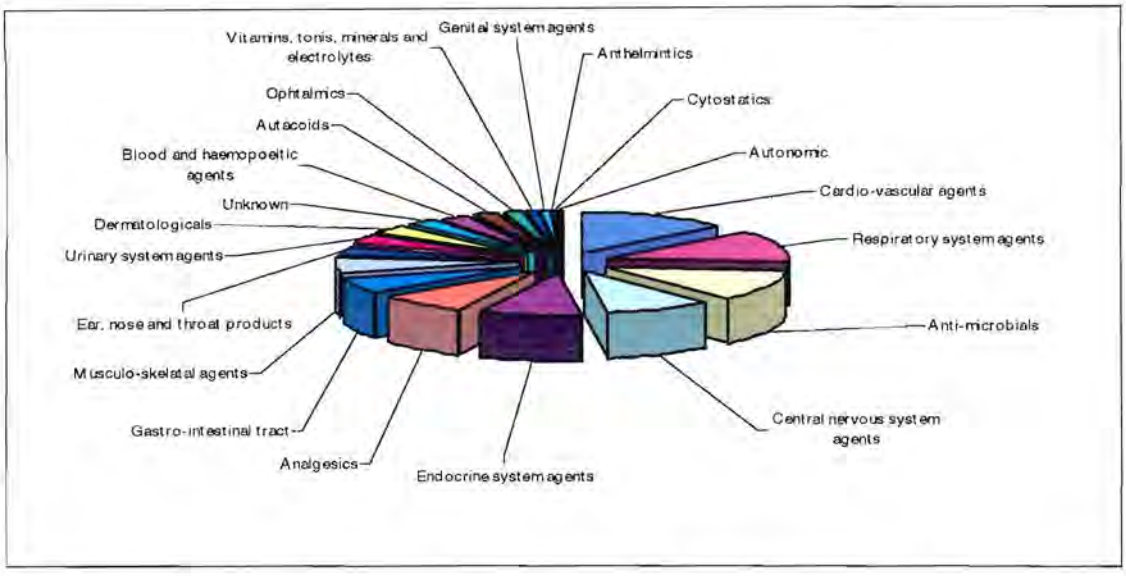

Figure 4.12: The top twenty main pharmacological groups according to prevalence for 2005

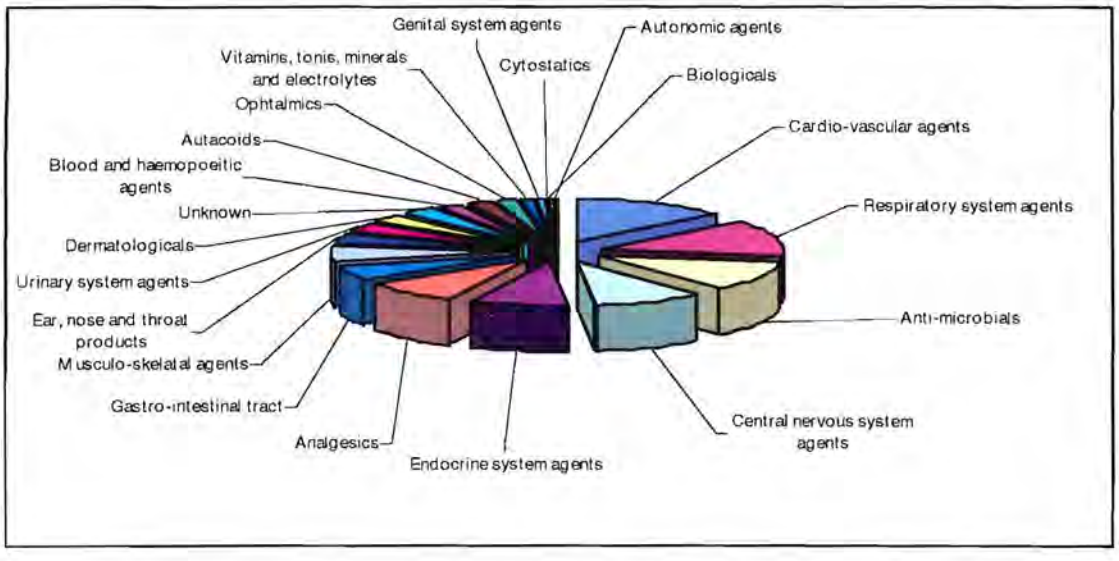

Figure 4.13: The top twenty main pharmacological groups according to prevalence for 2006

Figure 4.12 illustrates the top twenty main pharmacological groups and the portion they individually represented according to prevalence.

In both figures 4.12 and 4.13 it is evident that the top ten main pharmacological groups represented the larger portions of medicine prevalence.

In the following section the top twenty pharmacological/therapeutic sub-groups will be discussed.

4.3.7.2 The top twenty pharmacological sub-groups

In this section the top twenty pharmacological sub-groups on the database will be discussed according to total cost and prevalence. A pharmacological sub-group is more specified than the main pharmacological group (refer to paragraph 3.3.7.).

4.3.7.2.1 The top twenty pharmacological sub-group according to total cost

Tables B.87 and B.88 (appendix B), show the complete list of the top twenty pharmacological sub-groups on the database according to cost. The top twenty pharmacological sub-groups represented 66.65% (n=R1 893 376 921.00) and 67.14% (n=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively.

Table 4.53 is a summarised table of the complete list of the top five pharmacological sub-groups on the database according to cost.

Table 4.53: The top five pharmacological sub-groups ranked according to total cost

Year	Sub pharmacological group	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=19 860 679 n total cost=R1 893 376 921.00	7.3 - Antihypertensives	1	212789695.96	1565133	135.96	1.43
	7.7 - Hipolipidaemic agents	2	106943348.53	626759	170.63	1.79
	1.4 - Antidepressants	3	93005544.60	628215	148.05	1.55
	12.4 - Acid-reducers	4	78288192.69	566393	138.22	1.45
	18.1 - Beta-lactam products	5	77185121.40	1117462	69.07	0.72
Total:			568211903.2	4503962	661.93	
2006 n items=2 147 3074 n total cost=R2 046 944 383	7.3 - Antihypertensives	1	226731711	1754535	129.23	1.36
	7.7 - Hipolipidaemic agents	2	117862631.9	705424	167.08	1.75
	1.4 - Antidepressants	3	93888457.61	683066	137.45	1.44
	23.1 - Cytostatics	4	87522544.92	56994	1535.64	16.11
	12.4 - Acid-reducers	5	82340687.68	631718	130.34	1.37
Total:			608346033.1	3831737	2099.75	

According to table 4.52 the top five pharmacological sub-groups represented 30.01% (n=R1 893 376 921.00) and 29.72% (n=R2 046 944 382.50) of the overall medicine cost for 2005 and 2006 respectively. The top five pharmacological sub-groups were similar in both the study periods except for the appearance of beta-lactam products (pharmacological sub-group 18.1) in 2005 and cytostatic agents (pharmacological sub-group 23.1) in 2006 (refer to appendix C-1.4).

The top five pharmacological sub-groups represent the following agents: antihypertensives, hipolipidaemic agents, antidepressants, acid-reducers, beta-lactam products and cytostatic agents (refer to appendix C-1.4).

In the 1st position were antihypertensives that represented about 11% of the medicine cost in both the study periods. Antihypertensives represented more than double the amount of medicine cost of any other pharmacological sub-group. Antihypertensives had a CPI of about 1.4 and an average cost of R130 per item in both the study periods. The assumption can therefore be made that hypertension treatment was a relatively expensive treatment. According to Gaziano and co-workers (2005:3575) the South African hypertension guidelines can be more cost-effective if the pricier calcium-channel blockers and ACE-inhibitors were to be replaced by thiazide medication. Furthermore they found that the hypertension guidelines are cost-effective due to the high percentage of lives saved (Gaziano *et al.*, 2005:3574). The South African hypertension guidelines state that blood pressure of 160/95 mmHg must be treated with medication. Steyn *et al.* (2000:18A) reported that the cost associated with the treatment of hypertension would increase drastically if mild hypertension (140/90 mmHg) would be included in the hypertension guidelines. This implies that the cost of antihypertensives could increase if the South African hypertension guidelines were to be changed.

Hipolipidaemic agents were positioned 2nd, representing about 5.7% of the overall medicine cost for both the study periods. Hipolipidaemic agents showed a CPI of approximately 1.75 and had an average cost of R170 per item. The assumption can be made that most of the hipolipidaemic agents are relatively expensive. According to Gumbs *et al.* (2007:188), hipolipideamic agents which consist primarily of expensive statins presented as the world-wide first choice to treat hypercholesterolemia, which is one of the most frequent contributing and major risk factors of cardiovascular diseases in the world.

The third place for both 2005 and 2006 was occupied by antidepressants; representing 4.91% (n=R1 893 376 921.00) and 4.59% (n=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively. Antidepressants had a CPI of 1.55 and an average cost of R148 per item during 2005; compared to a CPI of 1.44 and an average cost of R137.45 per item in 2006. The assumption can be made that this pharmacological sub-group is relatively expensive.

Acid-reducers (pharmacological group 12.4) include the following: antacids, histamine-2 receptor antagonist, proton pump inhibitors, and cytoprotective agents. These various agents were positioned 4th and 5th and represented 4.13% (n=R1 893 376 921.00) and 4.02% (n=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively. Acid-reducers had CPI-values of 1.45 and 1.37 and an average cost per item of R138.22 and R130.34 in 2005 and

2006 respectively. Therefore the assumption can be made that this pharmacological sub-group was relatively expensive.

The two pharmacological sub-groups that appeared in only one of the study periods were beta-lactam products and cytostatic agents. The beta-lactam products (pharmacological sub-group 18.1) had the lowest CPI (0.72) and the lowest average cost per item (R69.07), whereas the cytostatic agents had the highest CPI (16.11) and the highest average cost per item (R1535.64).

Tables B.87 and B.88 (appendix B), showed the following patterns of note:

- The pharmacological sub-group 10.1, which includes remedies for coughs and colds, including antitussives and expectorants, decongestant and analgesic combinations, was positioned 12th in the first period (January to April), 6th in the second periods (May to August) and 14th in the last period (September to December) of 2006. In 2005 remedies for coughs and colds were positioned 11th, 6th and 14th in periods one, two and three respectively.
- The main pharmacological group 18.2, erythromycin and other macrolides, was positioned 22nd in the first period (January to April), 15th in the second period (May to August) and 24th in period three (September to December) of 2005.

Both of these pharmacological groups' increased cost in period two (May 1st – Aug 31st) may be due to higher frequency of colds and flu which in turn results in elevated total cost.

The top twenty pharmacological sub-groups according to prevalence will be discussed in the subsequent paragraphs.

4.3.7.2.1 The top twenty pharmacological sub-groups according to prevalence

Tables B.89, B.90 and B.91 (appendix B) show the complete list of the top twenty pharmacological sub-groups on the database. The top twenty pharmacological groups represented 68.96% (n=19 860 679) and 69.56% (n=21 473 074) of the overall medicine prevalence for 2005 and 2006 respectively.

Table 4.54 is a summarised table of the top five pharmacological sub-groups on the database according to prevalence.

Table 4.54: The top five pharmacological sub-groups ranked according to prevalence

Year	Sub pharmacological group	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=19 860 679 n total cost=R1 893 376 921.00	10.1 - Coughs and cold products	1	1716426	32.33	55494578.04	0.34
	7.3 - Antihypertensives	2	1565133	135.96	212789695.96	1.43
	3.3 - Combination analgesics	3	1217623	40.55	49368589.21	0.43
	18.1 – Beta-lactam	4	1117462	69.07	77185121.40	0.72
	4.1 - NSAIDS	5	921863	63.23	58290412.55	0.66
Total:			6538507	341.14	453128397.16	
2006 n items=2 147 3074 n total cost=R2 046 944 383	10.1 - Coughs and cold products	1	1895412	31.54	59775215.58	0.33
	7.3 - Antihypertensives	2	1754535	129.23	226731710.99	1.36
	3.3 - Combination analgesics	3	1410230	40.22	56723290.94	0.42
	18.1 – Beta-lactam	4	1159260	68.00	78834713.74	0.71
	4.1 - NSAIDS	5	954241	60.52	57752267.02	0.63
Total:			7173678	329.51	479817198.27	

The top five pharmacological sub-groups represented 32.92% (n=19 860 679) and 33.41% (n=21 473 074) of the overall medicine prevalence for 2005 and 2006 respectively. The top five pharmacological sub-groups were exactly the same for both study periods.

Approximately 1 out of every 4 South Africans gets a cold every year, meaning that an average of 22.79 per cent of all South African present with the common cold symptoms (Cureresearch, 2008). Pharmacological sub-group 10.1 (coughs and cold products) was positioned 1st and represented about 8.70% of the overall medicine prevalence in both the study periods. According to table 4.53 the assumption can be made that medicine for colds and coughs appeared to be relatively inexpensive (CPI of about 0.33).

According to Norman and co-workers (2007:659) the burden of hypertension in South Africa is significantly high, with an estimated 47 000 deaths attributable to hypertension, accounting for approximately 9 per cent of all the deaths and also contributing to a staggering 2.4 per cent of disability adjusted life years (DALYs) as in the year 2000. Norman *et al.* (2007:697) also came to the conclusion that hypertension in South Africa is poorly diagnosed and insufficiently managed despite the fact that South Africa has primary treatment guidelines for this condition, and therefore concludes that lifestyle modifications and patient education must play a major role in the treatment of hypertension. To no surprise; the 2nd position of both the study periods was thus occupied by the pharmacological sub-group 7.3 *i.e.* (single agent antihypertensives and combinations including diuretic combinations); representing 7.88% (n=19 860 679) and 8.17% (n=21 473 074) of the overall medicine prevalence for 2005 and 2006 respectively.

Although commonly assumed that analgesics are indicated for acute use, the literature states the opposite, that, in fact, analgesics are in some cases used for chronic pain (refer to paragraph 4.3.3.3.2). According to Gerdle and colleagues (2008:109) pain was experienced in a

third of the study population in one or more anatomical areas (predominantly lower and upper back pain) on a daily continuous basis for periods of three years or more and the pain prevalence intensified with age. Combination analgesics (pharmacological sub-group 3.3) were in the 3rd position and represented about 6.4% of the overall medicine prevalence in both the study periods.

According to a study done by Breivik *et al.* (2006:290), 55 per cent of all patients that received treatment for pain, used NSAIDs for their pain management and half of these patients reported that their pain had improved. Non-steroidal anti-inflammatory drugs (NSAIDs) (pharmacological sub-group 4.1) were positioned 5th and represented about 4.5% of the overall medicine prevalence in both the study periods.

Pharmacological sub-group 18.1 that includes beta-lactam containing products was positioned 4th in both the study periods and represented around 5.4% of the overall medicine prevalence. Beta-lactam and broadspectrum antibiotics have been discussed in paragraphs 4.3.1.1, 4.3.1.2, 4.3.2.1, 4.3.5.2.1.

Tables B.89, B.90 and B.91 did not present with any noteworthy usage patterns.

In the following section the top twenty therapeutic sub-groups will be discussed.

4.3.7.3 The top twenty therapeutic sub-groups

In the subsequent paragraphs the top twenty therapeutic sub-groups will be discussed according to prevalence and cost. The definition of therapeutic sub-groups is given in paragraph 3.3.7.

4.3.7.3.1 The top twenty therapeutic sub-groups according to total cost

The top twenty therapeutic sub-groups represented 48.55% (n=R1 893 376 921.00) and 49.69% (n=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively. The complete list of the top twenty therapeutic sub-groups is shown in tables B.92 and B.93 in appendix B.

Table 4.55 is a summarised table of the top five therapeutic sub-groups on the database ranked according to cost.

Table 4.55: The top five therapeutic sub-groups ranked according to total cost

Year	Sub therapeutic group	Rank	Total cost (R)	Frequency	Average cost per item (R)	CPI
2005 n items=19 860 679 n total cost=R1 893 376 921.00	7.7.2 - HMG-CoA reductase inhibitors	1	101462054.77	601851	168.58	1.77
	7.3.8 - ACE-inhibitors	2	80389840.12	701650	114.57	1.20
	12.4.4 - Proton pump inhibitors	3	62614742.12	281063	222.78	2.34
	7.3.9 - Angiotensin receptor antagonists	4	58177254.58	278006	209.26	2.20
	23.1.1 - Cytostatics	5	57061374.50	46776	1219.89	12.80
2005:			359705266.1	1909346	1935.08	
2006 n items=2 147 3074 n total cost=R2 046 944 383	7.7.2 - HMG-CoA reductase inhibitors	1	109602183.74	669936	163.60	1.72
	23.1.1 - Cytostatics	2	87522544.92	56994	1535.64	16.11
	7.3.8 - ACE-inhibitors	3	85188952.62	795742	107.06	1.12
	12.4.4 - Proton pump inhibitors	4	64117771.82	328772	195.02	2.05
	7.3.9 - Angiotensin receptor antagonists	5	61233797.23	292452	209.38	2.20
2006:			407665250.3	2143896	2210.70	

The top five therapeutic sub-groups represented 19.00% (n=R1 893 376 921.00) and 19.92% (n=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively. The top five therapeutic sub-groups were similar in both the study periods except the order in which they were positioned. The top five therapeutic sub-groups all represented treatments that can be indicated for chronic illnesses except therapeutic sub-group 23.1.1, which is indicated for the treatment of cancer.

HMG-CoA reductase inhibitors (statins) were positioned 1st and represented about 5.35% of the overall medicine cost in both the study periods. Statins had a CPI of approximately 1.75 and an average cost per item of R165 in both the study years. The assumption can be made that statins can be regarded as relatively expensive treatment for hypercholesterolemia.

ACE-inhibitors were positioned 2nd and 3rd and represented 4.25% (n=R1 893 376 921.00) and 4.16% (n=R2 046 944 382.50) of the overall medicine prevalence in 2005 and 2006 respectively. The CPI of above one (about 1.20) suggests that ACE-inhibitors are a relatively expensive. Nordmann *et al.* (2003:580) found that ACE-inhibitors are not cost-effective as first-line antihypertensive treatment agents and the life years gained and QALYs are not extraordinary in comparison with conventional treatment. ACE-inhibitors are, however cost-effective compared to angiotensin antagonists in reducing cardiovascular events. According to a pharmacoeconomic analysis done by Davie (2000:242), ACE-inhibitors are so cost-effective after myocardial infarction that he recommends it should be part of the protocol treatment. The lower dose ACE-inhibitor treatment used in the prevention of nephropathy is estimated to be cost-effective in patients with type I diabetes mellitus, except in pregnant women, sexually active adolescent females and in patients with asthma problems, due to the fact that the adverse effects (coughing and fetal malformation) reduce the QALYs drastically (Dong *et al.*, 2004:1026).

Proton pump inhibitors (PPIs) (therapeutic sub-group 12.4.4) represented about 3% of the overall medicine prevalence and had a CPI of approximately 2.2 in both the study periods. Therapeutic sub-group 12.4.4 was positioned 3rd in 2005 and 4th in 2006. Due to therapeutic sub-group 12.4.4's high CPI, the assumption can be made that it is a relatively expensive treatment. According to Byrne and Murray (1999:228) PPIs are more cost-effective than H_2-antagonists in the treatment of peptic and duodenal ulcers. H_2-antagonists, the therapeutic equivalent group of PPIs, did not appear on the top twenty therapeutic sub-groups list analysed according to cost.

Angiotensin receptor antagonists were in the 4th and 5th positions in 2005 and 2006 respectively. This therapeutic group (7.3.9) represented about 3% of the overall medicine cost and had a CPI of 2.20 in both the study periods.

Cytostatics were positioned 5th and 2nd and represented 3.01% (n=R1 893 376 921.00) and 4.28% (n=R2 046 944 382.50) of the overall medicine cost in 2005 and 2006 respectively. Cytostatics had the highest CPI of all the therapeutic sub-groups on the top five lists, 12.80 in 2005 and 16.11 in 2006. The average cost per item for this therapeutic sub-group amounted to R1219.89 and R1535.64 in 2005 and 2006 respectively. The conclusion can therefore be made that cytostatics result in an expensive therapeutic sub-group. (Cytostatics have been discussed in paragraphs 4.3.1.1, 4.3.2.5.1, 4.3.3.3.1 and 4.3.4.2.1).

Tables B.92 and B.93 (appendix B) did not show any noteable patterns.

In the following section the top twenty therapeutic sub-groups according to prevalence will be discussed.

4.3.7.3.1 The top twenty therapeutic sub-groups according to prevalence

Tables B.94, B.95 and B.96 (appendix B), show the complete list of the top twenty therapeutic sub-groups according to prevalence. The top twenty therapeutic sub-groups represented 52.80% (n=19 860 679) and 53.19% (n=21 473 074) of the overall medicine prevalence in 2005 and 2006 respectively.

The top five therapeutic sub-groups on the database according to prevalence are summarised in table 4.56.

Table 4.56: The top five therapeutic sub-groups ranked according to prevalence

Year	Sub pharmacological group	Rank	Freq	Average cost per item (R)	Total cost (R)	CPI
2005 n items=19 860 679 n total cost=R1 893 376 921.00	3.3.1 - Combination analgesics	1	1217623	40.55	49368589.21	0.43
	18.1.1 - Penicillin containing products	2	830052	53.73	44595287.84	0.56
	10.1.1 - Antitussives and expectorants	3	820036	33.37	27367058.25	0.35
	7.3.8 - ACE-inhibitors	4	701650	114.57	80389840.12	1.20
	4.1.1 – Cox-inhibitors	5	667556	45.12	30123320.59	0.47
Total:			4236917	287.34	231844096.01	
2006 n items=2 147 3074 n total cost=R2 046 944 383	3.3.1 - Combination analgesics	1	1410230	40.22	56723290.94	0.42
	10.1.1 - Antitussives and expectorants	2	894534	33.26	29752739.46	0.35
	18.1.1 - Penicillin containing products	3	873724	53.36	46624608.25	0.56
	7.3.8 - ACE-inhibitors	4	795742	107.06	85188952.62	1.12
	10.1.2 - Decongestants and analgesics	5	730078	26.86	19612393.74	0.28
Total:			4704908	260.77	237901985.01	

The top five therapeutic groups represented 21.33% (n=19 860 679) and 21.99% (n=21 473 074) of the overall medicine prevalence in 2005 and 2006 respectively. The top five therapeutic sub-groups were similar for both the study periods except for the inclusion of cyclo-oxygenase (cox) -inhibitors (therapeutic sub-group 4.1.1) in 2005 and the combination of decongestants and analgesics (therapeutic sub-group 10.1.2) in 2006.

In the 1st position of both the study periods were combination analgesics and 3.3.1 represented about 6.5% of the overall medicine prevalence. Analgesics have been discussed in paragraphs 4.3.3.3.2, 4.3.7.2.1.

Penicillin containing products were 2nd and 3rd and represented 4.18% (n=19 860 679) and 4.07% (n=21 473 074) of the overall medicine prevalence in 2005 and 2006 respectively. The therapeutic sub-group 18.1.1 represents penicillin containing products used to treat bacterial infections (refer to paragraphs 4.3.2.1, 4.3.2.3.1, 4.3.3.1, 4.3.3.4.1 and 4.3.5.2.1.). The *trend* that penicillin containing products have a higher frequency during the winter months (period two) was also observed in tables B.95 and B96.

The 3rd position in 2005 and the 2nd in 2006 were occupied by the therapeutic sub-group 10.1.1 (antitussives and expectorants) and represented about 4.15% of the overall medicine prevalence in both the study periods. These medicines have already been discussed in paragraphs 4.3.2.1, 4.2.3.1.2, 4.3.2.2, 4.3.6.1.1 and 4.3.6.1.2).

ACE-inhibitors (therapeutic group 7.3.8) were positioned 4th and represented 4.20% of the overall medicine prevalence in both the study periods. ACE-inhibitors were also present in the top five therapeutic sub-groups according to cost. ACE-inhibitors are indicated for the treatment of hypertension, and according to a study performed by Vitale *et al.* (2005:470) hypertension

was found in 25 per cent of the normal population. This can be an explanation for ACE-inhibitors appearing in the top five therapeutic sub-groups list.

The therapeutic groups 4.1.1 and 10.1.2, which are COX-inhibitors and analgesic decongestant combination medicine, were positioned 5th in 2005 as well as 2006.

According to tables B.94, B.95 and B.96 there were no noteable unusual usage patterns.

4.3.7.4 Summary of pharmacological groups

This section presents a brief summary of sections 4.3.7.1 – 4.3.7.3.

Cardiovascular agents formed the biggest contributor to cost among the main pharmacological groups in both 2005 and 2006 and represented over R300 million of the overall medicine expenditure. Cardiovascular agents were also ranked 1st according to prevalence in both the study periods. In the 2nd place, ranked according to total cost, was the central nervous system products, relatively inexpensive products with high prevalence, which contributed to the high total cost.

In the 2nd position, analysed according to prevalence, were the respiratory system agents, which were claimed over 2 million times during 2005 and 2006 respectively.

Antihypertensives and hipolipideamic agents (both cardiovascular agents) both appeared in the top five pharmacological sub-groups list ranked according to cost for both the study periods.

The central nervous system agents were also represented through antidepressants in the top five pharmacological sub-groups top five list according to cost. Antidepressants accounted for over R93 million of the overall medicine expenditure during both the study periods.

The top five pharmacological sub-groups, ranked according to prevalence, consisted of cough and cold remedies, antihypertensive agents such as diuretics, combination analgesics, NSAIDs and beta-lactam products. HMG-CoA reductase inhibitors were ranked 1st according to cost as a therapeutic sub-group, and represented approximately R100 million of the overall medicine expenditure during both the study periods. ACE-inhibitors, PPIs and cytostatics also appeared among the top five therapeutic sub-groups analysed according to cost.

Combination analgesics were positioned 1st according to prevalence for both study periods and were claimed approximately 1.2 million times in 2005 and 1.4 million times in 2006. Penicillin

containing products presented as the second and third biggest contributors to medicine usage during 2005 and 2006 respectively. Other therapeutic sub-groups which appeared on the top five list were ACE-inhibitors, COX-inhibitors and degongestant- and analgesic combination products.

4.4 CHAPTER SUMMARY

In this chapter all the results obtained from the empirical investigation were discussed. Economical and drug utilisation aspects of the top twenty active ingredients, top twenty trade name products as well as the top twenty pharmacological groups were analysed and discussed. The top twenty trade name products for the various age, sex, provider and prescriber groups were analysed and discussed. The various cost-driving products were identified and classified as resource- or activity drivers.

The results and trends identified and discussed in this chapter should be used as a basis for further, more in-depth analyses, of the rational drug use and prescribing patterns. The results could be used as a basis for more cost-saving analysis in future which could lead to the use and prescribing of more cost-effective treatments.

CHAPTER 5:

Conclusions and recommendations

The conclusions and recommendations in this chapter are based on the results of the empirical investigation as well as the literature overview, and are directed according to the specific objectives stated in chapter 1. The factors limiting the scope and applicability of the study are also stated in this chapter.

5.1 CONCLUSIONS

In the following section the conclusions drawn from the study will be stipulated. Due to the extent of the results of the study some of the specific objectives will be summarised and concluded *via* various tables.

Notes of importance for interpretation of tables 5.1 to 5.19 for the specific objectives five to eleven:

- Active ingredients refer to the active pharmacological ingredient of the specific medicine.
- CPI - Cost Prevalence Index of the product (refer to paragraph 3.5.3).
- Cost driver – a product with a high total cost or a product with a high prevalence and a cost prevalence index (CPI) of higher than one (refer to paragraph 2.9).
- Resource driver – product with a high prevalence, which drives the total cost of the product (refer to paragraph 2.9).
- Activity driver – product with a high cost per item, which drives the total cost of the product (refer to paragraph 2.9).

- **Specific objective one was to conceptualise from the literature what managed health care and private health care in South Africa entail.**

Through a literature overview the concept, objectives, models and organisations of managed health care have been studied, as well as the impact and implementation of managed health care in the private health care sector in South Africa. The main goal of reducing the cost of care while improving the quality of health care services delivered is a difficult but not impossible task, and already successful to some extent in the private health care sector of South Africa. The objectives of managed health care have been reviewed. One of the objectives of managed health care that has, however, not yet been reached in South Africa is to provide access to care equitable in such a manner that individuals with equal needs be treated equally, and that the system contain no natural obstructions to service for any one population sub-group (BCMA, 2003).

South Africa implemented an integrated managed health programme which includes standardised primary care services at a relatively low cost provided by private companies. This private but affordable model can be positive for the public sector, for the reason that it removes some of the burden from the overloaded public health sector of South Africa, and according to the literature this may be a solution to some of the problems experienced in the health care sector of South Africa (refer to paragraph 2.1).

- **Specific objective two was to review the concepts "disease management", "outcomes management", "risk management", "case management", "pharmacoeconomics", "drug utilisation review", "prescribed minimum benefits" and "evidence-based medicine" from the literature.**

Through a literature review the aspects of management instruments such as "disease management", "outcomes management", "risk management", "case management" and "prescribed minimum benefits" have been discussed and defined with applicability to the South African health care sector.

A system-thinking model for the process of disease management has been compiled from the literature and adapted to ensure that disease management will be implemented correctly and that the process of disease management will have positive influences. Disease management focuses on the education of the patient as well as all the health care providers involved in the care of the patient. According to the literature, disease management is an important management instrument in the South African health care sector with the goal of reducing the cost of care, making the patient more aware of the disease and to be an effective preventative

step for the future. Although disease management is not yet fully implemented in the South African health care sector, some steps have been taken to ensure that this measurement instrument is put into practice (refer to paragraph 2.2.1).

Risk management has been discussed in the literature as an ongoing process of identifying, measuring and assessing certain risks, implementing an alternative option to minimise the financial risk and improve the quality of health. Risk management has already been implemented in South Africa *via* medical schemes, through risk management tools such as co-payments, deductibles, benefit limits, treatment protocols, benchmarking and negotiated fees (refer to paragraph 2.2.2).

Case management as a management instrument has been discussed comprehensively in the literature. Case management can be seen as the ongoing process of managing the financial, social, psychological and medical aspects of a patient to optimise the clinical outcome of the patient. Although case management has been implemented in some sectors of the South African health care environment, the extension and application of this management tool is limited in what it has to offer to South Africa (refer to paragraph 2.2.3).

Outcomes management can be seen as the central part providing the health procedure results, due to the integration of management (risk) instruments in the practice situation. In South Africa various outcomes management studies have been conducted, and some of the results have been implemented with variable success (refer to paragraph 2.2.4).

The concept and impact of prescribed minimum benefits have been discussed in the literature review, as well as the most recent amendments made in terms of the Medical Schemes Act 131/1998 concerning prescribed minimum benefits. Due to the fact that prescribed minimum benefits are a relatively new concept in the private health care sector of South Africa, the Department of Health will monitor the impact, effectiveness and appropriateness of the prescribed minimum benefits, and a review should be conducted every two years by the Department of Health that will entail the Council for Medical Schemes, stakeholders, Provincial Health Departments and certain consumer representatives (refer to paragraph 2.3.1).

Through the literature the concepts of "pharmacoeconomics", "evidence-based medicine", and "drug utilisation review" have been scrutinised. Pharmacoeconomics can be seen as the evaluation of the economic, humanistic and clinical outcomes connected to pharmaceutical services and products. The increasing pressure to contain cost in the South African health care sector, led to an increase in the need for pharmacoeconomics. The latter implements and applies the basic concepts of economics to health care and is most commonly used to assist in

the decision-making process in order to analyse the supply and demand for health care services and to provide a structure for understanding decisions and their consequences. Pharmacoeconomics assists in balancing cost and outcomes and aids in determining the most efficient use of health care services and products. Pharmacoeconomics and the quantitative tools of pharmacoeconomics have been discussed in the literature as well as the implementation thereof in the South African private health care sector (refer to paragraph 2.4.1).

The concept, objectives as well as the process, implementation and the future of evidence-based medicine have been discussed in the literature. Although evidence-based medicine is not yet fully implemented in South Africa, especially the private sector, studies are being done with great results and findings that prove that the results of the principles of evidence-based medicine if applied in South Africa, could lead to improved quality of care and reduced cost of care received by patients (refer to paragraph 2.6).

Drug utilisation review has been defined in the literature as well as the objectives, and the different types of drug utilisation review studies have been discussed. Drug utilisation review as a structured system for determining whether the usage of drug treatment is appropriate, safe and effective through comparing the prescribed drug treatment with standard criteria, has been implemented in the South African private health care sector by pharmaceutical benefit management companies, and can be seen as a successful contribution to lowering the cost of medicine and improving the quality of care (refer to paragraph 2.5).

- **Specific objective three was to review the concepts "generic substitution", "lifestyle modifications" and to review possible factors that may influence the top twenty trade name medicine products.**

Through a review of the literature, the concept and definition of generic substitution have been set out as well as the regulations in terms of generic substitution. Although there are set guidelines for generic substitution as well as a list of non-substitutable medicine, the National Drug Policy of South Africa promotes generic substitution in order to reduce costs. Various studies have been conducted on the potential cost savings of generic substitution in South Africa, and the results show that the cost of medicine can be reduced through the substitution of innovator medicine for cheaper generic equivalents (refer to paragraph 2.3.2). This study showed that approximately R400 000 can be saved as measured per study period if the innovator drug Roaccutane 20mg were to be substituted for one of its generic equivalents. Another cost-saving calculation in this study showed that about R7 million can be saved if the innovator medicine Lipitor 10mg, were to be substituted for its therapeutic similar products Adco-Simvastatin 20mg (refer to paragraphs 4.3.3.2.1 and 4.3.2.5.2).

Lifestyle modifications and the effect such modifications could have on certain diseases have been discussed in the literature. Findings of various studies indicate that lifestyle interventions can improve the risk of developing a disease as well as reduce the risk of the disease's progression (refer to paragraph 2.8).

Through the literature review, the various factors that can have an influence on a product listed as one of the top twenty trade name products were identified. These factors such as marketing, provider preference, formularies, essential drug lists, generic substitution, therapeutic committees, prescribed minimum benefits, evidence-based medicine, and cost, were investigated and discussed accordingly (refer to paragraph 2.7).

- **Specific objective four was to determine the cost-driving products from the pharmaceutical benefit management company's (PBM's) database.**

The cost driver products were seen as products with a high total cost, either due to the fact that the prevalence was high and therefore driving the total cost in such a manner that the products' total cost was so high that it appeared in the top five trade name products according to total cost (these cost drivers were classified as resource drivers), or due to the fact that the average cost per item was high - thus driving the total cost of the product in such a manner that the product appeared on the top five trade name products list according to total cost (these products were classified as activity drivers).

All the top five trade name products according to total cost have been identified for the various variables, and these products can be seen as the cost driver products on the database. The top five trade name products according to prevalence were only seen as possible cost driver products if they had a high prevalence as well as a cost prevalence index higher than one [(adapted from (BNET, 2008); (Serfontein, 1989:180)].

- **Specific objective five was to determine the prevalence and cost of the top twenty active ingredients according to the PBM's database.**

Table 5.1 portrays the top five active ingredients for both study periods according to total cost and prevalence.

Table 5.1: The top five active ingredients ranked according to total cost and prevalence for 2005 and 2006

Variable	Year	Active ingredients	CPI	A Main Indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Atorvastatin	2.29	Cholesterol	√	×	√
		Insulin	5.44	Diabetes Mellitus	√	×	√
		Fluticasone	2.84	Asthma	√	×	√
		Simvastatin	1.22	Cholesterol	√	×	√
		Amoxycillin/clavuanic	0.77	Bacterial infections	√	√	×
Prevalence		Amoxycillin/Clavuanic	0.77	Bacterial infections	×	×	×
		Diclofenac	0.46	Anti-inflammatory	×	×	×
		Paracetamol/Codeine/Caffeine	0.24	Pain	×	×	×
		Thyroxine	0.39	Hypothyroidism	×	×	×
		Asprin	0.2	Pain	×	×	×
Variable	**Year**	**Active ingredients**	**CPI**	**Main Indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Atorvastatin	2.16	Cholesterol	√	×	√
		Insulin	5.17	Diabetes Mellitus	√	×	√
		Simvastatin	1.1	Cholesterol	√	×	√
		Amoxycillin/clavuanic	0.7	Bacterial infections	√	√	×
		Unknown "new products"	0.98	N/A	√	√	×
Prevalence		Amoxycillin/Clavuanic	0.76	Bacterial infections	×	×	×
		Diclofenac	0.41	Anti-inflammatory	×	×	×
		Thyroxine	0.38	Hypothyroidism	×	×	×
		Asprin	0.21	Pain	×	×	×
		Unknown (new products)	1.05	N/A	√	×	×

- √ - Yes; × – No

- The top twenty active ingredients according to total cost represented 23.76% (N=R1 893 376 921.00) and 24.05% (N=R2 046 944 382.50) of the overall medicine expenditure in 2005 and 2006 respectively (refer to paragraph 4.3.1).

- The top twenty active ingredients according to prevalence represented 25.18% (N=19 860 679) and 24.19% (N=21 473 074) of the overall medicine prevalence in 2005 and 2006 respectively.

- **Specific objective six was to determine the prevalence and cost of the top twenty trade name products according to the PBM's database.**

Table 5.2 portrays the top five trade name products for both study periods according to total cost and prevalence.

Table 5.2: The top five trade name products ranked according to total cost and prevalence for 2005 and 2006

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lipitor 10mg tab	Atorvastatin	1.98	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.66	Cholesterol	√	×	√
		Fosamax 70mg tab	Alendronate	3.54	Osteoporosis	√	×	√
		Celebrex 200mg cap	Celecoxib	2.35	Anti-Inflammatory	√	×	√
		Prexum 4mg tab	Perindopril	1.37	Hypertension	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.42	Hypothyroidism	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.63	Pain	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.98	Cholesterol	√	×	×
		Ecotrin 81mg tab	Asprin	0.2	Platelet aggregation inhibitor	×	×	×
		Alcopyllex syr	Asprin	0.11	Pain	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Lipitor 10mg tab	Atorvastatin	1.99	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.86	Cholesterol	√	×	√
		Prexum 4mg tab	Perindopril	1.34	Hypertension	√	×	√
		Cipralex 10mg tab	Escitalopram	2.61	Depression	√	×	√
		Fosamax 70mg tab	Alendronate	3.57	Osteoporosis	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.41	Hypothyroidism	×	×	×
		Ecotrin 81mg tab	Asprin	0.22	Platelet aggregation inhibitor	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.99	Hypothyroidism	√	×	×
		Alcopyllex syr	Theophylline/diphenhydramine	0.1	Cough	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.41	Pain	×	×	×

- √ - Yes; × – No

- The top twenty trade name products according to cost represented 13.22% (N=R1 893 376 921.00) and 13.06% (N=R2 046 944 382.50) of the overall medicine expenditure in 2005 and 2006 respectively.

- According to prevalence the top twenty trade name products represented 11.57% (N=19 860 679) and 11.18% (N=21 473 074) of the overall medicine prevalence for 2005 and 2006 respectively (refer to paragraph 4.3.2).

- **Specific objective seven was to determine the top twenty trade name products for the various age groups according to the PBM's database.**

Different age categories were identified on the database, *i.e.* children (0 to 9 years), adolescents (9 < and ≤ 19 years), young adults (19 < and ≤ 45 years), older adults (45 < and ≤ 59 years) and the geriatric age group (< 59 years).

In table 5.3 the top five trade name products according to total cost as well as prevalence for children 9 years and younger are portrayed.

Table 5.3: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods for children 9 years and younger

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Orelox junior susp	Cefpodoxime	2.42	Bacterial infections	√	×	√
		Celestamine syr	Betamethasone	2.35	Allergy	√	×	√
		Singulair 4mg	Montekulast	4.93	Asthma	√	×	√
		Zinnat 125mg/5ml susp	Cefuroxime	2.16	Bacterial infections	√	×	√
		Myprodol susp	Ibuprofen/paracetamol/codeine	1.01	Pain	√	×	√
Prevalence		Orelox junior susp	Cefpodoxime	2.51	Bacterial infections	√	×	×
		Myprodol susp	Ibuprofen/paracetamol/codeine	1.04	Pain	√	×	×
		Lotem susp	Ibuprofen/paracetamol	1.17	Pain/fever	√	×	×
		Bronchoped P syr	Terbutaline	0.83	Cough	×	×	×
		Demazin syr alcohol free	Chlorpheniramine/phenylephrine	0.79	Cold & flu	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Orelox junior susp	Cefpodoxime	2.32	Bacterial infections	√	×	√
		Celestamine syr	Betamethasone	2.32	Allergy	√	×	√
		Singulair 4mg	Montekulast	4.7	Asthma	√	×	√
		Deselex 2.5mg/5ml syr	Desloratadine	2.57	Allergy	√	×	√
		Cepodem susp	Cefpodoxime	1.72	Bacterial infections	√	×	√
Prevalence		Bronchoped P syr	Terbutaline	0.78	Cough	×	×	×
		Lotem susp	Ibuprofen/paracetamol	0.8	Pain/fever	×	×	×
		Orelox junior susp	Cefpodoxime	2.32	Bacterial infections	√	×	×
		Demazin syr alcohol free	Chlorpheniramine/phenylephrine	0.69	Cold & flu	×	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.14	Cough	×	×	×

- √ - Yes; × – No

- As expected the top five trade name products according to total cost and prevalence were all in the suspension and syrup dosage forms and mainly indicated for bacterial infection related symptoms and for pain as well as fever.

- For children aged 9 years and under, the top twenty trade name products according to total cost represented 29.73% (n=R89 329 200.60) and 30.04% (n=R95 240 896.32) of the overall medicine expenditure in 2005 and 2006 respectively.

- According to prevalence the top twenty trade name products represented 22.0% (n=1 600 919) and 21.43% (n=1 668 287) of the overall prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.3.1).

In table 5.4 the top five trade name products according to total cost as well as prevalence for the adolescent group are portrayed.

Table 5.4: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods for the age group older than 9 to 19 years

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Ritalin LA 20mg cap	Methylphenidate	4.24	ADHD	√	×	√
		Roaccutane 20mg cap	Isotretinoin	6.9	Acne	√	×	√
		Seretide 50/250 accuhaler	Salmeterol	5.33	Asthma	√	×	√
		Flixonase aq nasal spray	Fluticasone	2.71	Allergic rhinitis	√	×	√
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.81	Pain	√	√	×
Prevalence		Alcophellex syr	Theophylline/diphenhydramine	0.14	Cough	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.81	Pain	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.54	Pain	×	×	×
		Myprodol susp	Ibuprofen/paracetamol/codeine	0.85	Pain	×	×	×
		Solphellex syr	Theophylline/diphenhydramine	0.72	Cough	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Ritalin LA 20mg cap	Methylphenidate	4.25	ADHD	√	×	√
		Seretide 50/250 accuhaler	Salmeterol	4.37	Asthma	√	×	√
		Concerta 36mg oros	Methylphenidate	5.85	ADHD	√	×	√
		Roaccutane 20mg cap	Isotretinoin	6.44	Acne	√	×	√
		Deselex 5mg tab	Desloratadine	2.19	Allergy	√	×	√
Prevalence		Alcophellex syr	Theophylline/diphenhydramine	0.16	Cough	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.63	Pain	×	×	×
		Solphellex syr	Theophylline/diphenhydramine	0.81	Cough	×	×	×
		Flustat cap	Chlorpheniramine/phenylephrine/paracetamol	0.23	Cold & flu	×	×	×
		Be-tabs prednisone 5mg tab	Prednisone	0.04	Allergy	×	×	×

- √ - Yes; × – No

- The top twenty trade name products according to total cost for adolescents aged 10 to 19 years represented 18.80% (n=R97 468 107.60) and 17.55% (n=R104 158 832.70) of the overall medicine expenditure in 2005 and 2006 respectively.

- According to prevalence the top twenty trade name products for the adolescent age group represented 13.11% (n=1 390 573) and 12.22% (n=1 499 217) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.3.2).

- The top twenty trade name products according to total cost contained mainly acne-related products and ADHD treatments.

- The top five trade name products according to prevalence contained mainly products indicated for pain, inflammation, cold and flu.

- The nature of medicines and usage patterns need further investigation to determine appropriate usage.

In table 5.5 the top five trade name products according to total cost as well as prevalence for the young adult group are portrayed.

Table 5.5: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods for the age group 19 to 45 years

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Stocrin 600mg tab	Efavirenz	8	HIV	√	×	√
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.78	Pain	√	√	×
		Cipralex 10mg	Escitalopram	3.21	Depression	√	×	√
		Aspen Lamzid tab	Lamuvudine/zidovudine	4.13	HIV	√	×	√
		Klacid XL 500mg tab	Claritrhomycin	2.05	Bacterial infections	√	×	√
Prevalence		Myprodol cap	Ibuprofen/paracetamol/codeine	0.73	Pain	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.48	Pain	×	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.13	Cough	×	×	×
		Stilpane tab	Meprobamate	0.13	Pain	×	×	×
		Solphyllex syr	Theophylline/diphenhydramine	0.62	Cough	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Stocrin 600mg tab	Efavirenz	2.71	HIV	√	×	√
		Aspen Lamzid tab	Lamuvudine/zidovudine	4.19	HIV	√	×	√
		Cipralex 10mg	Escitalopram	3.23	Depression	√	×	√
		Nexiam 40mg	Esomeprazole	3.56	Acid-reducer	√	×	√
		Klacid XL 500mg tab	Claritrhomycin	2.03	Bacterial infections	√	×	√
Prevalence		Mybulen tab	Ibuprofen/paracetamol/codeine	0.48	Pain	×	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.13	Cough	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.68	Pain	×	×	×
		Stilpane tab	Meprobamate	0.11	Pain	×	×	×
		Solphyllex syr	Theophylline/diphenhydramine	0.61	Cough	×	×	×

- √ - Yes; × – No

- According to total cost the top twenty trade name products for adults aged 20 to 45 years represented 14.30% (n=R478 014 067.20) and 14.81% (n=R506 572 754.89) of the overall medicine expenditure in 2005 and 2006 respectively.

- The top twenty trade name products according to prevalence for the "young" adults group represented 12.73% (n=5 933 729) and 12.16% (n=6 377 057) of the overall prevalence for 2005 and 2006 respectively (refer to paragraph 4.3.3.3).

- The top five trade name products according to prevalence were all indicated for pain or coughs.

In table 5.6 the top five trade name products according to total cost as well as prevalence for the older adult group are portrayed.

Table 5.6: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods for the age group 46 to 59 years

Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
2005	Lipitor 10mg tab	Atorvastatin	1.87	Cholesterol	√	×	√
	Lipitor 20mg tab	Atorvastatin	2.69	Cholesterol	√	×	√
	Coversyl plus tab	Perindopril	1.79	Hypertension	√	×	√
	Nexiam 40mg	Esomeprazole	2.96	Acid-reducer	√	×	√
	Premarin 0.625mg tab	Oestrogen	0.98	Hormone replacement therapy	√	√	×
	Eltoxin 100mcg tab	Thyroxine	0.42	Hypothyroidism	×	×	×
	Lipitor 10mg tab	Atorvastatin	1.87	Cholesterol	√	×	×
	Myprodol cap	Ibuprofen/paracetamol/codeine	0.61	Pain	×	×	×
	Premarin 0.625mg tab	Oestrogen	0.98	Hormone replacement therapy	×	×	×
	Ecotrin 81mg tab	Asprin	0.19	Platelet aggregation inhibitor	×	×	×
Year	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
2006	Lipitor 10mg tab	Atorvastatin	1.89	Cholesterol	√	×	√
	Lipitor 20mg tab	Atorvastatin	2.73	Cholesterol	√	×	√
	Cipralex 10mg	Escitalopram	2.51	Depression	√	×	√
	Prexum 4mg tab	Perindopril	1.29	Hypertension	√	×	√
	Nexiam 40mg	Esomeprazole	3.03	Acid-reducer	√	×	√
	Eltoxin 100mcg tab	Thyroxine	0.41	Hypothyroidism	×	×	×
	Lipitor 10mg tab	Atorvastatin	1.89	Cholesterol	√	×	×
	Ecotrin 81mg tab	Asprin	0.21	Platelet aggregation inhibitor	×	×	×
	Mybulen tab	Ibuprofen/paracetamol/codeine	0.39	Pain	×	×	×
	Premarin 0.625mg tab	Oestrogen	0.96	Hormone replacement therapy	×	×	×

- √ - Yes; × – No

- The top twenty trade name products according to total cost for the older adults group represented 15.43% (n=R497 543 992.28) and 14.94% (n=549 795 115.63) of the overall medicine expenditure on the database for 2005 and 2006 respectively.

- All of the products on the top five trade name products list according to total cost can be used as chronic medication.

- According to the prevalence the top twenty trade name products for patients aged 46 to 59 years represented 13.53% (n=4 901 485) and 12.85% (n=5 447 080) in 2005 and 2006 of the overall medicine prevalence (refer to paragraph 4.3.3.4).

- The top five trade name products according to prevalence for both the study periods contained products primarily used for chronic conditions as well as combination analgesics.

In table 5.7 the top five trade name products according to total cost as well as prevalence for the geriatric group are portrayed.

Table 5.7: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods for the patients older than 59 years

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lipitor 10mg tab	Atorvastatin	1.55	Cholesterol	√	×	√
		Fosamax 70mg tab	Alendronate	2.75	Osteoporosis	√	×	√
		Celebrex 200mg cap	Celecoxib	1.9	Anti-inflammatory	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.21	Cholesterol	√	×	√
		Adco-Simvastatin 20mg tab	Simvastatin	0.92	Cholesterol	√	√	×
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.32	Hypothyroidism	×	×	×
		Ecotrin 81mg tab	Asprin	0.16	Platelet aggregation inhibitor	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.55	Cholesterol	√	×	×
		Disprin CV 100mg disp	Asprin	0.2	Platelet aggregation inhibitor	×	×	×
		Adco-Simvastatin 20mg tab	Simvastatin	0.92	Cholesterol	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Lipitor 10mg tab	Atorvastatin	1.54	Cholesterol	√	×	√
		Fosamax 70mg tab	Alendronate	2.72	Osteoporosis	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.17	Cholesterol	√	×	√
		Prexum 4mg tab	Perindopril	1.05	Hypertension	√	×	√
		Celebrex 200mg cap	Celecoxib	1.86	Anti-inflammatory	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.31	Hypothyroidism	×	×	×
		Ecotrin 81mg tab	Asprin	0.17	Platelet aggregation inhibitor	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.54	Cholesterol	√	×	×
		Adco-Simvastatin 20mg tab	Simvastatin	0.9	Cholesterol	×	×	×
		Prexum 4mg tab	Perindopril	1.05	Hypertension	√	×	×

- √ - Yes; × – No

  - In the "geriatric" age group the top twenty trade name products on the database according to cost represented 17.76% (n=R731 018 015.80) and 17.18% (n=R793 875 296.06) of the overall medicine expenditure in 2005 and 2006 respectively.

  - The top twenty trade name products according to prevalence for patients aged 60 years and older represented 18.56% (n=6 033 952) and 18.31% (n=6 481 394) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.3.5).

  - The top five trade name products according to total cost and prevalence mainly contained products used for chronic conditions.

- **Specific objective eight was to determine the top twenty trade name products for the two sex groups according to the PBM's database.**

Approximately 58% of the study population consisted of women compared to about 41% which were men. Sex was not indicated for about 1% of the study population.

In table 5.8 the top five trade name products according to total cost as well as prevalence for the female sex group are portrayed.

Table 5.8: A summarised table of the top five trade name products ranked according to total cost and prevalence for both the study periods for female patients

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Fosamax 70mg tab	Alendronate	3.62	Osteoporosis	√	×	√
		Lipitor 10mg tab	Atorvastatin	1.98	Cholesterol	√	×	√
		Celebrex 200mg cap	Celecoxib	2.4	Anti-inflammatory	√	×	√
		Premarin 0.625mg tab	Oestrogen	1.03	Hormone replacement therapy	√	×	√
		Eltroxin 100mcg tab	Thyroxine	0.43	Hypothyroidism	√	√	×
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.43	Hypothyroidism	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.64	Pain	×	×	×
		Premarin 0.625mg tab	Oestrogen	1.03	Hormone replacement therapy	√	×	×
		Eltroxin 50mcg tab	Thyroxine	0.29	Hypothyroidism	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.41	Pain	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Lipitor 10mg tab	Atorvastatin	2	Cholesterol	√	×	√
		Fosamax 70mg tab	Alendronate	3.59	Osteoporosis	√	×	√
		Cipralex 10mg tab	Escitalopram	2.72	Depression	√	×	√
		Herceptin	Trastuzumab	78.33	Cancer	√	×	√
		Celebrex 200mg cap	Celecoxib	2.4	Anti-inflammatory	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.42	Hypothyroidism	×	×	×
		Eltroxin 50mcg tab	Thyroxine	0.28	Hypothyroidism	×	×	×
		Premarin 0.625mg tab	Oestrogen	1.04	Hormone replacement therapy	√	×	×
		Ecotrin 81mg tab	Asprin	0.21	Platelet aggregation inhibitor	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.42	Pain	×	×	×

- √ - Yes; × – No

- The top twenty trade name products for female patients according to total cost represented 14.14% (n=R1 128 652 112.20) and 13.81% (n=R2 046 944 382.50) of the overall medicine expenditure for 2005 and 2006 respectively.

- The top five trade name products according to total cost were mainly medicine used for chronic conditions such as, rheumatoid arthritis, osteoperosis, thyroid function and cholesterol.

- According to prevalence the top twenty trade name products for female patients represented 12.27% (n=11 974 255) and 11.86% (n=12 924 812) of the total medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.4.1).

In table 5.9 the top five trade name products according to total cost as well as prevalence for the male sex group are portrayed

- The top twenty trade name products on the database according to total cost represented 14.10% (n=R763 226 111.40) in 2005 and 14.27% (n=R832 725 542.36) in 2006 of the overall medicine expenditure for men.
- The top five trade name products according to total cost for men represented mainly medicines that are related to chronic condition treatments such as cholesterol and hypertension in both study periods.
- The top twenty trade name products according to prevalence for the male sex represented 11.86% (n=7 870 112) and 11.33% (n=8 537 499) of the overall medicine prevalence in 2005 and in 2006 respectively (refer to paragraph 4.3.4.2).

Table 5.9: A summarised table of the top five trade name products ranked according to total cost and prevalence for both the study periods for male patients

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lipitor 10mg tab	Atorvastatin	1.96	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.79	Cholesterol	√	×	√
		Adco-Simvastatin 20mg tab	Simvastatin	1.17	Cholesterol	√	×	√
		Prexum 4mg tab	Perindopril	1.32	Hypertension	√	×	√
		Plavix 75mg filmcoat tab	Clopidogrel	4.06	Platelet aggregation inhibitor	√	×	√
Prevalence		Lipitor 10mg tab	Atorvastatin	1.96	Cholesterol	√	×	×
		Ecotrin 81mg tab	Asprin	0.2	Platelet aggregation inhibitor	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.62	Pain	×	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.1	Cough	×	×	×
		Disprin CV 100mg disp	Asprin	0.23	Platelet aggregation inhibitor	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Lipitor 10mg tab	Atorvastatin	1.96	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.79	Cholesterol	√	×	√
		Prexum 4mg tab	Perindopril	1.33	Hypertension	√	×	√
		Adco-Simvastatin 20mg tab	Simvastatin	1.15	Cholesterol	√	×	√
		Plavix 75mg filmcoat tab	Clopidogrel	4.05	Platelet aggregation inhibitor	√	×	√
Prevalence		Ecotrin 81mg tab	Asprin	0.21	Platelet aggregation inhibitor	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.95	Cholesterol	√	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.1	Cough	×	×	×
		Prexum 4mg tab	Perindopril	1.32	Hypertension	√	×	×
		Adco-Simvastatin 20mg tab	Simvastatin	1.14	Cholesterol	√	×	×

- √ - Yes; × – No

- **Specific objective nine was to determine the top twenty trade name products according to the total cost and prevalence for the different prescriber groups from the PBM's database.**

General medical practitioners prescribed 73% of all the medicine items, other medical prescribers prescribed 18% and pharmacist-initiated prescriptions represented only 9% of all the medicine items claimed through the database.

Table 5.10 shows the top five trade name products according to total cost as well as prevalence as prescribed by general medical practitioners.

Table 5.10: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods as prescribed by general medical practitioners

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lipitor 10mg tab	Atorvastatin	2.21	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	3.11	Cholesterol	√	×	√
		Fosamax 70mg tab	Alendronate	3.96	Osteoporosis	√	×	√
		Celebrex 200mg cap	Celecoxib	2.58	Anti-inflammatory	√	×	√
		Adco-Simvastatin 20mg tab	Simvastatin	1.32	Cholesterol	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.48	Hypothyroidism	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.72	Pain	×	×	×
		Lipitor 10mg tab	Atorvastatin	2.21	Cholesterol	√	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.12	Cough	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.46	Pain	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Lipitor 10mg tab	Atorvastatin	2.29	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	3.24	Cholesterol	√	×	√
		Prexum 4mg tab	Perindopril	1.56	Hypertension	√	×	√
		Adco-Simvastatin 20mg tab	Simvastatin	1.33	Cholesterol	√	×	√
		Cipralex 10mg tab	Escitalopram	2.96	Depression	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.42	Hypothyroidism	×	×	×
		Alcophyllex syr	Theophylline/diphenhydramine	0.1	Cough	×	×	×
		Lipitor 10mg tab	Atorvastatin	3.11	Cholesterol	√	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.62	Pain	×	×	×
		Ecotrin 81mg tab	Asprin	0.2	Platelet aggregation inhibitor	×	×	×

- √ - Yes; × – No

- The top twenty trade name products prescribed by general medical practitioners according to cost represented 15.09% (n=R1 236 028 621.90) and 15.18% (n=R1 292 764 897.50) of the overall medicine expenditure for 2005 and 2006 respectively.

- The top five trade name products according to total cost were all activity drivers primarily used for conditions such as hypertension, cholesterol, depression, rheumatoid arthritis and osteoporosis.

- The top twenty trade name products prescribed by general medical practitioners represented 12.09% (n=14 538 227) and 11.78% (n=15 521 292) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.6.3).

In table 5.11 the top five trade name products according to total cost as well as prevalence as prescribed by pharmacotherapists.

Table 5.11: A summarised table of the top five trade name products ranked according to total cost and prevalence for both the study periods as prescribed by pharmacotherapists

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lamisil cream	Terbinafine	2.1	Anti-fungus	√	×	√
		Myprodol cap	Ibuprofen/paracetamol/codeine	1.13	Pain	√	×	√
		Gaviscon Aniseed	Alginic acid	1.39	Acid-reducer	√	×	√
		Corenza C eff tab	Chlorprophenpyridamine/phenylephrine	0.98	Cold and flu	√	√	×
		Mypaid cap	Ibuprofen/paracetamol	0.95	Pain	√	√	×
Prevalence		Myprodol cap	Ibuprofen/paracetamol/codeine	1.13	Pain	√	×	×
		Corenza C eff tab	Chlorprophenpyridamine/phenylephrine	0.98	Cold and flu	×	×	×
		Dilinct syr	Phenylpropanolamine/dextromethoprim	0.92	Cough	×	×	×
		Mypaid cap	Ibuprofen/paracetamol	0.95	Pain	×	×	×
		Gaviscon Aniseed	Alginic acid	1.39	Acid-reducer	√	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Gaviscon Aniseed	Alginic acid	1.52	Acid-reducer	√	×	√
		Deselex 5mg tab	Desloratadine	2.88	Allergy	√	×	√
		Corenza C eff tab	Chlorprophenpyridamine/phenylephrine	0.99	Cold and flu	√	√	×
		Ulsanic 1mg/5ml susp	Sucralfate	3.98	Acid-reducer	√	×	√
		Pevaryl 1mg/100g, cream	Econazole	3.2	Anti-fungus	√	×	√
Prevalence		Mybulen tab	Ibuprofen/paracetamol/codeine	0.74	Pain	×	×	×
		Corenza C eff tab	Chlorprophenpyridamine/phenylephrine	0.99	Cold and flu	×	×	×
		Dilinct syr	Phenylpropanolamine/dextromethoprim	0.89	Cough	×	×	×
		Gaviscon Aniseed	Alginic acid	1.58	Acid-reducer	√	×	×
		Benylin Four Flu syr	Diphenhydramine	0.87	Cold and flu	×	×	×

- √ - Yes; × – No

- The top twenty trade name products prescribed by pharmacotherapists represented 28.07% (n=R1 990 479.22) and 27.50% (n=R2 007 303.23) of the overall medicine expenditure.

- The top five trade name products according to total cost prescribed by pharmacotherapists for 2005 were products used mainly for acute conditions.

- The top twenty trade name products according to prevalence prescribed by pharmacotherapists represented 23.90% (n=39 358) and 21.87% (n=38 956) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.6.2).

The top five trade name products according to total cost as well as prevalence pharmacist-initiated prescriptions are depicted in table 5.12.

Table 5.12: A summarised table of the top five trade name products ranked according to total cost and prevalence of pharmacist-initiated prescriptions for both study periods

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lamisil cream	Terbinafine	2.05	Anti-fungus	√	×	√
		Mypaid cap	Ibuprofen/paracetamol	1.05	Pain	√	×	√
		Corenza c eff tab	Chlorprophenpyridamine/phenylephrine	0.87	Cold and flu	√	√	×
		Benylin four flu syr	Diphenhydramine	0.95	Cold and flu	√	√	×
		Benylin & Codeine syr	Diphenhydramine/ codeine	1.15	Cough	√	×	√
Prevalence		Corenza C eff tab	Chlorprophenpyridamine/phenylephrine	0.87	Cold and flu	√	×	×
		Benylin Four Flu syr	Diphenhydramine	0.95	Cold and flu	×	×	×
		Mypaid cap	Ibuprofen/paracetamol	1.05	Pain	√	×	×
		Adco-Dol tab	Paracetamol/Codeine/Caffeine	0.58	Pain	×	×	×
		Benylin & Codeine syr	Diphenhydramine/ codeine	1.15	Cough	√	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Gaviscon Aniseed	Alginic acid	1.52	Acid-reducer	√	×	√
		Benylin four flu syr	Diphenhydramine	0.94	Cold and flu	√	√	×
		Corenza c eff tab	Chlorprophenpyridamine/phenylephrine	0.85	Cold and flu	√	√	×
		Benylin & Codeine syr	Diphenhydramine/ codeine	1.17	Cough	√	×	√
		Solphyllex syr	Theophylline/diphenhydramine	1.05	Cough	√	×	√
Prevalence		Corenza C eff tab	Chlorprophenpyridamine/phenylephrine	0.85	Cold and flu	×	×	×
		Benylin Four Flu syr	Diphenhydramine	0.94	Cold and flu	×	×	×
		Adco-Dol tab	Paracetamol/Codeine/Caffeine	0.6	Pain	×	×	×
		Solphyllex syr	Theophylline/diphenhydramine	1.05	Cough	√	×	×
		Benylin & Codeine syr	Diphenhydramine/ codeine	1.17	Cough	√	×	×

- √ - Yes; × – No

- The top twenty trade name products according to cost of pharmacist initiated prescriptions represented 26.17% (n=R78 739 814.70) and 24.65% (n=R92 097 572.14) of the overall medicine expenditure in 2005 and 2006 respectively.

- According to prevalence the top twenty trade name products of pharmacist-initiated prescriptions represented 23.98% (n=1 704 808) and 21.99% (n=2 020 781) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.6.1).

- The top five trade name products according to total cost and prevalence of pharmacist-initiated prescriptions were primarily indicated for acute conditions.

In table 5.13 the top five trade name products according to total cost as well as prevalence as prescribed by other medical prescribers are portrayed.

Table 5.13: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods as prescribed by other medical prescribers

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lipitor 10mg tab	Atorvastatin	1.18	Cholesterol	√	×	√
		Gleevec 100mg cap	Imatinib	49.5	Cancer	√	×	√
		Lipitor 20mg tab	Atorvastatin	1.64	Cholesterol	√	×	√
		Plavix 75mg filmcoat tab	Clopidogrel	2.45	Platelet aggregation inhibitor	√	×	√
		Fosamax 70mg tab	Alendronate	2.12	Osteoporosis	√	×	√
Prevalence		Ecotrin 81mg tab	Asprin	0.12	Platelet aggregation inhibitor	×	×	×
		Eltroxin 100mcg tab	Thyroxine	0.25	Hypothyroidism	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.18	Cholesterol	√	×	×
		Disprin CV 100mcg disp	Asprin	0.14	Platelet aggregation inhibitor	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.39	Pain	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Herceptin	Trastuzumab	43	Cancer	√	×	√
		Mabthera 500mg vial	Rituximab	39.33	Cancer	√	×	√
		Lipitor 10mg tab	Atorvastatin	1.13	Cholesterol	√	×	√
		Plavix 75mg filmcoat tab	Clopidogrel	1.93	Platelet aggregation inhibitor	√	×	√
		Lipitor 20mg tab	Atorvastatin	1.61	Cholesterol	√	×	√
Prevalence		Ecotrin 81mg tab	Asprin	0.12	Platelet aggregation inhibitor	×	×	×
		Eltroxin 100mcg tab	Thyroxine	0.23	Hypothyroidism	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.13	Cholesterol	√	×	×
		Disprin CV 100mcg disp	Asprin	0.14	Platelet aggregation inhibitor	×	×	×
		Prexum 4mg tab	Perindopril	0.75	Hypertension	×	×	×

- √ - Yes; × – No

- According to the analysis of the data the top twenty trade name products according to cost prescribed by other medical prescribers (*e.g.* dermatology, diagnostic radiology, gastroenterology etc.) represented 14.72% (n=R576 460 723.08) and 16.28% (n=R659 728 893.70) of the overall medicine expenditure for 2005 and 2006 respectively.

- The top twenty trade name products according to prevalence prescribed by other medical prescribers represented 14.56% (n=3 576 876) in 2005 and 14.18% (n=3 889 002) in 2006 of the overall medicine prevalence (refer to paragraph 4.3.6.4).

- **Specific objective ten was to determine the top twenty trade name products according to cost and prevalence for the various provider groups from the PBM's database.**

General medical practitioners issued about 19% of the overall medicine items, other medical providers provided medicine to only about 25 000 patients which accounted for less than 1% of the total medicine items and pharmacies provided approximately 80% of the medicine items claimed through the database.

In table 5.14 the top five trade name products according to total cost as well as prevalence as provided by general medical practitioners are portrayed

Table 5.14: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods as provided by general medical practitioners

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Mybulen tab	Ibuprofen/paracetamol/codeine	0.92	Pain	√	√	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	1.36	Pain	√	×	√
		Amoxil 500mg cap	Amoxicillin	3	Bacterial infections	√	×	√
		Clamentin 375mg	Amoxicillin/clavuanic	1	Bacterial infections	√	√	×
		Lipitor 10mg tab	Atorvastatin	4.42	Cholesterol	√	×	√
Prevalence		Alcophyllex syr	Theophylline/diphenhydramine	0.21	Cough	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.92	Pain	×	×	×
		Painagon tab	Promethazine/codeine/paracetamol	0.27	Pain	×	×	×
		Flustat cap	Chlorpheniramine/phenylephrine/paracetamol	0.36	Cold & flu	×	×	×
		Be-tabs Prednisone 5mg tab	Prednisone	0.08	Allergy	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Mybulen tab	Ibuprofen/paracetamol/codeine	0.99	Pain	√	√	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	1.41	Pain	√	×	√
		Amoxil 500mg cap	Amoxicillin	2.9	Bacterial infections	√	×	√
		Clavumox 375mg	Amoxicillin/clavuanic	1.09	Bacterial infections	√	×	√
		Avelon 400mg tab	Moxifloxacin	4.93	Bacterial infections	√	×	√
Prevalence		Alcophyllex syr	Theophylline/diphenhydramine	0.23	Cough	×	×	×
		Flustat cap	Chlorpheniramine/phenylephrine/paracetamol	0.37	Cold & flu	×	×	×
		Painagon tab	Promethazine/codeine/paracetamol	0.27	Cholesterol	×	×	×
		Mybulen tab	Ibuprofen/paracetamol/codeine	0.99	Pain	×	×	×
		Be-tabs Prednisone 5mg tab	Prednisone	0.07	Allergy	×	×	×

- √ - Yes; × – No

- The top twenty trade name products according to cost provided by general medical practitioners represented 12.31% (n=R151 430 854.29) and 12.17% (n=R149 025 447.75) of the overall medicine expenditure in 2005 and 2006 respectively.

- According to prevalence the top twenty trade name products provided by general medical practitioners represented 15.19% (3 849 539) and 15.28% (n=4 148 630) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.5.2).

In table 5.15 the top five trade name products according to total cost as well as prevalence as provided by other medical providers are portrayed

Table 5.15: A summarised table of the top five trade name products ranked according to total cost and prevalence for both study periods as provided by other medical providers

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Herceptin	Trastuzumab	36.88	Cancer	√	×	√
		Gemzar 1000mg inj	Gemcitabine	22.73	Cancer	√	×	√
		Campto 5ML 20mg/ml Inj	Irinotecan	28.12	Cancer	√	×	√
		Duovisc 0.4ml/0.35ml	Viscoat	4.32	Cataract procedures	√	×	√
		Zometa Inf (powder) 4mg	Zolendronic acid	13.05	Cancer	√	×	√
Prevalence		Celestone soluspan 1ml inj	Betamethasone	0.36	Inflammation	×	×	×
		Remicaine 5ml 20mg/ml inj	Lignocaine	0.07	Anaesthesia	×	×	×
		Kytril 1mg/ml 3ml linj	Granisetron	0.83	Chemotherapy nausea	×	×	×
		Xylotoc E 1.8ml 2% inj	Lignocaine	0.04	Anaesthesia	×	×	×
		Dormicum 5mg/5ml	Midazolam	0.14	Anaesthesia	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Taxotere 80mg inj	Docetaxol	39.73	Cancer	√	×	√
		Duovisc 0.4ml/0.35ml	Viscoat	5.03	Cataract procedures	√	×	√
		Zometa Inf (powder) 4mg	Zolendronic acid	15.67	Cancer	√	×	√
		Taxotere 20mg/1.5ml Inj	Docetaxol	27.08	Cancer	√	×	√
		Campto 5ml 20mg/ml inj	Irinotecan	33.56	Cancer	√	×	√
Prevalence		Remicaine 5ml 20mg/ml inj	Lignocaine	0.08	Anaesthesia	×	×	×
		Celestone soluspan 1ml inj	Betamethasone	0.38	Inflammation	×	×	×
		Dormicum 5mg/5ml	Midazolam	0.17	Anaesthesia	×	×	×
		Xylotoc E 1.8ml 2% inj	Lignocaine	0.05	Anaesthesia	×	×	×
		Buscopan 20mg/ml inj	Hyosine-N-butylbromide	0.08	Colicky pain	×	×	×

- √ - Yes; x – No

- According to the results the top twenty trade name products according to total cost provided by other medical providers represented 39.95% (n=R14 786 584.36) and 44.85% (n=R9 002 585.31) of the overall medicine expenditure in 2005 and 2006 respectively.

- The top twenty trade name products according to prevalence provided by other medical providers represented 23.70% (n=78 612) in 2005 and 42.56% (n=56 923) in 2006 of the overall medicine prevalence on the database (refer to paragraph 4.3.5.3).

- All of the products on the top five trade name products list according to prevalence provided by other medical providers were injection dosage forms and had exceptionally low CPIs.

- The top five trade name products according to total cost were indicated primarily for cancer treatment.

In table 5.16 the top five trade name products according to total cost as well as prevalence as provided by pharmacists.

Table 5.16: A summarised table of the top five trade name products ranked according to total cost and prevalence for both the study periods as provided by pharmacists

Variable	Year	Product	Active ingredients	CPI	Main indication	Cost driver	Resource driver	Activity driver
Total cost	2005	Lipitor 10mg tab	Atorvastatin	1.74	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.49	Cholesterol	√	×	√
		Fosamax 70mg tab	Alendronate	3.13	Osteoporosis	√	×	√
		Celebrex 200mg cap	Celecoxib	2.08	Anti-inflammatory	√	×	√
		Prexum 4mg tab	Perindopril	1.2	Hypertension	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.37	Hypothyroidism	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.74	Cholesterol	√	×	×
		Ecotrin 81mg tab	Asprin	0.18	Platelet aggregation inhibitor	×	×	×
		Myprodol cap	Ibuprofen/paracetamol/codeine	0.57	Pain	×	×	×
		Disprin CV 100mg disp	Asprin	0.21	Platelet aggregation inhibitor	×	×	×
Variable	**Year**	**Product**	**Active ingredients**	**CPI**	**Main indication**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	Lipitor 10mg tab	Atorvastatin	1.74	Cholesterol	√	×	√
		Lipitor 20mg tab	Atorvastatin	2.47	Cholesterol	√	×	√
		Prexum 4mg tab	Perindopril	1.19	Hypertension	√	×	√
		Cipralex 10mg	Escitalopram	2.32	Depression	√	×	√
		Fosamax 70mg tab	Alendronate	3.04	Osteoporosis	√	×	√
Prevalence		Eltroxin 100mcg tab	Thyroxine	0.36	Hypothyroidism	×	×	×
		Ecotrin 81mg tab	Asprin	0.19	Platelet aggregation inhibitor	×	×	×
		Lipitor 10mg tab	Atorvastatin	1.74	Cholesterol	√	×	×
		Prexum 4mg tab	Perindopril	1.19	Hypertension	√	×	×
		Adco-Simvastatin 20mg	Simvastatin	1.01	Platelet aggregation inhibitor	√	×	×

- √ - Yes; × – No

- The top twenty trade name products according to cost provided by pharmacists represented 13.74% (n=R1 726 420 150.50) in 2005 and 13.68% (n=R1 888 460 214.90) in 2006 of the overall medicine expenditure.

- The top five trade name products according to total cost are mainly used for chronic conditions such as osteoporosis, hypertension, cholesterol and pain. These products can be seen as activity drivers.

- According to prevalence the top twenty trade name products provided by pharmacists represented 12.58% (n=15 926 285) and 12.06% (n=17 262 616) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.5.1).

- **Specific objective eleven was to determine the prevalence and cost of the top twenty pharmacological and therapeutic groups from the PBM's database.**

In table 5.17 the top five main pharmacological groups according to total cost as well as prevalence are portrayed.

Table 5.17: A summarised table of the top five main pharmacological groups ranked according to total cost and prevalence for both study periods

Variable	Year	Main pharmacological group	CPI	Cost driver	Resource driver	Activity driver
Total cost	2005	7 – Cardiovascular agents	1.42	√	×	√
		1 - Central nervous system agents	1.32	√	×	√
		18 - Antimicrobial products	0.94	√	√	×
		19 - Endocrine system products	1.15	√	×	√
		10 - Respiratory system agents	0.61	√	√	×
Prevalence		7 – Cardiovascular agents	1.42	√	×	×
		10 - Respiratory system agents	0.61	×	×	×
		18 - Antimicrobial products	0.94	×	×	×
		1 - Central nervous system agents	1.32	√	×	×
		19 - Endocrine system products	1.15	√	×	×
Variable	**Year**	**Main pharmacological group**	**CPI**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	7 – Cardiovascular agents	1.37	√	×	√
		1 - Central nervous system agents	1.29	√	×	√
		18 - Antimicrobial products	0.95	√	√	×
		19 - Endocrine system products	1.16	√	×	√
		10 - Respiratory system agents	0.58	√	√	×
Prevalence		7 – Cardiovascular agents	1.37	√	×	×
		10 - Respiratory system agents	0.58	×	×	×
		18 - Antimicrobial products	0.95	×	×	×
		1 - Central nervous system agents	1.29	√	×	×
		19 - Endocrine system products	1.16	√	×	×

- √ - Yes; × – No

- The top twenty main pharmacological groups according to cost represented 99.41% (N=R1 893 376 921.00) and 99.39% (N=R2 046 944 382.50) of the overall medicine expenditure in 2005 and 2006 respectively.

- The top twenty main pharmacological groups according to prevalence represented 99.55% (N=19 860 679) in 2005 and 99.56% (N=21 473 074) in 2006 of the overall medicine prevalence (refer to paragraph 4.3.7.1).

In table 5.18 the top five pharmacological sub-groups according to total cost as well as prevalence are portrayed.

Table 5.18: A summarised table of the top five pharmacological sub-groups ranked according to total cost and prevalence for both study periods

Variable	Year	Pharmacological sub group	CPI	Cost driver	Resource driver	Activity driver
Total cost	2005	7.3 - Antihypertensives	1.43	√	×	√
		7.7 - Hipolipidaemic agents	1.79	√	×	√
		1.4 - Antidepressants	1.55	√	×	√
		12.4 - Acid-reducers	1.45	√	×	√
		18.1 - Beta-lactam products	0.72	√	√	×
Prevalence		10.1 - Coughs and cold products	0.34	×	×	×
		7.3 - Antihypertensives	1.43	√	×	×
		3.3 - Combination analgesics	0.43	×	×	×
		18.1 – Beta-lactam	0.72	×	×	×
		4.1 - NSAIDS	0.66	×	×	×
Variable	**Year**	**Pharmacological sub group**	**CPI**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	7.3 - Antihypertensives	1.36	√	×	√
		7.7 - Hipolipidaemic agents	1.75	√	×	√
		1.4 - Antidepressants	1.44	√	×	√
		23.1 - Cytostatics	16.11	√	×	√
		12.4 - Acid-reducers	1.37	√	×	√
Prevalence		10.1 - Coughs and cold products	0.33	×	×	×
		7.3 - Antihypertensives	1.36	√	×	×
		3.3 - Combination analgesics	0.42	×	×	×
		18.1 – Beta-lactam	0.71	×	×	×
		4.1 - NSAIDS	0.63	×	×	×

- √ - Yes; × – No

- According to cost the top twenty pharmacological sub-groups represented 66.65% (N=R1 893 376 921.00) and 67.14% (N=R2 046 944 382.50) of the overall medicine expenditure in 2005 and 2006 respectively.

- The top twenty pharmacological sub-groups according to prevalence represented 68.95% (N=19 860 679) and 69.56% (N=21 473 074) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.7.2).

In table 5.19 the top five therapeutic sub-groups according to total cost as well as prevalence are portrayed.

- The top twenty therapeutic sub-groups according to cost represented 29.55% (N=R1 893 376 921.00) in 2005 and 46.69% (N=R2 046 944 382.50) in 2006 of the overall medicine expenditure.

- According to prevalence the top twenty therapeutic sub-groups represented 52.80% (N=19 860 679) and 53.19% (N=21 473 074) of the overall medicine prevalence in 2005 and 2006 respectively (refer to paragraph 4.3.7.3).

Table 5.19: A summarised table of the top five therapeutic sub-groups ranked according to total cost and prevalence for both the study periods

Variable	Year	Therpautic subgroup	CPI	Cost driver	Resource driver	Activity driver
Total cost	2005	7.7.2 - HMG-CoA reductase inhibitors	1.77	√	x	√
		7.3.8 - ACE-inhibitors	1.2	√	x	√
		12.4.4 - Proton pump inhibitors	2.34	√	x	√
		7.3.9 - Angiotensin receptor antagonists	2.2	√	x	√
		23.1.1 - Cytostatics	12.8	√	x	√
Prevalence		3.3.1 - Combination analgesics	0.43	x	x	x
		18.1.1 - Penicillin containing products	0.56	x	x	x
		10.1.1 - Antitussives and expectorants	0.35	x	x	x
		7.3.8 - ACE-inhibitors	1.2	√	x	x
		4.1.1 – Cox-inhibitors	0.47	x	x	x
Variable	**Year**	**Therpautic subgroup**	**CPI**	**Cost driver**	**Resource driver**	**Activity driver**
Total cost	2006	7.7.2 - HMG-CoA reductase inhibitors	1.72	√	x	√
		23.1.1 - Cytostatics	16.11	√	x	√
		7.3.8 - ACE-inhibitors	1.12	√	x	√
		12.4.4 - Proton pump inhibitors	2.05	√	x	√
		7.3.9 - Angiotensin receptor antagonists	2.2	√	x	√
Prevalence		3.3.1 - Combination analgesics	0.42	x	x	x
		10.1.1 - Antitussives and expectorants	0.35	x	x	x
		18.1.1 - Penicillin containing products	0.56	x	x	x
		7.3.8 - ACE-inhibitors	1.12	√	x	x
		10.1.2 - Decongestants and analgesics	0.28	x	x	x

- √ - Yes; x – No

- **Specific objective twelve was to determine the average total cost per prescription, the average number of items per prescription and the average total cost per item according to the PBM's database for all the different variables as well as the complete database.**

In chapter 4 an analysis of the complete database is reflected according to the various variables. The average cost per prescription, average number of items per prescription, average total cost per item and the average cost per medicine type were determined (refer to sections 4.2.1 and 4.2.2).

5.2 RECOMMENDATIONS

The following recommendations are proposed from the analysed results and conclusions:

- More in-depth research should be performed with role-players to provide data concerning the managed care market in South Africa, due to the fact that literature about managed health care in South Africa is limited.

- The impact, application and usage of the different management instruments (e.g. "disease management", "outcomes management", "risk management", "case management") as well as information systems ("pharmacoeconomics", "drug utilisation review and "evidence-based medicine") need to be further investigated within the framework of managed health care in the private health care sector of South Africa to determine the impact and cost to health decision making. The application of the instruments in the public sector should receive the same attention.

- Further investigation should be conducted on the cost-saving potential of generic substitution, generic similar substitution and therapeutic substitution, especially on the identified cost driver medicine products within the private health care sector of South Africa. Further studies must be performed on the cost driver products, to determine whether they are cost-effective and whether they can be substituted for generic equivalent products or therapeutic similar products. This should also include an investigation of the pricing system in South Africa as well as general comparison of medicine cost internationally. Pricing systems in South Africa did not form part of this study.

- Further investigation should be conducted on the appropriate use of medication to specific age groups, for example the use (and unnecessary cost incurred by inappropriate prescribing patterns, if any) of isotretinoin-containing products in children under the recommended age of 12 as well as the use of certain products in the geriatric age group (refer to paragraph 4.3.3.2.1). Other medications related to age and sex groups should be investigated to determine the significance on usage patterns.

- Cost-risk factors may be in correlation with lifestyle and occupational factors e.g. cholesterol, SSRIs, PPIs and ARVs. These factors must be further investigated, especially the occurrence in the economic active population group with possible effect on productivity. The impact of lifestyle modifications on patients' health, especially to determine the influence (if any) on chronic medication use potential health care cost savings must be further investigated.

- Due to the fact that codeine-containing products showed a relatively high prevalence (prescribed) in this study, further investigation needs to be done on these products, to determine whether inappropriate prescribing and usage patterns of these products occur in South Africa in comparison to international usage patterns.

- Further investigation must be done on the cost driver products, whether they are resource drivers (driven by the quantity) or activity drivers (driven by the cost of the products) or listed

as both resource and activity drivers, which occurred frequently throughout the study's different variable groups, to determine whether therapeutic- and generic substitution will reduce medicine cost.

- Further investigation must be done to identify diseases with a high prevalence in order to establish preventative cost-effective guidelines and to raise awareness for these identified conditions.

5.3 LIMITATIONS

Throughout the study there were certain limitations that could have influenced the applicability.

- Limited literature concerning the status and implementation of managed health care in South Africa were available, and more in-depth study should be performed concerning the managed care market in South Africa.

- Only one PBM's data were used throughout the study, therefore no comparison was made regarding cost driving products within the private health care sector of South Africa. This also excluded medicine usage patterns in the public health sector of South Africa.

- No direct manipulation of the data was possible: All the data were analysed from the perspective that the information was reliable and valid from the PBM's database.

- External validity was limited, implying that the results can be generalised to this specific database and study population only.

- The lack of detailed clinical data (*i.e.* diagnosis or medical history): The relevance of some utilisation patterns and indication for treatment could therefore not determined.

- The analysis was limited to direct cost of medicine only; certain products such as cotton wool and alcohol swabs that are mainly used in the performing of medical procedures, were not regarded as a medicinal product and therefore have not been included in the analysis of the data.

- The analysis did not explore the effect of medical scheme benefit structure on medicine usage and can be seen as a limitation to this study.

5.4 CHAPTER SUMMARY

This chapter included the conclusions with regard to the specific objectives that were set for the study and the recommendations made for future studies. The limitations of the study were also noted in this chapter.

Appendix A

Table A.1: Average cost of all medicine items for 2005 and 2006

Year	QT	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	6005321	Final prescription cost [a+b]	97.80 ± 178.65	587305503
			Final scheme amount [a]	88.24 ± 171.39	529882155
			Final levy [b]	9.56 ± 38.44	57423347.86
	2	7332713	Final prescription cost [a+b]	92.13 ± 192.92	675587370
			Final scheme amount [a]	81.70 ± 185.42	599115243
			Final levy [b]	10.43 ± 47.96	76472127.05
	3	6522645	Final prescription cost [a+b]	96.66 ± 203.11	630484048
			Final scheme amount [a]	82.78 ± 196.623	539955462
			Final levy [b]	13.88 ± 50.91	90528585.76
	Total	19860679	Final prescription cost [a+b]	95.33 ± 192.21	1893376921
			Final scheme amount [a]	84.03 ± 185.15	1668952860
			Final levy [b]	11.30 ± 46.37	224424061
2006	1	6984380	Final prescription cost [a+b]	95.68 ± 215.17	668291742
			Final scheme amount [a]	86.41 ± 208.69	603514700
			Final levy [b]	9.27 ± 42.30	64777041.93
	2	8048504	Final prescription cost [a+b]	91.24 ± 219.18	73432606
			Final scheme amount [a]	79.73 ± 213.47	641730497
			Final levy [b]	11.50 ± 44.98	92593108.92
	3	6440190	Final prescription cost [a+b]	100.05 ± 251.03	644329035
			Final scheme amount [a]	82.72 ± 244.90	532709654
			Final levy [b]	17.33 ± 56.68	111619381
	Total	21473074	Final prescription cost [a+b]	95.33 ± 227.99	2046944383
			Final scheme amount [a]	82.80 ± 221.90	1777954851
			Final levy [b]	12.53 ± 48.11	268989532

Table A.2: Average cost of all medicine items for all age groups for 2005 and 2006

Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	1	457371	Final prescription cost (a+b)	57.03 ± 70.92	26082529.32	2006	1	1	541629	Final prescription cost (a+b)	55.34 ± 80.85	29975388.23
				Final scheme amount (a)	52.92 ± 67.84	24204256.98					Final scheme amount (a)	51.10 ± 77.16	27676425.74
				Final levy (b)	4.11 ± 14.94	1878272.34					Final levy (b)	4.24 ± 17.67	2298962.49
		2	407425	Final prescription cost (a+b)	73.21 ± 112.32	29826987.96			2	479622	Final prescription cost (a+b)	71.20 ± 122.43	34110522.42
				Final scheme amount (a)	67.25 ± 105.14	27398508.63					Final scheme amount (a)	65.36 ± 117.84	31346002.4
				Final levy (b)	5.96 ± 28.33	2428479.33					Final levy (b)	5.76 ± 24.09	2764520.02
		3	1760402	Final prescription cost (a+b)	83.32 ± 161.46	146671114.00			3	2098368	Final prescription cost (a+b)	80.28 ± 174.12	168461300
				Final scheme amount (a)	76.80 ± 153.64	135183239.00					Final scheme amount (a)	73.90 ± 167.32	155066582
				Final levy (b)	6.53 ± 42.21	11487875.22					Final levy (b)	6.38 ± 40.85	13394718.29
		4	1472249	Final prescription cost (a+b)	104.20 ± 190.81	153412408.00			4	1764443	Final prescription cost (a+b)	101.95 ± 243.33	179885502
				Final scheme amount (a)	94.81 ± 184.64	139583524.00					Final scheme amount (a)	92.87 ± 237.21	163856062
				Final levy (b)	9.39 ± 38.57	13828884.46					Final levy (b)	9.08 ± 45.17	16029440.1
		5	1907873	Final prescription cost (a+b)	121.24 ± 207.40	231312409.00			5	2100310	Final prescription cost (a+b)	121.82 ± 259.44	255858604
				Final scheme amount (a)	106.67 ± 200.04	203512573.00					Final scheme amount (a)	107.40 ± 252.62	225569203
				Final levy (b)	14.57 ± 39.87	27799836.51					Final levy (b)	14.42 ± 48.06	30289401.03
	2	1	652416	Final prescription cost (a+b)	54.87 ± 74.26	35799569.64		2	1	670034	Final prescription cost (a+b)	54.59 ± 94.68	36577890.15
				Final scheme amount (a)	50.19 ± 70.50	32746636.37					Final scheme amount (a)	48.41 ± 88.77	32433207.07
				Final levy (b)	4.68 ± 21.38	3052933.27					Final levy (b)	6.19 ± 30.25	4144683.08
		2	555725	Final prescription cost (a+b)	66.65 ± 107.70	37040381.12			2	620616	Final prescription cost (a+b)	65.47 ± 116.84	40631512.75
				Final scheme amount (a)	60.10 ± 103.17	33395153.04					Final scheme amount (a)	57.98 ± 111.13	35985544.23
				Final levy (b)	6.56 ± 24.99	3645228.08					Final levy (b)	7.49 ± 31.77	4645968.52
		3	2237947	Final prescription cost (a+b)	77.43 ± 165.21	173273206.00			3	2457733	Final prescription cost (a+b)	75.19 ± 171.80	184798667
				Final scheme amount (a)	70.30 ± 159.70	157319028.00					Final scheme amount (a)	67.10 ± 166.45	164919499
				Final levy (b)	7.19 ± 37.75	1594178.13					Final levy (b)	8.09 ± 39.08	19879168.6
		4	1783017	Final prescription cost (a+b)	98.42 ± 208.66	175480855.00			4	2018940	Final prescription cost (a+b)	97.10 ± 243.22	196025410
				Final scheme amount (a)	87.96 ± 202.04	456841507.00					Final scheme amount (a)	85.74 ± 237.51	173097445
				Final levy (b)	10.45 ± 48.44	18639348.06					Final levy (b)	11.36 ± 49.46	22927965.06
		5	2103598	Final prescription cost (a+b)	120.74 ± 239.45	253992931.00			5	2281166	Final prescription cost (a+b)	121.12 ± 277.88	276289645

Table A.2: Average cost of all medicine items for all age groups for 2005 and 2006 (continue)

Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final scheme amount [a]	104.02 ± 229.46	218812491.00					Final scheme amount [a]	103.15 ± 272.33	235294337
				Final levy [b]	16.72 ± 64.36	35180439.51					Final levy [b]	17.97 ± 52.12	40995307.92
	3	1	491132	Final prescription cost [a+b]	55.89 ± 72.08	27447101.64		3	1	456624	Final prescription cost [a+b]	56.91 ± 94.95	25987617.94
				Final scheme amount [a]	48.94 ± 65.62	24037672.32					Final scheme amount [a]	46.39 ± 87.62	21183275.22
				Final levy [b]	6.94 ± 31.00	3409429.32					Final levy [b]	10.52 ± 36.81	4804642.72
		2	427423	Final prescription cost [a+b]	71.60 ± 121.25	30603023.44			2	398979	Final prescription cost [a+b]	73.73 ± 137.54	29416797.5
				Final scheme amount [a]	62.01 ± 115.50	26504623.11					Final scheme amount [a]	60.75 ± 131.07	24236242
				Final levy [b]	9.59 ± 35.51	4098400.00					Final levy [b]	12.98 ± 41.12	5180555.5
		3	1935380	Final prescription cost [a+b]	81.67 ± 172.18	158069747.00			3	1820956	Final prescription cost [a+b]	84.19 ± 210.80	153312787
				Final scheme amount [a]	71.67 ± 166.75	138722684.00					Final scheme amount [a]	71.16 ± 203.85	129316705
				Final levy [b]	9.99 ± 42.41	19347062.74					Final levy [b]	13.18 ± 52.64	23996082.73
		4	1646219	Final prescription cost [a+b]	102.45 ± 222.11	168650729.00			4	1663697	Final prescription cost [a+b]	104.52 ± 259.45	173884204
				Final scheme amount [a]	88.73 ± 215.36	146075572.00					Final scheme amount [a]	87.95 ± 253.59	146321999
				Final levy [b]	13.71 ± 56.07	22575156.26					Final levy [b]	16.57 ± 56.39	27562204.89
		5	2022481	Final prescription cost [a+b]	121.49 ± 242.39	245712676.00			5	2099918	Final prescription cost [a+b]	124.64 ± 307.35	261727047
				Final scheme amount [a]	101.16 ± 235.80	204614139.00					Final scheme amount [a]	100.79 ± 301.96	211650825
				Final levy [b]	20.32 ± 59.21	41098537.00					Final levy [b]	23.85 ± 65.15	50076195.22
	Total	1	1600919	Final prescription cost [a+b]	55.80 ± 72.66	89329200.60		Total	1	1668287	Final prescription cost [a+b]	55.47 ± 90.50	92540896.32
				Final scheme amount [a]	50.59 ± 68.29	80988565.67					Final scheme amount [a]	48.73 ± 84.87	81292908.03
				Final levy [b]	5.21 ± 23.37	8340634.93					Final levy [b]	6.74 ± 29.08	11247988.29
		2	1390573	Final prescription cost [a+b]	70.09± 113.40	97470392.52			2	1499217	Final prescription cost [a+b]	69.48 ± 124.47	104158833
				Final scheme amount [a]	62.78 ± 107.71	87298285.78					Final scheme amount [a]	61.08 ± 118.90	91567788.63
				Final levy [b]	7.32 ± 29.58	10172107.74					Final levy [b]	8.40 ± 32.58	12591044.04
		3	5933729	Final prescription cost [a+b]	80.56 ± 166.53	478014067.00			3	6377057	Final prescription cost [a+b]	79.44 ± 184.54	506572855
				Final scheme amount [a]	72.67 ± 160.31	431224951.00					Final scheme amount [a]	70.46 ± 178.22	449302785
				Final levy [b]	7.89 ± 40.68	46789116.09					Final levy [b]	8.98 ± 44.00	57269969.62
		4	4901485	Final prescription cost [a+b]	101.51 ± 208.21	497543992.00			4	5447080	Final prescription cost [a+b]	100.93 ± 248.34	549795116
				Final scheme amount [a]	90.28 ± 201.68	442500604.00					Final scheme amount [a]	88.72 ± 242.46	483276506

Table A.2: Average cost of all medicine items for all age groups for 2005 and 2006 (continue)

Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final levy [b]	11.23 ± 48.58	55043388.78					Final levy [b]	12.21 ± 50.48	66519610.05
		5	6033952	Final prescription cost [a+b]	121.15 ± 230.83	731018016.00			5	6481394	Final prescription cost [a+b]	122.49 ± 282.13	793875296
				Final scheme amount [a]	103.90 ± 222.83	626939203.00					Final scheme amount [a]	103.76 ± 276.28	672514392
				Final levy [b]	17.25 ± 55.92	104078813.00					Final levy [b]	18.72 ± 55.63	121360904

Table A.3: Average cost of all medicine items according to gender groups

Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	F	3657414	Final prescription cost [a+b]	96.23 ± 168.14	351967752	2006	1	F	4238435	Final prescription cost [a+b]	94.09 ± 205.02	398777935.00
				Final scheme amount [a]	86.26 ± 160.50	315482976					Final scheme amount [a]	84.55 ± 198.77	358347804.00
				Final levy [b]	9.98 ± 37.52	36484776.26					Final levy [b]	9.54 ± 39.69	40430130.80
		M	2342549	Final prescription cost [a+b]	100.24 ± 193.39	234825846			M	2741639	Final prescription cost [a+b]	98.16 ± 229.79	269121990.00
				Final scheme amount [a]	91.31 ± 186.54	213909506					Final scheme amount [a]	89.29 ± 222.94	244806076.00
				Final levy [b]	8.93 ± 37.52	20916340.32					Final levy [b]	8.87 ± 46.05	243159163.78
		U	5358	Final prescription cost [a+b]	95.54 ± 343.44	511904.55			U	4306	Final prescription cost [a+b]	90.99 ± 307.00	391816.98
				Final scheme amount [a]	91.40 ± 341.59	489673.27					Final scheme amount [a]	83.79 ± 305.17	360819.63
				Final levy [b]	4.15 ± 18.86	22231.28					Final levy [b]	7.20 ± 20.72	30997.35
	2	F	4375248	Final prescription cost [a+b]	91.70 ± 189.09	401217036		2	F	4807841	Final prescription cost [a+b]	90.20 ± 211.28	433671759.00
				Final scheme amount [a]	80.75 ± 181.35	353322755					Final scheme amount [a]	78.20 ± 205.16	375943527.00
				Final levy [b]	10.95 ± 48.14	47894281.37					Final levy [b]	12.01 ± 45.94	57728231.28
		M	2951302	Final prescription cost [a+b]	92.78 ± 198.03	273822187			M	3236996	Final prescription cost [a+b]	92.75 ± 230.22	300238662.00
				Final scheme amount [a]	83.11 ± 190.81	245271248					Final scheme amount [a]	81.99 ± 225.04	265408840.00
				Final levy [b]	9.67 ± 47.74	28550939.49					Final levy [b]	10.76 ± 43.50	34829821.86
		U	6163	Final prescription cost [a+b]	88.94 ± 346.90	548146.96			U	3667	Final prescription cost [a+b]	112.68 ± 343.81	413185.30
				Final scheme amount [a]	84.58 ± 346.30	521540.77					Final scheme amount [a]	103.12 ± 342.23	378129.52
				Final levy [b]	4.37 ± 20.02	26906.19					Final levy [b]	9.56 ± 31.62	35055.78
	3	F	3941593	Final prescription cost [a+b]	95.26 ± 195.18	375467324		3	F	3878536	Final prescription cost [a+b]	98.13 ± 242.51	380618662.00
				Final scheme amount [a]	80.78 ± 188.53	318411042					Final scheme amount [a]	80.06 ± 236.22	310508223.00
				Final levy [b]	14.48 ± 50.30	57056281.69					Final levy [b]	18.08 ± 56.79	70110439.24
		M	2576261	Final prescription cost [a+b]	98.82 ± 214.53	254578078			M	2558864	Final prescription cost [a+b]	102.92 ± 263.22	263364890.00
				Final scheme amount [a]	85.84 ± 208.15	22138374					Final scheme amount [a]	86.72 ± 257.29	221902477.00
				Final levy [b]	12.98 ± 51.85	33439704.18					Final levy [b]	16.20 ± 56.51	41462413.71
		U	4791	Final prescription cost [a+b]	91.56 ± 295.91	438645.54			U	2790	Final prescription cost [a+b]	123.83 ± 374.95	345481.92
				Final scheme amount [a]	84.75 ± 294.91	406045.65					Final scheme amount [a]	107.15 ± 373.42	298953.81
				Final levy [b]	6.80 ± 26.90	32599.89					Final levy [b]	16.68 ± 46.27	46528.11
	Total	F	11974255	Final prescription cost [a+b]	94.26 ± 185.03	1128652112		Total	F	12924812	Final prescription cost [a+b]	93.56 ± 219.20	1213068356.00
				Final scheme amount [a]	82.44 ± 177.74	987216773					Final scheme amount [a]	80.84 ± 212.99	1044799555.00

Table A.3: Average cost of all medicine items according to gender groups (continue)

Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final levy [b]	11.81 ± 45.97	141435339					Final levy [b]	13.02 ± 47.77	168268801.00
		M	7870112	Final prescription cost [a+b]	96.98 ± 202.27	763226111			M	8537499	Final prescription cost [a+b]	97.54 ± 240.49	832725542.00
				Final scheme amount [a]	86.44 ± 195.46	680319127					Final scheme amount [a]	85.75 ± 234.55	732117393.00
				Final levy [b]	10.53 ± 47.01	82906983.99					Final levy [b]	11.78 ± 48.63	100608149.00
		U	16312	Final prescription cost [a+b]	91.88 ± 331.55	1498697.05			U	10763	Final prescription cost [a+b]	106.89 ± 338.51	1150484.20
				Final scheme amount [a]	86.87 ± 330.42	1416959.69					Final scheme amount [a]	96.43 ± 336.74	1037902.96
				Final levy [b]	5.01 ± 21.96	81737.36					Final levy [b]	10.46 ± 32.89	112581.24

Table A.4: Average cost of all medicine items for the different prescribers 2005 and 2006

Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	General medical practitioner	4401638	Final prescription cost [a+b]	88.27 ± 109.14	388515407.00	2006	1	General medical practitioner	5016194	Final prescription cost [a+b]	84.47 ± 111.20	423727042.00
				Final scheme amount [a]	79.29 ± 102.45	348997362.00					Final scheme amount [a]	75.90 ± 104.77	380706019.00
				Final levy [b]	8.98 ± 25.39	39518045.51					Final levy [b]	8.58 ± 26.51	43021023.29
		Other	1129796	Final prescription cost [a+b]	156.62 ± 343.05	176946787.00			Other	1284495	Final prescription cost [a+b]	165.60 ± 442.42	212705792.00
				Final scheme amount [a]	142.12 ± 332.59	160561602.00					Final scheme amount [a]	150.91 ± 432.85	193844293.00
				Final levy [b]	14.50 ± 72.38	16385185.39					Final levy [b]	14.68 ± 82.52	18861499.29
		Pharmacotherapy	11594	Final prescription cost [a+b]	51.80 ± 42.99	600514.23			Pharmacotherapy	12486	Final prescription cost [a+b]	52.80 ± 46.24	659307.84
				Final scheme amount [a]	48.36 ± 36.12	560644.80					Final scheme amount [a]	49.43 ± 44.50	617172.18
				Final levy [b]	3.44 ± 10.47	39869.93					Final levy [b]	3.37 ± 11.60	42135.66
		Pharmacy	462219	Final prescription cost [a+b]	45.94 ± 38.23	21233363.40			Pharmacy	670343	Final prescription cost [a+b]	46.41 ± 44.28	31113765.72
				Final scheme amount [a]	42.74 ± 36.12	19755710.38					Final scheme amount [a]	42.17 ± 41.88	28268109.70
				Final levy [b]	3.20 ± 12.05	147753.02					Final levy [b]	4.24 ± 15.59	2845656.02
	2	General medical practitioner	5391908	Final prescription cost [a+b]	81.98 ± 106.79	442020933.00		2	General medical practitioner	5870636	Final prescription cost [a+b]	79.83 ± 106.18	468634712.00
				Final scheme amount [a]	72.46 ± 100.35	390710622.00					Final scheme amount [a]	69.34 ± 98.95	407093403.00
				Final levy [b]	9.52 ± 29.41	51310310.71					Final levy [b]	10.48 ± 34.15	61541308.69
		Other	1249021	Final prescription cost [a+b]	162.04 ± 402.29	202386456.00			Other	1369741	Final prescription cost [a+b]	167.62 ± 474.40	229599323.00
				Final scheme amount [a]	144.07 ± 390.41	179940391.00					Final scheme amount [a]	148.07 ± 467.67	202819583.00
				Final levy [b]	17.97 ± 97.71	22446064.74					Final levy [b]	19.55 ± 80.69	26779739.42
		Pharmacotherapy	15576	Final prescription cost [a+b]	48.28 ± 38.98	752072.59			Pharmacotherapy	15747	Final prescription cost [a+b]	50.25 ± 43.20	791232.90
				Final scheme amount [a]	45.01 ± 37.27	701068.46					Final scheme amount [a]	46.36 ± 41.43	729968.01
				Final levy [b]	3.27 ± 11.49	51004.13					Final levy [b]	3.89 ± 14.79	61264.89
		Pharmacy	675517	Final prescription cost [a+b]	44.94 ± 39.95	30360195.64			Pharmacy	791460	Final prescription cost [a+b]	44.45 ± 42.91	35177966.66
				Final scheme amount [a]	41.03 ± 37.16	27714149.21					Final scheme amount [a]	39.17 ± 39.81	31004723.42
				Final levy [b]	3.92 ± 15.80	2646046.43					Final levy [b]	5.27 ± 18.81	4173243.24
	3	General medical practitioner	4744681	Final prescription cost [a+b]	85.46 ± 111.57	405492282.00		3	General medical practitioner	4634462	Final prescription cost [a+b]	86.40 ± 115.09	400408144.00
				Final scheme amount [a]	72.74 ± 103.92	345122574.00					Final scheme amount [a]	70.45 ± 106.93	326506281.00
				Final levy [b]	12.72 ± 39.99	60369708.16					Final levy [b]	15.95 ± 44.82	73896862.83
		Other	1198059	Final prescription cost [a+b]	164.54 ± 409.89	197127480.00			Other	1234766	Final prescription cost [a+b]	176.09 ± 519.43	217423779.00
				Final scheme amount [a]	142.35 ± 402.53	170544313.00					Final scheme amount [a]	149.24 ± 512.77	184278946.00

Table A.4: Average cost of all medicine items for the different prescribers 2005 and 2006 (continue)

Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final levy [b]	22.19 ± 86.40	26583166.44					Final levy [b]	26.84 ± 93.59	33144833.13
		Pharmacotherapy	12188	Final prescription cost [a+b]	52.34 ± 46.04	637892.40			Pharmacotherapy	10723	Final prescription cost [a+b]	51.92 ± 50.80	556762.52
				Final scheme amount [a]	47.15 ± 43.92	574724.05					Final scheme amount [a]	44.60 ± 47.11	478194.09
				Final levy [b]	5.18 ± 17.31	63168.35					Final levy [b]	7.33 ± 19.24	78568.43
		Pharmacy	567072	Final prescription cost [a+b]	47.87 ± 44.50	27146255.66			Pharmacy	228978	Final prescription cost [a+b]	46.17 ± 47.59	25805889.76
				Final scheme amount [a]	41.71 ± 41.64	23653159.22					Final scheme amount [a]	38.20 ± 43.05	21351596.28
				Final levy [b]	6.16 ± 20.73	3493096.44					Final levy [b]	7.97 ± 23.79	4454243.48
	Total	General medical practitioner	14536227	Final prescription cost [a+b]	85.02 ± 109.11	1236028622.00		Total	General medical practitioner	15521292	Final prescription cost [a+b]	83.29 ± 110.56	1292764898.00
				Final scheme amount [a]	74.62 ± 102.21	1084860557.00					Final scheme amount [a]	71.79 ± 103.31	1114305703.00
				Final levy [b]	10.40 ± 32.26	151198064.00					Final levy [b]	11.50 ± 35.43	178459195.00
		Other	3576876	Final prescription cost [a+b]	161.16 ± 387.26	576460723.00			Other	3889002	Final prescription cost [a+b]	169.64 ± 479.17	659728894.00
				Final scheme amount [a]	142.88 ± 377.40	511046307.00					Final scheme amount [a]	149.38 ± 471.60	580942822.00
				Final levy [b]	18.29 ± 86.60	65414416.57					Final levy [b]	20.26 ± 85.72	78786071.84
		Pharmacotherapy	39358	Final prescription cost [a+b]	50.57 ± 42.48	1990479.22			Pharmacotherapy	38956	Final prescription cost [a+b]	51.53 ± 46.23	2007303.26
				Final scheme amount [a]	46.66 ± 40.59	1836436.81					Final scheme amount [a]	46.86 ± 44.08	1825334.28
				Final levy [b]	3.91 ± 13.34	154042.41					Final levy [b]	4.67 ± 15.37	181968.98
		Pharmacy	1704808	Final prescription cost [a+b]	46.19 ± 40.98	78739814.70			Pharmacy	2020781	Final prescription cost [a+b]	45.58 ± 44.71	92097572.15
				Final scheme amount [a]	41.72 ± 38.45	71123018.81					Final scheme amount [a]	39.90 ± 41.45	80624429.40
				Final levy [b]	4.47 ± 16.82	7616795.89					Final levy [b]	5.68 ± 19.44	11473142.74

Table A.5: Average cost of all medicine items for the different prescribers 2005 and 2006

Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	General medical practitioner	1029429	Final prescription cost (a+b)	38.87 ± 58.08	40018709.53
				Final scheme amount (a)	32.89 ± 50.51	33854195.00
				Final levy (b)	5.99 ± 19.98	6164515.53
		Other	12460	Final prescription cost (a+b)	167.38 ± 564.42	2085586.80
				Final scheme amount (a)	148.86 ± 537.95	1854851.88
				Final levy (b)	18.52 ± 171.31	230734.93
		Pharmacy	4962897	Final prescription cost (a+b)	109.85 ± 190.36	494145956.00
				Final scheme amount (a)	99.57 ± 183.06	51019509.91
				Final levy (b)	10.28 ± 40.34	56582596.91
	2	General medical practitioner	1480875	Final prescription cost (a+b)	38.21 ± 62.40	56582596.91
				Final scheme amount (a)	32.37 ± 56.34	47938222.03
				Final levy (b)	10.28 ± 40.34	8644674.88
		Other	32294	Final prescription cost (a+b)	185.49 ± 591.44	5990244.68
				Final scheme amount (a)	154.63 ± 576.08	4993464.89
				Final levy (b)	5.84 ± 21.45	996779.79
		Pharmacy	5816665	Final prescription cost (a+b)	105.33 ± 207.37	612661008.00
				Final scheme amount (a)	93.86 ± 199.70	545966008.00
				Final levy (b)	11.47 ± 51.27	66694999.80
	3	General medical practitioner	1339235	Final prescription cost (a+b)	40.94 ± 69.71	54829547.85
				Final scheme amount (a)	33.53 ± 63.14	44900736.05
				Final levy (b)	7.41 ± 26.42	9928811.80
		Other	33858	Final prescription cost (a+b)	198.20 ± 675.34	6710752.88
				Final scheme amount (a)	163.23 ± 657.63	5526662.62
				Final levy (b)	34.97 ± 178.02	1184090.26
2006	1	General medical practitioner	1341745	Final prescription cost (a+b)	37.12 ± 61.93	49808829.86
				Final scheme amount (a)	32.18 ± 56.18	43183785.82
				Final levy (b)	4.94 ± 19.50	6625044.04
		Other	17512	Final prescription cost (a+b)	178.94 ± 700.27	3133641.21
				Final scheme amount (a)	167.09 ± 670.50	2926102.85
				Final levy (b)	11.85 ± 164.13	207538.36
		Pharmacy	5623573	Final prescription cost (a+b)	109.40 ± 232.43	615211037.00
				Final scheme amount (a)	99.10 ± 225.93	557294406.00
				Final levy (b)	10.30 ± 45.15	57916630.93
	2	General medical practitioner	1662220	Final prescription cost (a+b)	34.39 ± 52.11	57169064.75
				Final scheme amount (a)	29.25 ± 45.88	48613013.26
				Final levy (b)	5.15 ± 20.20	8556051.49
		Other	21423	Final prescription cost (a+b)	143.67 ± 609.72	3077781.47
				Final scheme amount (a)	130.77 ± 596.53	2801588.05
				Final levy (b)	12.89 ± 115.10	276193.42
		Pharmacy	6363179	Final prescription cost (a+b)	105.91 ± 240.21	673920509.00
				Final scheme amount (a)	92.75 ± 234.60	590213024.00
				Final levy (b)	13.15 ± 48.72	83707484.38
	3	General medical practitioner	1144665	Final prescription cost (a+b)	36.73 ± 60.60	42047553.14
				Final scheme amount (a)	28.32 ± 53.77	32411527.23
				Final levy (b)	8.42 ± 24.51	9636025.63
		Other	17988	Final prescription cost (a+b)	155.17 ± 640.51	2791162.63
				Final scheme amount (a)	137.98 ± 624.12	2481934.96
				Final levy (b)	17.19 ± 131.69	309227.67

Table A.5: Average cost of all medicine items for the different prescribers 2005 and 2006 (continue)

Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
		Pharmacy	5146723	Final prescription cost (a+b)	110.48 ± 216.60	568593677.00			Pharmacy	5275864	Final prescription cost (a+b)	113.60 ±271.29	599328669.00
				Final scheme amount (a)	95.07 ± 210.38	48929778.00					Final scheme amount (a)	94.34 ± 265.37	497703993.00
				Final levy (b)	15.41 ± 53.58	79297904.33					Final levy (b)	19.26 ± 60.80	101624676.00
	Total	General medical practitioner	3849539	Final prescription cost (a+b)	39.34 ± 63.97	151430854.00		Total	General medical practitioner	4148630	Final prescription cost (a+b)	35.92 ± 57.82	149025448.00
				Final scheme amount (a)	32.91 ± 57.36	126693152.00					Final scheme amount (a)	29.94 ± 51.62	124208326.00
				Final levy (b)	6.48 ± 22.96	24737702.21					Final levy (b)	5.98 ± 21.32	24817121.44
		Other	78612	Final prescription cost (a+b)	188.10 ± 625.09	14786584.36			Other	56923	Final prescription cost (a+b)	158.15 ± 648.55	9002585.31
				Final scheme amount (a)	157.42 ± 607.03	12374979.39					Final scheme amount (a)	144.22 ± 628.93	8209625.86
				Final levy (b)	30.68 ± 168.24	2411604.97					Final levy (b)	13.93 ± 136.96	792959345.00
		Pharmacy	15926285	Final prescription cost (a+b)	108.40 ± 205.34	1726420151.00			Pharmacy	17262616	Final prescription cost (a+b)	109.40 ± 247.78	1888460215.00
				Final scheme amount (a)	96.03 ± 198.29	1529407736.00					Final scheme amount (a)	95.30 ± 241.75	1645211424.00
				Final levy (b)	12.37 ± 48.99	197012414.00					Final levy (b)	14.09 ± 51.79	243248791.00

Table A.6: Average total cost per prescription for 2005 and 2006

Year	QT	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	2622641	Final prescription cost [a+b]	223.94 ± 402.99	587305503.00	2006	1	2998035	Final prescription cost [a+b]	222.91 ± 527.69	668291742.00
			Final scheme amount [a]	202.04 ± 385.27	529882155.00				Final scheme amount [a]	201.30 ± 505.91	603514700.00
			Final levy [b]	21.90 ± 74.28	57423347.86				Final levy [b]	21.61 ± 103.82	64777041.93
	2	3095256	Final prescription cost [a+b]	218.27 ± 483.62	675587370.00		2	3313736	Final prescription cost [a+b]	221.60 ± 549.32	734323606.00
			Final scheme amount [a]	193.56 ± 459.25	599115243.00				Final scheme amount [a]	193.66 ± 535.70	641730497.00
			Final levy [b]	24.71 ± 121.19	76472127.05				Final levy [b]	27.94 ± 92.60	92593108.92
	3	2804677	Final prescription cost [a+b]	224.80 ± 491.70	630484048.00		3	2734367	Final prescription cost [a+b]	235.64 ± 597.57	644329035.00
			Final scheme amount [a]	192.52 ± 474.22	539955462.00				Final scheme amount [a]	194.82 ± 581.12	532709654.00
			Final levy [b]	32.28 ± 103.06	90528585.76				Final levy [b]	40.82 ± 115.53	111619381.00
	Total	8522574	Final prescription cost [a+b]	222.16 ± 463.13	1893376921.00		Total	9046138	Final prescription cost [a+b]	226.28 ± 557.49	2046944383.00
			Final scheme amount [a]	195.83 ± 443.16	1668952860.00				Final scheme amount [a]	196.54 ± 540.41	1777954851.00
			Final levy [b]	26.33 ± 102.70	224424061.00				Final levy [b]	29.74 ± 103.96	268989532.00

Table A.7: Average total cost per prescription for all the age group for 2005 and 2006

Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	1	188129	Final prescription cost [a+b]	138.64 ± 143.80	26082529.32
				Final scheme amount [a]	128.66 ± 137.80	24204256.98
				Final levy [b]	9.98 ± 29.38	1878272.34
		2	182115	Final prescription cost [a+b]	163.78 ± 205.74	29826987.96
				Final scheme amount [a]	150.45 ± 191.02	27398508
				Final levy [b]	13.33 ± 51.12	2428479.33
		3	808106	Final prescription cost [a+b]	181 ± 334.84	146671114
				Final scheme amount [a]	167.28 ± 319.15	135183239
				Final levy [b]	14.22 ± 77.25	11487875.22
		4	661521	Final prescription cost [a+b]	231.91 ± 423.20	153412408
				Final scheme amount [a]	211.00 ± 408.21	139583524
				Final levy [b]	20.90 ± 71.45	13828884.46
		5	782804	Final prescription cost [a+b]	295.49 ± 502.57	231312409
				Final scheme amount [a]	259.98 ± 165.82	203512573
				Final levy [b]	35.51 ± 83.07	27799836.51
	2	1	257383	Final prescription cost [a+b]	139.09 ± 154.68	35799569.64
				Final scheme amount [a]	127.23 ± 147.01	32746636.37
				Final levy [b]	11.86 ± 42.73	3052933.27
		2	231782	Final prescription cost [a+b]	159.81 ± 220.45	37040381.12
				Final scheme amount [a]	144.08 ± 212.07	33395153.04
				Final levy [b]	15.73 ± 47.76	3645228.08
		3	982064	Final prescription cost [a+b]	176.44 ± 374.38	173273206
				Final scheme amount [a]	160.19 ± 363.13	157319028
				Final levy [b]	16.25 ± 71.72	15954178.13
		4	770733	Final prescription cost [a+b]	227.68 ± 510.36	175480855
				Final scheme amount [a]	203.50 ± 490.82	156841507
				Final levy [b]	24.18 ± 104.31	18639348.06
		5	853309	Final prescription cost [a+b]	297.66 ± 648.23	253992931
				Final scheme amount [a]	256.43 ± 607.99	218812491
2006	1	1	217281	Final prescription cost [a+c]	137.96 ± 167.19	29975388.23
				Final scheme amount [a]	127.38 ± 159.13	27676426.74
				Final levy [c]	10.58 ± 35.97	2298962.49
		2	208044	Final prescription cost [a+c]	163.96 ± 241.07	34110522.42
				Final scheme amount [a]	150.67 ± 233.50	31346002.40
				Final levy [c]	13.29 ± 43.02	2764520.02
		3	944477	Final prescription cost [a+c]	178.36 ± 366.50	168461300.00
				Final scheme amount [a]	164.18 ± 352.53	155066582.00
				Final levy [c]	14.18 ± 75.68	13394718.29
		4	771478	Final prescription cost [a+c]	233.17 ± 632.66	179885502.00
				Final scheme amount [a]	212.39 ± 620.45	163856062.00
				Final levy [c]	20.78 ± 84.34	16029440.10
		5	856976	Final prescription cost [a+c]	298.55 ± 658.70	25585604.00
				Final scheme amount [a]	263.22 ± 620.28	225569203.00
				Final levy [c]	35.34 ± 154.64	30289401.03
	2	1	259513	Final prescription cost [a+c]	140.95 ± 185.03	36577890.15
				Final scheme amount [a]	124.98 ± 172.88	32433207.07
				Final levy [c]	15.97 ± 62.25	4144683.08
		2	250556	Final prescription cost [a+c]	162.17 ± 230.34	40631512.75
				Final scheme amount [a]	143.62 ± 220.97	35985544.23
				Final levy [c]	18.54 ± 60.38	4645968.52
		3	1049832	Final prescription cost [a+c]	176.03 ± 370.43	184798667.00
				Final scheme amount [a]	157.09 ± 358.19	164919499.00
				Final levy [c]	18.94 ± 77.58	19879168.60
		4	846357	Final prescription cost [a+c]	231.61 ± 641.57	196025410.00
				Final scheme amount [a]	204.52 ± 629.68	173097445.00
				Final levy [c]	27.09 ± 98.07	22927965.06
		5	907966	Final prescription cost [a+c]	304.30 ± 722.72	276289645.00
				Final scheme amount [a]	259.14 ± 706.69	235294337.00

Table A.7: Average total cost per prescription for all the age group for 2005 and 2006 (continue)

Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final levy [b]	41.23 ± 189.55	35180439.51					Final levy [b]	45.15 ± 113.13	40665307.92
	3	1	197401	Final prescription cost [a+b]	139.04 ± 146.87	27447101.64		3	1	183923	Final prescription cost [a+b]	141.30 ± 198.24	25987617.94
				Final scheme amount [a]	121.77 ± 135.25	24037672.32					Final scheme amount [a]	115.17 ± 185.27	21183275.22
				Final levy [b]	17.27 ± 59.34	3409429.32					Final levy [b]	26.12 ± 71.98	4804342.72
		2	186266	Final prescription cost [a+b]	164.30 ± 241.76	30603023.44			2	174795	Final prescription cost [a+b]	168.29 ± 293.86	29416797.50
				Final scheme amount [a]	142.29 ± 232.38	26504623.11					Final scheme amount [a]	138.66 ± 284.27	24236242.00
				Final levy [b]	22.00 ± 65.88	4098400.33					Final levy [b]	29.64 ± 75.48	5180555.50
		3	876736	Final prescription cost [a+b]	180.29 ± 383.78	158069747			3	823207	Final prescription cost [a+b]	186.24 ± 440.40	153312787.00
				Final scheme amount [a]	158.23 ± 372.16	138722684					Final scheme amount [a]	157.09 ± 426.30	129316705.00
				Final levy [b]	22.07 ± 81.75	19347062.74					Final levy [b]	29.15 ± 96.85	23996082.73
		4	725124	Final prescription cost [a+b]	232.58 ± 522.84	168650729			4	721708	Final prescription cost [a+b]	240.93 ± 615.55	173884204.00
				Final scheme amount [a]	201.45 ± 503.47	146075572					Final scheme amount [a]	202.74 ± 598.10	146321999.00
				Final levy [b]	31.13 ± 115.05	22575156.26					Final levy [b]	38.19 ± 116.97	27562204.89
		5	819178	Final prescription cost [a+b]	299.95 ± 631.83	245712676			5	831435	Final prescription cost [a+b]	314.79 ± 784.19	261727047.00
				Final scheme amount [a]	249.78 ± 611.75	20461419					Final scheme amount [a]	254.56 ± 767.18	211650852.00
				Final levy [b]	50.17 ± 123.08	41098537.11					Final levy [b]	60.23 ± 140.70	50076195.22
	Total	1	642913	Final prescription cost [a+b]	138.94 ± 149.17	26082529.32		Total	1	660717	Final prescription cost [a+b]	140 ± 183.25	92540896.32
				Final scheme amount [a]	125 ± 140.83	80988565.67					Final scheme amount [a]	123.04 ± 172.18	81292908.03
				Final levy [b]	12.97 ± 45.54	8340634.93					Final levy [b]	17.02 ± 58.54	11247988.29
		2	600163	Final prescription cost [a+b]	182.41 ± 223.06	97470392.52			2	633395	Final prescription cost [a+b]	164.45 ± 252.81	104158833.00
				Final scheme amount [a]	145.46 ± 212.63	87298284.78					Final scheme amount [a]	144.57 ± 244.02	91567788.63
				Final levy [b]	16.95 ± 55.05	10172107.74					Final levy [b]	19.88 ± 60.53	12591044.04
		3	2666906	Final prescription cost [a+b]	179.24 ± 366.08	478014067			3	2817516	Final prescription cost [a+b]	179.79 ± 390.95	506572755.00
				Final scheme amount [a]	161.69 ± 353.51	431224951					Final scheme amount [a]	±159.47 377.59	449302785.00
				Final levy [b]	17.54 ± 76.88	46789116.09					Final levy [b]	20.33 ± 83.30	57269969.62
		4	2157378	Final prescription cost [a+b]	230.62 ± 489.75	49753992			4	2339543	Final prescription cost [a+b]	235.00 ± 630.71	549795116.00
				Final scheme amount [a]	205.11 ± 471.57	442500604					Final scheme amount [a]	206.57 ± 617.05	483275506.00
				Final levy [b]	25.51 ± 99.60	55043388.78					Final levy [b]	28.43 ± 100.47	66519610.05
		5	2455291	Final prescription cost [a+b]	297.73 ± 599.80	731018016			5	2596377	Final prescription cost [a+b]	305.76 ± 723.08	793875296.00

Table A.7: Average total cost per prescription for all the age group for 2005 and 2006 (continue)

Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final scheme amount [a]	255.34 ± 572.03	626939203					Final scheme amount [a]	259.02 ± 700.07	672514392.00
				Final levy [b]	42.39 ± 140.63	104078813					Final levy [b]	46.74 ± 137.15	121360904.00

Table A.8: The average total cost per prescription for all the gender groups in 2005 and 2006

Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	F	1584289	Final prescription cost (a+b)	222.16 ± 385.23	351967752	2005	1	F	1808938	Final prescription cost (a+b)	220.45 ± 497.99	39877935
				Final scheme amount (a)	199.13 ± 365.82	315482976					Final scheme amount (a)	198.10 ± 483.08	358347804
				Final levy (b)	23.03 ± 73.57	36484776.26					Final levy (b)	22.35 ± 78.12	40430130.8
		M	1035994	Final prescription cost (a+b)	226.67 ± 427.84	234825843			M	1187238	Final prescription cost (a+b)	226.68 ± 569.98	269121990
				Final scheme amount (a)	206.48 ± 412.31	213909506					Final scheme amount (a)	206.20 ± 538.84	244806076
				Final levy (b)	20.19 ± 75.38	20916340.32					Final levy (b)	20.48 ± 133.84	24315913.78
		U	2401	Final prescription cost (a+b)	213.20 ± 695.09	511904.55			U	1972	Final prescription cost (a+b)	198.69 ± 478.04	391816.98
				Final scheme amount (a)	203.95 ± 682.64	489673.27					Final scheme amount (a)	182.97 ± 471.96	360819.63
				Final levy (b)	9.26 ± 33.20	22231.28					Final levy (b)	15.72 ± 35.00	30997.35
	2	F	1840582	Final prescription cost (a+b)	217.98 ± 488.47	401217036		2	F	1972423	Final prescription cost (a+b)	219.87 ± 523.03	433671759
				Final scheme amount (a)	191.96 ± 461.67	353322755					Final scheme amount (a)	190.60 ± 507.76	375943527
				Final levy (b)	26.02 ± 131.07	47894281.37					Final levy (b)	29.27 ± 95.82	57728231.28
		M	1252142	Final prescription cost (a+b)	218.68 ± 475.86	273822187			M	1340045	Final prescription cost (a+b)	224.05 ± 585.79	300238662
				Final scheme amount (a)	195.88 ± 455.05	245271248					Final scheme amount (a)	198.06 ± 574.25	265408840
				Final levy (b)	22.80 ± 105.08	28550939					Final levy (b)	25.99 ± 88.42	34829821.86
		U	2590	Final prescription cost (a+b)	211.64 ± 693.59	548146.96			U	1629	Final prescription cost (a+b)	253.64 ± 550.57	413185.3
				Final scheme amount (a)	201.25 ± 688.60	521240.77					Final scheme amount (a)	232.12 ± 545.50	378129.52
				Final levy (b)	10.39 ± 39.08	26906.19					Final levy (b)	21.52 ± 57.97	35055.78
	3	F	1687458	Final prescription cost (a+b)	222.50 ± 478.87	375467324		3	F	1639789	Final prescription cost (a+b)	232.11 ± 578.52	380618662
				Final scheme amount (a)	188.69 ± 459.90	318411042					Final scheme amount (a)	189.36 ± 560.68	310508223
				Final levy (b)	33.81 ± 104.02	57056281.69					Final levy (b)	42.76 ± 117.69	70110439.24
		M	1115057	Final prescription cost (a+b)	228.31 ± 510.43	254578078			M	1093777	Final prescription cost (a+b)	240.78 ± 624.89	263364890
				Final scheme amount (a)	198.32 ± 494.97	221138374					Final scheme amount (a)	202.88 ± 610.26	221902477
				Final levy (b)	29.99 ± 101.61	33439704.18					Final levy (b)	37.91 ± 112.16	41462413.71
		U	2201	Final prescription cost (a+b)	199.29 ± 510.49	438645.54			U	1274	Final prescription cost (a+b)	271.18 ± 597.48	345481.92
				Final scheme amount (a)	184.48 ± 503.74	406045.65					Final scheme amount (a)	234.66 ± 594.36	298953.81
				Final levy (b)	14.81 ± 50.24	35299.89					Final levy (b)	36.52 ± 82.62	46528.11
	Total	F	5112329	Final prescription cost (a+b)	220.77 ± 455.62	1128652112		Total	F	5421150	Final prescription cost (a+b)	223.77 ± 532.49	1213068356
				Final scheme amount (a)	193.11 ± 433.64	987216773					Final scheme amount (a)	192.73 ± 516.50	104479955

Table A.8: The average total cost per prescription for all the gender groups in 2005 and 2006 (continue)

Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final levy [b]	27.67 ± 107.03	141435339					Final levy [b]	31.04 ± 97.98	168268801
		M	3403193	Final prescription cost [a+b]	224.27 ± 473.73	763226111			M	3621060	Final prescription cost [a+b]	229.97 ± 592.88	832725542
				Final scheme amount [a]	199.91 ± 456.32	680319127					Final scheme amount [a]	202.18 ± 574.22	732117393
				Final levy [b]	24.36 ± 95.87	82906983.99					Final levy [b]	27.78 ± 112.32	100608149
		U	7192	Final prescription cost [a+b]	643.60 ± 105.86	1498697.05			U	4875	Final prescription cost [a+b]	235.99 ± 135.34	1150484.2
				Final scheme amount [a]	197.02 ± 635.56	1416959.69					Final scheme amount [a]	212.90 ± 531.36	1037902.96
				Final levy [b]	11.36 ± 41.18	81737.36					Final levy [b]	23.09 ± 58.91	112581.24

Table A.9: Average total cost per prescription for the prescriber group

Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	General medical practitioner	1865096	Final prescription cost [a+b]	208.31 ± 247.20	388515407.00	2006	1	General medical practitioner	2078103	Final prescription cost [a+b]	203.90 ± 250.87	423727042.00
				Final scheme amount [a]	187.12 ± 228.59	348997362.00					Final scheme amount [a]	183.20 ± 233.18	380706019.00
				Final levy [b]	21.19 ± 52.57	39518045.51					Final levy [b]	20.70 ± 54.89	43021023.29
		Other	520489	Final prescription cost [a+b]	339.96 ± 750.00	17694687.00			Other	581022	Final prescription cost [a+b]	366.09 ± 1079.96	212705792.00
				Final scheme amount [a]	308.48 ± 728.17	160561602.00					Final scheme amount [a]	333.63 ± 1043.29	193844293.00
				Final levy [b]	31.48 ± 131.16	16385185.39					Final levy [b]	32.46 ± 209.46	18861499.29
		Pharmacotherapy	6690	Final prescription cost [a+b]	89.76 ± 72.79	600514.23			Pharmacotherapy	6831	Final prescription cost [a+b]	96.52 ± 78.45	659307.84
				Final scheme amount [a]	±83.80 69.75	560644.30					Final scheme amount [a]	90.35 ± 75.71	617172.18
				Final levy [b]	5.96 ± 16.01	39869.93					Final levy [b]	6.17 ± 19.57	42135.66
		Pharmacy	290730	Final prescription cost [a+b]	73.03 ± 59.72	212333363.40			Pharmacy	407151	Final prescription cost [a+b]	76.42 ± 69.67	31113765.72
				Final scheme amount [a]	67.95 ± 55.76	19755710.38					Final scheme amount [a]	69.43 ± 64.46	28268109.70
				Final levy [b]	5.08 ± 17.95	1477653.02					Final levy [b]	6.99 ± 24.35	2845656.02
	2	General medical practitioner	2187851	Final prescription cost [a+b]	202.03 ± 246.51	442020933.00		2	General medical practitioner	2320220	Final prescription cost [a+b]	201.98 ± 247.14	468634712.00
				Final scheme amount [a]	178.58 ± 227.15	390710622.00					Final scheme amount [a]	175.45 ± 227.35	407093403.00
				Final levy [b]	23.45 ± 64.24	51310310.71					Final levy [b]	26.52 ± 73.49	61541308.69
		Other	570182	Final prescription cost [a+b]	354.95 ± 996.93	202386456.00			Other	608498	Final prescription cost [a+b]	377.32 ± 1165.86	229599323.00
				Final scheme amount [a]	315.58 ± 955.87	179940391.00					Final scheme amount [a]	333.31 ± 1151.54	202819583.00
				Final levy [b]	39.37 ± 250.09	22446064.74					Final levy [b]	44.01 ± 155.48	26779739.42
		Pharmacotherapy	8244	Final prescription cost [a+b]	91.23 ± 69.26	752072.59			Pharmacotherapy	7859	Final prescription cost [a+b]	100.68 ± 81.09	791232.90
				Final scheme amount [a]	85.04 ± 66.69	701068.46					Final scheme amount [a]	92.88 ± 77.74	729968.01
				Final levy [b]	6.19 ± 19.14	51004.13					Final levy [b]	7.80 ± 27.04	61264.89
		Pharmacy	399424	Final prescription cost [a+b]	76.01 ± 64.44	30360195.64			Pharmacy	458310	Final prescription cost [a+b]	76.76 ± 70.09	35177966.66
				Final scheme amount [a]	69.39 ± 59.96	27714149.21					Final scheme amount [a]	67.65 ± 64.14	31004723.42
				Final levy [b]	6.62 ± 24.58	2646046.43					Final levy [b]	9.11 ± 29.62	4173243.24
	3	General medical practitioner	1978407	Final prescription cost [a+b]	204.96 ± 251.52	405492282.00		3	General medical practitioner	1915469	Final prescription cost [a+b]	209.04 ± 263.71	400403144.00
				Final scheme amount [a]	174.44 ± 228.81	345122574.00					Final scheme amount [a]	170.46 ± 239.07	326506281.00
				Final levy [b]	30.51 ± 83.57	60369708.16					Final levy [b]	38.58 ± 95.47	73896862.83
		Other	544117	Final prescription cost [a+b]	362.29 ± 985.97	197127480.00			Other	545375	Final prescription cost [a+b]	398.67 ± 1220.40	217423779.00
				Final scheme amount [a]	313.43 ± 967.07	170544313.00					Final scheme amount [a]	337.89 ± 1204.31	184278946.00
				Final levy [b]	48.86 ± 166.12	26583166.44					Final levy [b]	60.77 ± 179.41	33144833.13

Table A.9: Average total cost per prescription for the prescriber group (continue)

Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
		Pharmacotherapy	6707	Final prescription cost [a+b]	95.11 ± 80.06	637892.40			Pharmacotherapy	5605	Final prescription cost [a+b]	99.33 ± 92.82	556762.52
				Final scheme amount [a]	85.69 ± 75.83	574724.05					Final scheme amount [a]	85.32 ± 86.44	478194.09
				Final levy [b]	9.412 ± 29.37	63168.35					Final levy [b]	14.02 ± 33.07	78568.43
		Pharmacy	341190	Final prescription cost [a+b]	79.56 ± 73.14	27146255.66			Pharmacy	337295	Final prescription cost [a+b]	76.51 ± 77.82	25805839.76
				Final scheme amount [a]	69.33±	23653159.22					Final scheme amount [a]	63.30± 69.16	21351596.28
				Final levy [b]	10.24 ± 32.26	3493096.44					Final levy [b]	13.21 ± 37.34	4454243.48
	Total	General medical practitioner	6031354	Final prescription cost [a+b]	204.93 ± 248.39	1236028622.00		Total	General medical practitioner	6313792	Final prescription cost [a+b]	204.75 ± 253.50	1292764898.00
				Final scheme amount [a]	179.87 ± 228.20	1084830557					Final scheme amount [a]	176.49 ± 232.93	1114305703.00
				Final levy [b]	25.07 ± 68.25	151198064.00					Final levy [b]	28.26 ± 76.18	178459195.00
		Other	1634788	Final prescription cost [a+b]	352.62 ± 921.62	576460723.00			Other	1734895	Final prescription cost [a+b]	380.27 ± 1155.73	659728894.00
				Final scheme amount [a]	312.61 ± 893.74	511046307.00					Final scheme amount [a]	334.86 ± 1133.83	580942822.00
				Final levy [b]	40.01 ± 191.12	65414416.57					Final levy [b]	45.41 ± 182.73	78786071.84
		Pharmacotherapy	21641	Final prescription cost [a+b]	91.98 ± 73.86	1990479.22			Pharmacotherapy	20295	Final prescription cost [a+b]	98.91 ± 83.66	2007803.26
				Final scheme amount [a]	84.86 ± 70.57	1836436.81					Final scheme amount [a]	89.94 ± 79.63	18253334.28
				Final levy [b]	7.12 ± 22.10	154042.41					Final levy [b]	8.97 ± 26.91	181968.98
		Pharmacy	1031344	Final prescription cost [a+b]	76.34 ± 66.26	78739814.70			Pharmacy	1202756	Final prescription cost [a+b]	76.57 ± 72.21	92097572.14
				Final scheme amount [a]	68.96 ± 61.47	71123018.81					Final scheme amount [a]	67.03 ± 65.74	80624426.40
				Final levy [b]	7.39 ± 25.95	7616795.89					Final levy [b]	9.54 ± 30.53	11473142.74

Table A.10: Average total cost per prescription for the various provider groups for 2005 and 2006

Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	1	General medical practitioner	384315	Final prescription cost (a+b)	104.13 ± 129.53	40018709.53	2006	1	General medical practitioner	480236	Final prescription cost (a+b)	103.72 ± 145.63	49808829.86
				Final scheme amount (a)	88.09 ± 111.04	33854194.00					Final scheme amount (a)	89.92 ± 132.31	43183785.82
				Final levy (b)	16.04 ± 39.80	6164515.53					Final levy (b)	13.80 ± 40.16	6625044.04
		Other	6879	Final prescription cost (a+b)	303.18 980.56±	2085586.80			Other	8975	Final prescription cost (a+b)	349.15 ± 1579.18	3133641.21
				Final scheme amount (a)	269.64 ± 956.10	1854851.88					Final scheme amount (a)	326.03 ± 1539.59	2926102.85
				Final levy (b)	33.54 ± 232.78	230734.92					Final levy (b)	23.12 ± 259.17	207538.36
		Pharmacy	2231334	Final prescription cost (a+b)	244.32 ± 426.74	545165466.00			Pharmacy	2507955	Final prescription cost (a+b)	245.30 ± 562.64	615211037.00
				Final scheme amount (a)	221.46 ± 408.51	494145956.00					Final scheme amount (a)	222.21 ± 539.66	557294406.00
				Final levy (b)	22.87 ± 77.69	51019509.91					Final levy (b)	23.09 ± 110.96	57916630.93
	2	General medical practitioner	530503	Final prescription cost (a+b)	106.66 ± 137.26	56582596.91		2	General medical practitioner	568942	Final prescription cost (a+b)	100.48 ± 118.18	57169064.75
				Final scheme amount (a)	90.36 ± 121.64	47938222.03					Final scheme amount (a)	85.44 ± 101.98	48613013.26
				Final levy (b)	16.29 ± 46.08	8644674.88					Final levy (b)	15.04 ± 45.02	8556051.49
		Other	17067	Final prescription cost (a+b)	350.98 ± 1398.26	5990244.68			Other	11106	Final prescription cost (a+b)	277.13 ± 1262.60	3077781.47
				Final scheme amount (a)	292.58 ± 1311.29	4993464.89					Final scheme amount (a)	252.26 ± 1248.07	2801588.05
				Final levy (b)	58.40 ± 363.95	996779.79					Final levy (b)	24.87 ± 170.51	276193.42
		Pharmacy	2548126	Final prescription cost (a+b)	240.44 ± 513.60	612661008.00			Pharmacy	2732787	Final prescription cost (a+b)	246.61 ± 593.91	673920509.00
				Final scheme amount (a)	214.26 ± 488.72	545966008.00					Final scheme amount (a)	215.97 ± 580.09	590213024.00
				Final levy (b)	26.17 ± 128.17	66694999.80					Final levy (b)	30.63 ± 98.79	83707484.38
	3	General medical practitioner	491110	Final prescription cost (a+b)	111.64 ± 148.73	54829547.85		3	General medical practitioner	416224	Final prescription cost (a+b)	101.02 ± 137.95	42047553.14
				Final scheme amount (a)	91.43 ± 132..07	44900736.05					Final scheme amount (a)	77.87 ± 120.58	32411527.23
				Final levy (b)	20.22 ± 56.89	9928811.80					Final levy (b)	23.15 ± 53.60	9636025.91
		Other	17561	Final prescription cost (a+b)	382.14 ± 1688.01	6710752.88			Other	9460	Final prescription cost (a+b)	295.05 ± 1207.36	2791162.63
				Final scheme amount (a)	314.71 ± 1656.08	5526662.62					Final scheme amount (a)	262.39 ± 1191.13	2481934.96
				Final levy (b)	67.43 ± 351.86	1184090.26					Final levy (b)	32.69 ± 187.87	309227.67
		Pharmacy	2296728	Final prescription cost (a+b)	247.57 ± 514.87	568593677.00			Pharmacy	2307781	Final prescription cost (a+b)	259.70 ± 640.06	599328669.00
				Final scheme amount (a)	213.04 ± 497.04	489295773.00					Final scheme amount (a)	215.66 ± 623.41	497703994.00

Table A.10: Average total cost per prescription for the various provider groups for 2005 and 2006 (continue)

Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	QT	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final levy [b]	34.53 ± 106.06	79297904.33					Final levy [b]	44.04 ± 122.67	101624676.00
	Total	General medical practitioner	1405928	Final prescription cost [a+b]	107.71 ± 189.40	151430854.00		Total	General medical practitioner	1465402	Final prescription cost [a+b]	101.70 ± 183.34	149025448.00
				Final scheme amount [a]	290.11 ± 122.67	126693152.00					Final scheme amount [a]	84.76 ± 118.01	124208326.00
				Final levy [b]	17.60 ± 48.66	24737702.21					Final levy [b]	16.94 ± 46.34	24817121.44
		Other	41507	Final prescription cost [a+b]	356.24 ± 1472.91	14786584.36			Other	29541	Final prescription cost [a+b]	304.75 ± 1350.77	9002585.31
				Final scheme amount [a]	298.14 ± 1420.94	12374979.39					Final scheme amount [a]	277.91 ± 1327.03	8209325.86
				Final levy [b]	58.10 ± 340.52	2411604.97					Final levy [b]	26.84 ± 206.52	792959.45
		Pharmacy	7076188	Final prescription cost [a+b]	243.98 ± 488.33	1726420151.00			Pharmacy	7548523	Final prescription cost [a+b]	250.18 ± 598.47	1888460215.00
				Final scheme amount [a]	216.13 ± 467.79	7076188.00					Final scheme amount [a]	217.95 ± 580.87	1645211424.00
				Final levy [b]	27.84 ± 107.21	197012414.00					Final levy [b]	32.22 ± 110.89	243248791.00

Table A.11: Average total cost according to the types of medicines for 2005 and 2006

Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	M (Original with patent)	137965	Final prescription cost (a+b)	86.99 ± 86.82	12002167.01	2006	M (Original with patent)	32866	Final prescription cost (a+b)	95.74 ± 38.57	3146633.19
			Final scheme amount (a)	78.43 ± 80.12	10820260.55				Final scheme amount (a)	82.53 ± 43.44	2712419.8
			Final levy (b)	8.57 ± 26.94	1181906.46				Final levy (b)	13.21 ± 26.21	434213.39
	N (Original with no generic)	8501370	Final prescription cost (a+b)	140.14 ± 267.20	1191350141		N (Original with no generic)	8133997	Final prescription cost (a+b)	145.55 ± 339.64	1183814105
			Final scheme amount (a)	124.86 ± 258.87	1061482097				Final scheme amount (a)	128.10 ± 332.75	1041974886
			Final levy (b)	15.28 ± 64.27	129868044				Final levy (b)	17.45 ± 68.46	141939719
	O (Original)	2728503	Final prescription cost (a+b)	100.22 ± 139.34	273454160		O (Original)	3281896	Final prescription cost (a+b)	102.98 ± 164.66	337960440
			Final scheme amount (a)	81.76 ± 132.85	223097026				Final scheme amount (a)	82.34 ± 157.41	270225948
			Final levy (b)	18.46 ± 40.89	50357134.42				Final levy (b)	20.64 ± 46.76	67734492.61
	Y (Generic)	8492741	Final prescription cost (a+b)	18.46 ± 40.89	416570452		Y (Generic)	10024315	Final prescription cost (a+b)	52.07 ± 70.13	521923204
			Final scheme amount (a)	49.05 ± 66.41	373553476				Final scheme amount (a)	46.19 ± 67.17	463042097
			Final levy (b)	5.07 ± 16.58	43016976				Final levy (b)	5.87 ± 18.74	58881106.83

Table A.12: Average total cost according to the types of medicines for the age groups for 2005 and 2006

Year	Generic indicator	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (Rs)	Year	Generic indicator	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (Rs)
2005	M (Original with patent)	1	16568	Final prescription cost (a+b)	44.97 ± 14.11	745045.63	2006	M (Original with patent)	1	44	Final prescription cost (a+b)	72.03 ± 62.42	3169.37
				Final scheme amount (a)	42.08 ± 14.66	697170.52					Final scheme amount (a)	57.58 ± 60.53	2533.48
				Final levy (b)	2.89 ± 7.48	47875.11					Final levy (b)	14.45 ± 37.90	653.89
		2	13740	Final prescription cost (a+b)	57.47 ± 36.35	789590.2			2	1051	Final prescription cost (a+b)	73.22 ± 25.98	76958.88
				Final scheme amount (a)	52.99 ± 35.99	728202.83					Final scheme amount (a)	60.06 ± 35.92	63125.79
				Final levy (b)	4.47 ± 13.47	61387.37					Final levy (b)	13.16 ± 29.44	13833.04
		3	63251	Final prescription cost (a+b)	77.59 ± 67.19	4907916.42			3	13332	Final prescription cost (a+b)	72.95 ± 27.85	972547.26
				Final scheme amount (a)	71.59 ± 65.43	4524967.85					Final scheme amount (a)	61.32 ± 37.10	817545.19
				Final levy (b)	6.05 ± 19.89	382948.57					Final levy (b)	11.63 ± 27.08	155002.07
		4	26794	Final prescription cost (a+b)	101.43 ± 99.32	2717829.95			4	9261	Final prescription cost (a+b)	112.38 ± 39.09	1040766.53
				Final scheme amount (a)	92.05 ± 93.26	2466339.31					Final scheme amount (a)	98.77 ± 44.58	914702.64
				Final levy (b)	9.39 ± 28.38	251490.64					Final levy (b)	13.61 ± 28.10	126063.89
		5	17612	Final prescription cost (a+b)	161.36 ± 134.54	2841784.81			5	9178	Final prescription cost (a+b)	114.75 ± 33.27	1053191.2
				Final scheme amount (a)	136.47 ± 122.04	2403580.04					Final scheme amount (a)	99.64 ± 36.63	914512.7
				Final levy (b)	24.88 ± 50.13	438204.77					Final levy (b)	15.11 ± 22.03	138678.5
	N (Original with no generic)	1	655307	Final prescription cost (a+b)	75.56 ± 92.02	49515773.91		N (Original with no generic)	1	632705	Final prescription cost (a+b)	78.11 ± 129.49	49420214.9
				Final scheme amount (a)	69.70 ± 86.35	45671828.9					Final scheme amount (a)	70.23 ± 122.21	44436527.52
				Final levy (b)	5.87 ± 31.39	3843945.01					Final levy (b)	7.88 ± 41.12	4983687.38
		2	536056	Final prescription cost (a+b)	102.88 ± 153.01	55147447.65			2	529141	Final prescription cost (a+b)	105.67 ± 182.78	55913320.95
				Final scheme amount (a)	94.55 ± 147.39	50681997.36					Final scheme amount (a)	95.46 ±177.71	50509993.52
				Final levy (b)	8.33 ± 37.62	4465450.29					Final levy (b)	10.21 ± 42.38	5403327.43
		3	2426319	Final prescription cost (a+b)	120.40 ± 234.10	292126228			3	2389910	Final prescription cost (a+b)	120.43 ± 271.05	287805426
				Final scheme amount (a)	110.53 ± 226.29	268173192					Final scheme amount (a)	108.76 ± 263.35	259918455
				Final levy (b)	9.87 ± 56.65	23953036.17					Final levy (b)	11.67 ± 62.02	27886971.04
		4	215233	Final prescription cost (a+b)	150.56 ± 286.21	324646528			4	2090611	Final prescription cost (a+b)	156.77 ± 368.83	327754218
				Final scheme amount (a)	135.29 ± 278.57	29172096					Final scheme amount (a)	139.56 ± 362.01	291768401
				Final levy (b)	15.27 ± 67.10	32925532.51					Final levy (b)	17.21 ± 72.28	35985816.59
		5	2727440	Final prescription cost (a+b)	172.29 ± 315.68	469913228			5	2491594	Final prescription cost (a+b)	185.83 ± 420.48	463019510

Table A.12: Average total cost according to the types of medicines for the age groups for 2005 and 2006 (continue)

Year	Generic indicator	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final scheme amount [a]	148.58 ± 306.87	405233148					Final scheme amount [a]	158.67 ± 414.74	39533597
				Final levy [b]	23.71 ± 76.26	64680079.62					Final levy [b]	27.16 ± 79.10	67679913.49
	O [Original]	1	234966	Final prescription cost [a+b]	81.33 ± 71.62	19109497.73		O [Original]	1	271793	Final prescription cost [a+b]	72.33 ± 65.40	19658481.98
				Final scheme amount [a]	69.11 ± 69.60	16237432.93					Final scheme amount [a]	57.25 ± 59.69	15560872.82
				Final levy [b]	12.22 ± 25.92	2872062.8					Final levy [b]	15.09 ± 29.14	4097609.16
		2	192224	Final prescription cost [a+b]	89.78 ± 104.83	17258794.27			2	218700	Final prescription cost [a+b]	87.76 ± 95.08	19187178.08
				Final scheme amount [a]	73.07 ± 95.62	14045498.59					Final scheme amount [a]	68.48 ± 82.02	14976892.88
				Final levy [b]	16.72 ± 38.24	3213295.68					Final levy [b]	19.5 ± 43.02	4210282.2
		3	820742	Final prescription cost [a+b]	86.13 ± 129.64	70694191.4			3	902605	Final prescription cost [a+b]	89.97 ± 156.72	81204371.12
				Final scheme amount [a]	70.69 ± 123.51	58021086.31					Final scheme amount [a]	71.61 ± 148.10	64636794.72
				Final levy [b]	15.44 ± 38.31	12673105.09					Final levy [b]	18.36 ± 49.13	16567576.4
		4	652906	Final prescription cost [a+b]	100.91 ± 152.58	65882493.05			4	826003	Final prescription cost [a+b]	104.46 ± 170.77	86284674.37
				Final scheme amount [a]	83.12 ± 147.30	54266786.3					Final scheme amount [a]	84.61 ± 164.35	69889847.15
				Final levy [b]	17.79 ± 41.18	11615706.75					Final levy [b]	19.85 ± 47.03	16394827.22
		5	827765	Final prescription cost [a+b]	121.42 ± 155.53	100509184			5	1062792	Final prescription cost [a+b]	123.85 ± 190.72	131625664
				Final scheme amount [a]	97.28 ± 148.43	80526219.91					Final scheme amount [a]	98.95 ± 184.43	105161482
				Final levy [b]	24.14 ± 46.22	19982964.1					Final levy [b]	24.90 ± 48.51	26464182.04
	Y [Generic]	1	694078	Final prescription cost [a+b]	28.76 ± 33.44	19958883.33		Y [Generic]	1	763745	Final prescription cost [a+b]	30.72 ± 36.60	23459030.07
				Final scheme amount [a]	26.48 ± 32.07	18382131.32					Final scheme amount [a]	27.88 ± 35.35	21292974.21
				Final levy [b]	2.27 ± 8.67	1576752.01					Final levy [b]	2.84 ± 10.49	2166055.86
		2	648553	Final prescription cost [a+b]	37.43 ± 53.50	24274560.4			2	750325	Final prescription cost [a+b]	38.63 ± 52.79	28981374.81
				Final scheme amount [a]	33.68 ± 49.70	21842586					Final scheme amount [a]	34.68 ± 49.66	26017776.44
				Final levy [b]	3.75 ± 15.12	2431974.4					Final levy [b]	3.95 ± 16.04	2963598.37
		3	2623417	Final prescription cost [a+b]	42.04 ± 60.94	110285731			3	3071210	Final prescription cost [a+b]	44.47 ± 61.30	136590411
				Final scheme amount [a]	38.31 ± 58.17	100505705					Final scheme amount [a]	40.35 ± 59.04	123929991
				Final levy [b]	3.73 ± 16.34	9780026.26					Final levy [b]	4.12 ± 16.13	12660420.11
		4	2065552	Final prescription cost [a+b]	50.49 ± 68.95	104297141			4	2521205	Final prescription cost [a+b]	53.43 ± 77.72	134715457
				Final scheme amount [a]	45.53 ± 66.45	94046482.21					Final scheme amount [a]	47.87 ± 75.27	120702554
				Final levy [b]	4.96 ± 16.82	10250658.88					Final levy [b]	5.56 ± 19.01	14012902.35

Table A.12: Average total cost according to the types of medicines for the age groups for 2005 and 2006 (continue)

Year	Generic indicator	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Age	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
		5	2461135	Final prescription cost [a+b]	64.10 ± 75.96	157753819			5	2917830	Final prescription cost [a+b]	67.92 ± 78.59	198176931
				Final scheme amount [a]	56.39 ± 73.22	138776255					Final scheme amount [a]	58.64 ± 75.23	171098801
				Final levy [b]	7.71 ± 18.25	18977564.64					Final levy [b]	9.28 ± 22.55	27078130.14

Table A.13: Average total cost according to the types of medicines for the different gender in 2005 and 2006

Year	Generic indicator	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Gender	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	M (Original with patent)	F	83787	Final prescription cost [a+b]	87.59 ± 85.04	7339137.64	2006	M (Original with patent)	F	31879	Final prescription cost [a+b]	97.09 ± 34.64	3095085.64
				Final scheme amount [a]	78.51 ± 78.42	6578021.5					Final scheme amount [a]	83.72 ± 40.53	2668925.48
				Final levy [b]	9.08 ± 27.73	761116.14					Final levy [b]	13.37 ± 25.95	426160.16
		M	54069	Final prescription cost [a+b]	86.13 ± 89.56	4657072.58			M	970	Final prescription cost [a+b]	51.01 ± 94.31	49478.63
				Final scheme amount [a]	78.35 ± 82.73	4236472.16					Final scheme amount [a]	42.76 ± 91.06	41476.96
				Final levy [b]	7.78 ± 26.17	420600.42					Final levy [b]	8.25 ± 33.48	8002.67
		U	109	Final prescription cost [a+b]	54.65 ± 39.90	5956.79			U	17	Final prescription cost [a+b]	121.64 ± 10.74	2067.92
				Final scheme amount [a]	52.91 ± 40.34	5766.89					Final scheme amount [a]	118.67 ± 12.48	2017.36
				Final levy [b]	1.74 ± 10.77	189.9					Final levy [b]	2.97 ± 8.40	50.56
	N (Original with no generic)	F	5249767	Final prescription cost [a+b]	135.93 ± 252.45	713591807		N (Original with no generic)	F	5004847	Final prescription cost [a+b]	139.06 ± 319.07	695969262
				Final scheme amount [a]	120.22 ± 243.86	631108054					Final scheme amount [a]	121.38 ± 312.11	607471299
				Final levy [b]	15.71 ± 62.82	82483758.19					Final levy [b]	17.68 ± 66.51	88497962.55
		M	3245727	Final prescription cost [a+b]	146.89 ± 288.67	476760960			M	3125443	Final prescription cost [a+b]	155.90 ± 369.65	487260211
				Final scheme amount [a]	132.30 ± 280.59	429405626					Final scheme amount [a]	138.82 ± 362.79	433873887
				Final levy [b]	14.59 ± 66.58	47355333.7					Final levy [b]	17.08 ± 71.49	53386324.49
		U	5876	Final prescription cost [a+b]	169.74 ± 536.81	997374.58			U	3707	Final prescription cost [a+b]	184.69 ± 560.18	684632.63
				Final scheme amount [a]	164.81 ± 536.01	968417.87					Final scheme amount [a]	169.73 ± 559.64	629200.59
				Final levy [b]	4.93 ± 25.90	28956.71					Final levy [b]	14.50 ± 45.51	55432.04
	O (Original)	F	1613565	Final prescription cost [a+b]	101.29 ± 141.92	163437728		O (Original)	F	1976605	Final prescription cost [a+b]	105.94 ± 175.63	209395823
				Final scheme amount [a]	81.94 ± 135.65	1322222003					Final scheme amount [a]	84.44 ± 168.61	166901760
				Final levy [b]	19.35 ± 41.23	31215724					Final levy [b]	21.50 ± 48.21	42494063
		M	1113072	Final prescription cost [a+b]	98.68 ± 135.56	109841479			M	1303611	Final prescription cost [a+b]	98.48 ± 146.41	128381254
				Final scheme amount [a]	81.52 ± 128.77	90738467.93					Final scheme amount [a]	79.15 ± 138.73	103177666
				Final levy [b]	17.16 ± 40.37	19103010.84					Final levy [b]	19.33 ± 44.46	25203588.22
		U	1966	Final prescription cost [a+b]	88.99 ± 84.62	174953.9			U	1680	Final prescription cost [a+b]	109.14 ± 94.47	183362.92
				Final scheme amount [a]	69.46 ± 71.19	136555.05					Final scheme amount [a]	87.22 ± 83.87	146521.53
				Final levy [b]	19.53 ± 37.47	38398.85					Final levy [b]	21.92 ± 40.25	36841.39
	Y (Generic)	F	5027136	Final prescription cost [a+b]	48.59 ± 67.04	244283440		Y (Generic)	F	5911481	Final prescription cost [a+b]	51.53 ± 70.51	304608186
				Final scheme amount [a]	43.23 ± 64.11	217308694					Final scheme amount [a]	45.29 ± 67.38	267757570
				Final levy [b]	5.37 ± 16.68	26974745.26					Final levy [b]	6.23 ± 19.34	36850615.61
		M	3457244	Final prescription cost [a+b]	49.74 ± 65.51	171966601			M	4107475	Final prescription cost [a+b]	52.84 ± 69.60	217034597
				Final scheme amount [a]	45.10 ± 62.63	155938562					Final scheme amount [a]	47.48 ± 66.87	195024363
				Final levy [b]	4.64 ± 16.42	16028039.03					Final levy [b]	5.36 ± 17.83	22010233.97
		U	8361	Final prescription cost [a+b]	38.32 ± 55.74	320411.78			U	5359	Final prescription cost [a+b]	52.33 ± 56.13	280420.73
				Final scheme amount [a]	36.62 ± 54.90	306219.88					Final scheme amount [a]	48.55 ± 53.74	260163.48
				Final levy [b]	1.70 ± 8.77	14191.9					Final levy [c]	3.78 ± 11.48	20257.25

Table A.14: Average total cost according to types of medicine for the prescriber groups for 2005 and 2006

Year	Generic indicator	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	M (Original with patent)	General medical practitioner	93713	Final prescription cost (a+b)	85.48 ± 82.99	8010664.85	2006	M (Original with patent)	General medical practitioner	22569	Final prescription cost (a+b)	97.42 ± 35.75	2198731.85
				Final scheme amount (a)	77.23 ± 76.57	7237545.58					Final scheme amount (a)	84.32 ± 41.30	1902918.29
				Final levy (b)	8.25 ± 25.16	773119.27					Final levy (b)	13.11 ± 25.93	295813.56
		Other	21394	Final prescription cost (a+b)	131.36 ± 117.17	2810305.10			Other	10017	Final prescription cost (a+b)	92.52 ± 44.13	926776.94
				Final scheme amount (a)	115.68 ± 109.26	2474951.35					Final scheme amount (a)	78.76 ± 47.95	788897.45
				Final levy (b)	15.68 ± 41.19	335353.75					Final levy (b)	13.76 ± 28.39	137879.49
		Pharmacotherapy	507	Final prescription cost (a+b)	55.09 ± 22.22	27931.80			Pharmacotherapy	49	Final prescription cost (a+b)	52.80 ± 37.58	2586.97
				Final scheme amount (a)	51.96 ± 22.81	26345.36					Final scheme amount (a)	52.80±37.58	2586.97
				Final levy (b)	3.13 ± 9.69	1586.44					Final levy (b)	0 ± 0	0.00
		Pharmacy	22349	Final prescription cost (a+b)	51.60 ± 36.41	1153182.95			Pharmacy	221	Final prescription cost (a+b)	81.21 ± 25.13	17947.29
				Final scheme amount (a)	48.38 ± 36.73	1081335.95					Final scheme amount (a)	79.52 ± 24.55	17572.87
				Final levy (b)	3.21 ± 11.10	71847.00					Final levy (b)	1.69 ± 9.95	374.42
	N (Original with no generic)	General medical practitioner	5684039	Final prescription cost (a+b)	127.95 ± 142.66	727271844.00		N (Original with no generic)	General medical practitioner	5301186	Final prescription cost (a+b)	127.16 ± 152.10	674121136.00
				Final scheme amount (a)	113.53 ± 135.45	645289406.00					Final scheme amount (a)	110.70 ± 144.84	586838317.00
				Final levy (b)	14.42 ± 42.74	81982438.05					Final levy (b)	16.46 ± 48.92	87282819.36
		Other	1825186	Final prescription cost (a+b)	223.93 ± 506.55	408713648.00			Other	1739154	Final prescription cost (a+b)	257.71 ± 669.58	448200598.00
				Final scheme amount (a)	200.60 ± 494.74	366122516.00					Final scheme amount (a)	230.74 ± 660.94	401299703.00
				Final levy (b)	23.34 ± 114.91	42591131.90					Final levy (b)	26.97 ± 118.35	46900894.72
		Pharmacotherapy	19874	Final prescription cost (a+b)	62.12 ± 47.33	1234549.12			Pharmacotherapy	17852	Final prescription cost (a+b)	64.69 ± 54.31	1154884.05
				Final scheme amount (a)	58.09 ± 45.34	1154574.10					Final scheme amount (a)	59.62 ± 51.94	1064408.72
				Final levy (b)	4.02 ± 15.09	79975.02					Final levy (b)	5.07 ± 18.61	90475.33
		Pharmacy	971274	Final prescription cost (a+b)	55.60 ± 46.39	54007058.54			Pharmacy	1073786	Final prescription cost (a+b)	56.02 ± 52.57	60154272.93
				Final scheme amount (a)	50.27 ± 43.47	48823926.76					Final scheme amount (a)	48.96 ± 48.80	52567375.59
				Final levy (b)	5.34 ± 20.08	5183131.78					Final levy (b)	7.07 ± 23.81	7586897.34
	O (Original)	General medical practitioner	1885462	Final prescription cost (a+b)	96.35 ± 94.67	181658369.00		O (Original)	General medical practitioner	2222587	Final prescription cost (a+b)	99.90 ± 101.91	222035824.00
				Final scheme amount (a)	77.36 ± 86.43	145852011.00					Final scheme amount (a)	78.69 ± 91.99	174899312.00
				Final levy (b)	18.99 ± 38.56	35806358.20					Final levy (b)	21.21 ± 43.41	47136512.14
		Other	568599	Final prescription cost (a+b)	139.75 ± 244.62	79459230.86			Other	711432	Final prescription cost (a+b)	140.79 ± 298.09	100164484.00
				Final scheme amount (a)	116.63 ± 239.42	66316513.18					Final scheme amount (a)	115.11 ± 291.90	81894606.18
				Final levy (b)	23.11 ± 53.44	13142717.68					Final levy (b)	25.68 ± 62.74	18269877.87

Table A.14: Average total cost according to types of medicine for the prescriber groups for 2005 and 2006 (continue)

Year	Generic indicator	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Prescriber	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
		Pharmacotherapy	5615	Final prescription cost (a+b)	55.41 ± 40.75	311100.63			Pharmacotherapy	5610	Final prescription cost (a+b)	56.66 ± 44.26	317887.40
				Final scheme amount (a)	48.99 ± 38.59	275105.49					Final scheme amount (a)	48.76 ± 41.93	273546.18
				Final levy (b)	6.41 ± 17.16	35995.14					Final levy (b)	7.90 ± 17.27	44341.22
		Pharmacy	268838	Final prescription cost (a+b)	44.69 ± 32.48	12014336.60			Pharmacy	341986	Final prescription cost (a+b)	45.10 ± 37.04	15424348.78
				Final scheme amount (a)	39.60 ± 31.11	10644906.83					Final scheme amount (a)	38.44 ± 34.99	13144594.18
				Final levy (b)	5.09 ± 14.72	1369429.77					Final levy (b)	6.67 ± 17.08	2279754.6
	Y (Generic)	General medical practitioner	6875013	Final prescription cost (a+b)	46.41 ± 52.41	319087744.00		Y (Generic)	General medical practitioner	7974950	Final prescription cost (a+b)	49.46 ± 54.88	394409205.00
				Final scheme amount (a)	41.67 ± 49.52	286451595					Final scheme amount (a)	43.97 ± 51.67	350665155.00
				Final levy (b)	4.75 ± 14.34	32636148.85					Final levy (b)	5.49 ± 16.99	43744049.75
		Other	1161697	Final prescription cost (a+b)	73.58 ± 122.35	85477539.01			Other	1428399	Final prescription cost (a+b)	77.32 ± 128.65	110437035.00
				Final scheme amount (a)	65.54 ± 118.98	76132325.77					Final scheme amount (a)	67.88 ± 125.95	96959614.79
				Final levy (b)	8.04 ± 27.48	9345213.24					Final levy (b)	9.44 ± 28.24	13477419.76
		Pharmacotherapy	13362	Final prescription cost (a+b)	31.20 ± 26.15	416897.67			Pharmacotherapy	15445	Final prescription cost (a+b)	34.44 ± 27.63	531944.84
				Final scheme amount (a)	28.47 ± 24.93	380411.86					Final scheme amount (a)	31.49 ± 26.66	484792.41
				Final levy (b)	2.73 ± 7.39	36485.81					Final levy (b)	3.05 ± 8.98	484792.41
		Pharmacy	442347	Final prescription cost (a+b)	26.15 ± 20.90	11565236.61			Pharmacy	604788	Final prescription cost (a+b)	27.28 ± 21.65	16501003.14
				Final scheme amount (a)	23.90 ± 20.24	10572849.27					Final scheme amount (a)	24.63 ± 20.94	14894886.76
				Final levy (b)	2.24 ± 7.72	992387.34					Final levy (b)	2.66 ± 8.86	1606116.38

Table A.15: Average total cost according to types of medicine for the different prescribers in 2005 and 2006

Year	Generic indicator	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
2005	M (Original with patent)	General medical practitioner	1577	Final prescription cost [a+b]	54.78 ± 45.25	86393.96
				Final scheme amount [a]	45.16 ± 42.82	71219.19
				Final levy [b]	9.62 ± 20.54	15174.77
		Other	560	Final prescription cost [a+b]	35.53 ± 19.41	19896.27
				Final scheme amount [a]	29.22 ± 21.38	16363.32
				Final levy [b]	6.31 ± 14.58	3532.95
		Pharmacy	30682	Final prescription cost [a+b]	99.03 ± 36.25	3038292.32
				Final scheme amount [a]	85.49 ± 42.23	2622900.28
				Final levy [b]	13.54 ± 26.62	415392.04
	N (Original with no generic)	General medical practitioner	980799	Final prescription cost [a+b]	53.01 ± 84.60	51991484.16
				Final scheme amount [a]	46.53 ± 77.00	45639594.49
				Final levy [b]	6.48 ± 28.58	6351889.67
		Other	39308	Final prescription cost [a+b]	192.95 ± 742.35	7584607.26
				Final scheme amount [a]	176.39 ± 718.82	6933528.21
				Final levy [b]	16.56 ± 162.66	651079.05
		Pharmacy	7110044	Final prescription cost [a+b]	158.07 ± 355.67	1123917736.00
				Final scheme amount [a]	139.11 ± 349.12	989104039.00
				Final levy [b]	18.96 ± 71.08	134813698.00
	O (Original)	General medical practitioner	549638	Final prescription cost [a+b]	59.26 ± 78.54	32571150.63
				Final scheme amount [a]	40.05 ± 68.52	22013782.39
				Final levy [b]	19.21 ± 35.52	10557368.24
		Other	8114	Final prescription cost [a+b]	77.98 ± 401.07	632709.75
				Final scheme amount [a]	66.53 ± 392.89	539829.55
				Final levy [b]	11.45 ± 51.17	92880.20
		Pharmacy	2723724	Final prescription cost [a+b]	111.89 ± 174.57	304745645.00
				Final scheme amount [a]	90.93 ± 167.36	247664974.00
				Final levy [b]	20.96 ± 48.70	57080670.86
	Y (Generic)	General medical practitioner	2616616	Final prescription cost [a+b]	24.60 ± 31.13	64376419.00
2006	M (Original with patent)	General medical practitioner	15883	Final prescription cost [a+b]	64.34 ± 63.50	1021947.26
				Final scheme amount [a]	58.60 ± 58.78	930791.76
				Final levy [b]	5.74 ± 19.96	91155.50
		Other	706	Final prescription cost [a+b]	59.81 ± 65.26	42227.32
				Final scheme amount [a]	46.55 ± 51.78	32861.87
				Final levy [b]	13.27 ± 43.16	9365.45
		Pharmacy	121331	Final prescription cost [a+b]	90.13 ± 89.07	10935802.13
				Final scheme amount [a]	81.22 ± 82.24	9855031.68
				Final levy [b]	8.91 ± 27.57	1080770.45
	N (Original with no generic)	General medical practitioner	1027982	Final prescription cost [a+b]	61.08 ± 95.36	62802849.34
				Final scheme amount [a]	53.45 ± 86.85	54784332.48
				Final levy [b]	7.63 ± 31.99	7818516.86
		Other	50432	Final prescription cost [a+b]	237.62 ± 749.29	11983569.21
				Final scheme amount [a]	201.47 ± 727.28	10160345.29
				Final levy [b]	36.15 ± 205.93	1823223.92
		Pharmacy	7422147	Final prescription cost [a+b]	150.39 ± 275.03	1116213072.00
				Final scheme amount [a]	134.22 ± 266.95	996187292.00
				Final levy [b]	16.17 ± 65.40	120025779.00
	O (Original)	General medical practitioner	531488	Final prescription cost [a+b]	59.45 ± 66.88	31595723.90
				Final scheme amount [a]	40.63 ± 56.44	21591877.43
				Final levy [b]	18.82 ± 34.42	10003846.47
		Other	13696	Final prescription cost [a+b]	121.44 ± 327.34	1663181.74
				Final scheme amount [a]	93.08 ± 325.26	1274836.22
				Final levy [b]	28.35 ± 62.94	388345.52
		Pharmacy	2182327	Final prescription cost [a+b]	110.02 ± 148.33	240091182.00
				Final scheme amount [a]	91.72 ± 141.80	200165093.00
				Final levy [b]	18.30 ± 42.12	39926088.66
	Y (Generic)	General medical practitioner	2277186	Final prescription cost [a+b]	24.68 ± 35.01	56210333.79

Table A.15: Average total cost according to types of medicine for the different prescribers in 2005 and 2006 (continue)

Year	Generic indicator	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)	Year	Generic indicator	Provider	Frequency (N)	Variable	Mean ± Std Dev	Total cost (R)
				Final scheme amount [a]	21.59 ± 28.64	56483730.24					Final scheme amount [a]	21.69 ± 32.55	49386150.41
				Final levy [c]	3.02 ± 10.16	7892688.76					Final levy [b]	3.00 ± 10.14	6824183.38
		Other	8941	Final prescription cost (a+b)	85.60 ± 302.89	765372.03			Other	13778	Final prescription cost (a+b)	79.66 ± 204.04	1097606.09
				Final scheme amount [a]	80.52 ± 302.73	719904.78					Final scheme amount [a]	65.82 ± 202.09	906936.01
				Final levy [c]	5.09 ± 24.28	45467.25					Final levy [c]	13.84 ± 42.72	190670.08
		Pharmacy	7398166	Final prescription cost (a+b)	61.74 ± 76.48	45658542.00			Pharmacy	6200480	Final prescription cost (a+b)	57.93 ± 72.09	359180095.00
				Final scheme amount [a]	54.85 ± 73.63	405819511.00					Final scheme amount [a]	52.13 ± 69.23	323200320.00
				Final levy [c]	6.89 ± 20.84	50939030.66					Final levy [c]	5.80 ± 18.22	35979775.50

Table A.16: Average number of all medicine items per prescription in 2005 and 2006

Year	QT	Frequency (N)	Mean ± Std Dev	Total amount of Items	Year	QT	Frequency (N)	Mean ± Std Dev	Total amount of items
2005	1	2622641	2.29 ± 1.56	6005321	2006	1	2998035	2.33 ± 1.56	6984380
	2	3095256	2.37± 1.56	7332627		2	3313736	2.43 ± 1.59	8048497
	3	2804677	2.33 ± 1.56	6522645		3	2734367	2.36 ± 1.60	6440185
	Total	8522574	2.33 ± 1.56	19860593		Total	9046138	2.37 ± 1.58	21473062

Table A.17: Average number of all medicine items per prescription according to age group for 2005 and 2006

Year	QT	Age	Frequency (N)	Mean ± Std Dev	Total amount of items	Year	QT	Age	Frequency (N)	Mean ± Std Dev	Total amount of items
2005	1	1	188129	2.43 ± 1.31	457371	2006	1	1	217281	2.49 ± 1.36	541629
		2	182115	2.24 ± 1.28	407425			2	208044	2.31 ± 1.33	479622
		3	808106	2.18 ± 1.32	1760402			3	944477	2.22 ± 1.35	2098368
		4	661521	2.23 ± 1.51	1472249			4	771478	2.29 ± 1.53	176443
		5	782804	2.44 ± 1.89	1907873			5	856976	2.25 ± 1.86	2100310
	2	1	257383	2.53 ± 1.36	652416		2	1	259518	2.58 ± 1.39	670034
		2	231782	2.40 ± 1.34	555725			2	250556	2.48 ± 1.38	620616
		3	982064	2.28 ± 1.37	2237947			3	1049832	2.34 ± 1.41	2457733
		4	770733	2.31 ± 1.52	1783017			4	846357	2.39 ± 1.56	2018940
		5	853309	2.47 ± 1.86	2103512			5	907966	2.51 ± 1.87	2281159
	3	1	197401	2.49 ± 1.36	491132		3	1	183923	2.48 ± 1.37	456624
		2	186266	2.29 ± 1.32	427428			2	174795	2.28 ± 1.32	398979
		3	876736	2.21 ± 1.35	1935380			3	823207	2.21 ± 1.36	1820956
		4	725124	2.27 ± 1.52	1646219			4	721708	2.31 ± 1.55	1663697
		5	819178	2.47 ± 1.86	2022481			5	831435	2.53 ± 1.92	2099913
	Total	1	642913	2.49 ± 1.35	1600919		Total	1	680717	2.52 ± 1.38	1668287
		2	600163	2.32 ± 1.32	1390573			2	633395	2.37 ± 1.35	1499217
		3	2666906	2.22 ± 1.35	5933729			3	2817516	2.26 ± 1.38	6377057
		4	2157378	2.27 ± 1.52	4901485			4	2339543	2.33 ± 1.55	5447080
		5	2455291	2.46 ± 1.87	6033866			5	2596377	2.50 ± 1.88	6481382

Table A.18: Average number of all medicine items per prescription according to gender group for 2005 and 2006

Year	QT	Prescriber	Frequency (N)	Mean ± Std Dev	Total amount of items	Year	QT	Gender	Frequency (N)	Mean ± Std Dev	Total amount of items
2005	1	F	1584289	2.31 ± 1.60	3657414	2006	1	F	1808938	2.34 ± 1.59	4238435
		M	1035994	2.26 ± 1.50	2342549			M	1187238	2.31 ± 1.51	2741639
		U	2401	2.23 ± 1.38	5358			U	1972	2.18 ± 1.39	4306
	2	F	1840582	2.38 ± 1.60	4375241		2	F	1972423	2.44 ± 1.62	4807834
		M	1252142	2.36 ± 1.51	2951223			M	1340045	2.42 ± 1.54	3236996
		U	2590	2.38 ± 1.44	6163			U	1629	2.25 ± 1.44	3667
	3	F	1687458	2.34 ± 1.59	3941593		3	F	1639789	2.37 ± 1.63	3878531
		M	1115057	2.31 ± 1.51	2576261			M	1093777	2.34 ± 1.55	2558864
		U	2201	2.18 ± 1.35	4791			U	1274	2.19 ± 1.49	2790
	Total	F	5112329	2.34 ± 1.59	11974248		Total	F	5421150	2.38 ± 1.61	12924800
		M	3403193	2.31 ± 1.51	7870038			M	3621060	2.36 ± 1.53	8537499
		U	7192	2.27 ± 1.39	16312			U	4875	2.21 ± 1.43	10763

Table A.19: Average number of all medicine items per prescription according to prescriber group for 2005 and 2006

Year	QT	Prescriber	Frequency (N)	Mean ± Std Dev	Total amount of items	Year	QT	Prescriber	Frequency (N)	Mean ± Std Dev	Total amount of items
2005	1	General medical practitioner	1865096	2.36 ± 1.53	4401638	2006	1	General medical practitioner	2078103	2.41 ± 1.54	5016194
		Other	520489	2.17 ± 1.68	1129796			Other	581022	2.21 ± 167	1284495
		Pharmacotherapy	6690	1.73 ± 0.97	11594			Pharmacotherapy	6831	1.83 ± 1.03	12486
		Pharmacy	290730	1.59 ± 0.87	462216			Pharmacy	407151	1.65 ± 0.96	670343
	2	General medical practitioner	2187851	2.46 ± 1.55	5391904		2	General medical practitioner	2320220	2.53 ± 1.57	5870629
		Other	570182	2.19 ± 1.66	1248941			Other	608498	2.25 ± 1.70	1369741
		Pharmacotherapy	8244	1.89 ± 1.04	15576			Pharmacotherapy	7859	2.00 ± 1.14	15747
		Pharmacy	399424	1.69 ± 0.95	675517			Pharmacy	458310	1.73 ± 1.00	791460
	3	General medical practitioner	1978407	2.40 ± 1.54	4744681		3	General medical practitioner	1915469	2.42 ± 1.57	4634462
		Other	544117	2.20 ± 1.68	1198059			Other	545375	2.26 ± 1.76	1234761
		Pharmacotherapy	6707	1.81 ± 1.05	12188			Pharmacotherapy	5605	1.91 ± 1.12	10723
		Pharmacy	341190	1.66 ± 0.98	567072			Pharmacy	337295	1.66 ± 1.00	558978
	Total	General medical practitioner	6031354	2.41 ± 1.54	14538223		Total	General medical practitioner	6313792	2.46 ± 1.56	15521285
		Other	1634788	2.19 ± 1.67	3576796			Other	1734895	2.24 ± 1.71	3888997
		Pharmacotherapy	21641	1.82 ± 1.03	39358			Pharmacotherapy	20295	1.92 ± 1.10	38956
		Pharmacy	1031344	1.65 ± 0.94	1704808			Pharmacy	1202756	1.68 ± 0.98	2020781

Table A.20: Average number of all medicine items per prescription according to provider group for 2005 and 2006

Year	QT	Provider	Frequency (N)	Mean ± Std Dev	Total amount of items	Year	QT	Provider	Frequency (N)	Mean ± Std Dev	Total amount of items
2005	1	General medical practitioner	384315	2.68 ± 1.47	1029429	2006	1	General medical practitioner	480236	2.79 ± 1.51	1341745
		Other	6879	1.81 ± 1.46	12460			Other	8975	1.95 ± 1.60	17512
		Pharmacy	2231334	2.22 ± 1.56	4962897			Pharmacy	2507955	2.42 ± 1.55	5623573
	2	General medical practitioner	530503	2.79 ± 1.52	1480875		2	General medical practitioner	568942	2.92 ± 1.52	1662220
		Other	17067	1.89 ± 1.61	32294			Other	11106	1.93 ± 1.57	21423
		Pharmacy	2548126	2.28 ± 1.51	5816579			Pharmacy	2732787	2.33 ± 1.58	6363172
	3	General medical practitioner	491110	2.73 ± 1.51	1339235		3	General medical practitioner	416224	2.75 ± 1.49	1144665
		Other	17561	1.93 ± 1.67	33858			Other	9460	1.90 ± 1.57	17988
		Pharmacy	2296728	2.24 ± 1.56	5146723			Pharmacy	2307781	2.29 ± 1.61	5275859
	Total	General medical practitioner	1405928	2.74 ± 1.50	3849539		Total	General medical practitioner	1465402	2.83 ± 1.51	4148630
		Other	41507	1.89 ± 1.61	78612			Other	29541	1.93 ± 1.58	56923
		Pharmacy	7076188	2.25 ± 1.56	15926199			Pharmacy	7548523	2.29 ± 1.58	17262604

Table A.21: Average number of prescriptions per patient for the year 2005 and 2006

Year	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions	Year	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
2005	1218358	6.98 ± 7.83	8522860	2006	1259099	7.17 ± 8.05	9048622

Table A.23: Average number of prescriptions per patient for the different age groups for year 2005 and 2006

Year	Age	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions	Year	Age	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
2005	1	158450	4.06 ±3.93	197401	2005	1	155133	4.26 ±4.07	183932
	2	177330	3.38 ± 3.44	186268		2	177978	3.56 ± 3.61	174800
	3	459843	5.79 ± 6.44	876744		3	476211	5.91 ± 6.66	823437
	4	253018	8.51 ± 8.52	725130		4	269586	8.66 ± 8.73	721808
	5	198547	12.32± 10.47	819223		5	210080	12.31± 10.72	831543

Table A.24: Average number of prescriptions per patient for the different gender groups for year 2005 and 2006

Year	Gender	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions	Year	Gender	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
2005	F	675814	7.55 ± 8.27	1687487	2006	F	698477	7.74 ± 8.51	1640281
	M	540874	6.28 ± 7.18	1115084		M	559535	6.46 ± 7.38	1093980
	U	1670	4.30 ± 5.37	2201		U	1087	4.48 ± 5.93	1274

Table A.25: Average number of prescriptions per patient for the different prescriber groups for year 2005 and 2006

Year	Prescriber	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions	Year	Prescriber	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
2005	General medical practitioner	1026060	5.87 ± 6.56	6026767	2006	General medical practitioner	1037052	6.09 ± 6.69	6311218
	Other	404203	4.04 ± 5.24	1633080		Other	410011	4.23 ± 5.44	1733469
	Pharmacotherapy	10493	2.06 ± 2.26	21641		Pharmacotherapy	8805	2.54 ± 2.54	20295
	Pharmacy	410270	2.51 ± 2.74	1031267		Pharmacy	472633	2.54 ± 2.84	1202676

Table A.26: Average number of prescriptions per patient for the different provider groups for year 2005 and 2006

Year	Provider	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions	Year	Provider	Total number of patients	Average number of prescriptions per patient per year	Total number of prescriptions
	General medical practitioner	408230	3.44 ± 3.85	1405240		General medical practitioner	423917	3.46 ± 3.78	1465079
	Other	19889	2.08 ± 2.95	41351		Other	16537	1.78 ± 2.45	29481
	Pharmacy	1091017	6.48 ± 7.48	7065758		Pharmacy	1123267	6.71 ± 7.77	7537465

Appendix B

Table B.1: The top twenty active ingredients according to total cost for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Active ingredient	Rank	Total cost (R)	% of total expenditure (N=R 1893376921.00)	Rank	Total cost (R)	% of total expenditure (n=R587305280.9)	Rank	Total cost (R)	% of total expenditure (n=R675585928)	Rank	Total cost (R)	% of total expenditure (n= R630482778.4)
ALENDRONATE	9	18970094.60	1.00	9	6284982.22	1.07	11	6445314.41	0.95	9	6239797.97	0.99
AMOXYCILLIN/CLAVULANIC	4	33392736.83	1.76	5	9319916.19	1.59	2	14086644.01	2.09	5	9986176.63	1.58
ATORVASTATIN	1	56787636.19	3.00	1	17927584.47	3.05	1	19103016.35	2.83	1	19757085.87	3.13
BUDESONIDE	12	17495735.17	0.92	13	5479844.30	0.93	10	6517284.36	0.96	13	5498606.51	0.87
CELECOXIB	13	16756205.29	0.88	10	5658571.29	0.96	14	5716500.95	0.85	14	5381133.05	0.85
CITALOPRAM	16	14384197.20	0.76	12	5640786.87	0.96	18	4842468.33	0.72	23	3900942.00	0.62
CLARITHROMYCIN	15	15584753.49	0.82	20	4197542.35	0.71	7	7273740.74	1.08	21	4113470.40	0.65
CONJUGATED OESTROGENS	10	18468055.38	0.98	8	6366445.65	1.08	13	6136662.38	0.91	11	5964947.35	0.95
DICLOFENAC	11	17658533.95	0.93	11	5641603.37	0.96	12	6429440.06	0.95	12	5587490.52	0.89
ESOMEPRAZOLE	8	20085656.64	1.06	7	6447830.42	1.10	9	6804204.27	1.01	8	6833621.95	1.08
FLUTICASONE	3	33864477.66	1.79	3	10670703.94	1.82	4	11798119.84	1.75	3	11395653.88	1.81
IBU/PAR/COD/200/250/10	17	13932956.38	0.74	16	4848679.59	0.83	16	5608537.07	0.83	28	3475739.72	0.55
INDAPAMIDE/PERINDOPRIL	20	13367171.56	0.71	26	3983553.05	0.68	22	4508996.78	0.67	16	4874621.73	0.77
INSULIN	2	40088984.99	2.12	2	12081644.85	2.06	3	13477192.07	1.99	2	14530148.07	2.30
LANSOPRAZOLE	19	13603081.73	0.72	14	5061162.65	0.86	20	4711453.70	0.70	25	3830465.38	0.61
NIFEDIPINE	18	13924477.71	0.74	19	4229323.73	0.72	19	4729436.95	0.70	15	4965717.03	0.79
OESTRADIOL	6	21364921.44	1.13	6	7158369.21	1.22	8	7177964.77	1.06	7	7028587.46	1.11
PERINDOPRIL	14	16709857.01	0.88	15	4965754.13	0.85	15	5658437.74	0.84	10	6085665.14	0.97
SIMVASTATIN	5	33119294.18	1.75	4	10628589.46	1.81	5	11154059.90	1.65	4	11336644.82	1.80
UNKNOWN(NEW PRODUCTS)	7	20285034.83	1.07	17	4538281.99	0.77	6	7742176.55	1.15	6	8002057.93	1.27
		1893376496	23.76		587305280.9	24.03		675585928	23.67		630482778	23.60

Table B.2: The top twenty active ingredients according to total cost for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Active ingredient	Rank	Total cost (R)	% of total expenditure (N= R2046944382.50)	Rank	Total cost (R)	% of total expenditure (n=R668291741.8)	Rank	Total cost (R)	% of total expenditure (n=R734323606.1)	Rank	Total cost (R)	% of total expenditure (n=R644329034.6)
ALENDRONATE	10	18677967.69	0.91	10	6333774.68	0.95	12	6427325.07	0.88	12	5916867.94	0.92
AMLODIPINE	16	16049922.17	0.78	19	4687734.30	0.70	20	5496851.42	0.75	12	5865336.45	0.91
AMOXYCILLIN/CLAVULANIC	5	34703599.73	1.70	5	10459723.69	1.57	3	15071722.79	2.05	6	9172153.25	1.42
ATORVASTATIN	1	59082942.42	2.89	1	19771433.66	2.96	1	20498823.34	2.79	1	18812685.42	2.92
BUDESONIDE	11	17464188.27	0.85	14	5516774.13	0.83	11	6650688.83	0.91	15	5296725.81	0.82
CELECOXIB	18	15745666.64	0.77	13	5560681.23	0.83	18	5545236.39	0.76	20	4639749.02	0.72
CLARITHROMYCIN	19	14843569.79	0.73	22	4279496.27	0.64	10	6847809.62	0.93	29	3716263.90	0.58
CONJUGATED OESTROGENS	13	16846655.82	0.82	12	5912373.78	0.88	16	5704697.15	0.78	16	5229584.89	0.81
DICLOFENAC	14	16666810.51	0.81	11	5991285.14	0.90	13	5980199.09	0.81	19	4695326.28	0.73
ESCITALOPRAM	15	16651805.26	0.81	15	5316134.38	0.80	15	5756803.09	0.78	13	5578867.79	0.87
ESOMEPRAZOLE	7	23263988.05	1.14	7	8163958.14	1.22	7	7884626.38	1.07	7	7215403.53	1.12
FLUTICASONE	6	33235044.77	1.62	4	10705861.69	1.60	6	11895375.90	1.62	5	10633807.18	1.65
INDAPAMIDE/PERINDOPRIL	12	17261847.78	0.84	16	5040146.63	0.75	15	5910078.23	0.80	10	6311622.92	0.98
INSULIN	2	48707520.90	2.38	2	14984071.16	2.24	2	16559986.27	2.26	2	17163463.47	2.66
NIFEDIPINE	17	15964323.48	0.78	17	5039914.37	0.75	19	5537241.44	0.75	14	5387167.67	0.84
OESTRADIOL	8	20706471.71	1.01	8	7240726.29	1.08	9	7002649.30	0.95	9	6463096.12	1.00
OMEPRAZOLE	20	13808706.35	0.67	18	4768908.71	0.71	21	6847809.62	0.93	23	4317058.82	0.67
PERINDOPRIL	9	20347401.14	0.99	9	6417816.73	0.96	8	7009136.88	0.95	8	6920447.53	1.07
SIMVASTATIN	3	36983938.41	1.81	3	11751418.89	1.76	5	12854966.81	1.75	4	12377552.71	1.92
UNKNOWN(NEW PRODUCTS)	4	35345234.45	1.73	6	9199229.64	1.38	4	13107852.04	1.79	3	13038152.77	2.02
		2046944382.50	24.05		668291741.80	23.51		734323606.12	24.32		644329034.58	24.64

Table B.3: The top twenty active ingredients according to prevalence for 2005 and 2006

Total for 2005						Total for 2006					
Active ingredient	Rank	Freq	% of total prevalence (N=19860674)	Average cost per item (R)	Total cost (R)	Pharmaceutical product	Rank	Freq	% of total prevalence (N=21473074)	Average cost per item (R)	Total cost
AMOXYCILLIN/CLAVULANIC	1	456820	2.30	73.10	33392736.83	AMOXYCILLIN/CLAVULANIC	1	483247	2.25	71.81	34703599.73
DICLOFENAC	2	405976	2.04	43.50	17658533.95	DICLOFENAC	2	424966	1.98	39.22	16666810.51
PARACETAMOL/CODEINE/CA	3	357083	1.80	22.68	8100296.85	THYROXINE	3	377586	1.76	35.55	13424233.01
THYROXINE	4	347380	1.75	36.80	12782636.95	ASPIRIN	4	363572	1.69	20.47	7443171.53
ASPIRIN	5	329768	1.66	19.68	6490461.05	UNKNOWN(NEW PRODUCTS)	5	352386	1.64	100.30	35345234.45
SIMVASTATIN	6	284232	1.43	116.52	33119294.18	PARACETAMOL/CODEINE/CA	6	337751	1.57	21.89	7393920.91
AMOXYCILLIN	7	276490	1.39	22.76	6292784.85	SIMVASTATIN	7	325970	1.52	113.46	36983938.41
ATORVASTATIN	8	260090	1.31	218.34	56787636.19	AMOXYCILLIN	8	274864	1.28	19.54	5370078.83
UNKNOWN(NEW PRODUCTS)	9	253449	1.28	80.04	20285034.83	THEOPHYLLINE/ETOPHYLLI	9	274837	1.28	29.56	8125218.21
THEOPHYLLINE/ETOPHYLLI	10	249134	1.25	28.46	7089280.34	ATORVASTATIN	10	266582	1.24	221.63	59082942.42
IBU/PAR/COD/200/250/10	11	237703	1.20	58.61	13932956.38	METFORMIN	11	239138	1.11	45.52	10886134.87
PREDNISONE ISONE	12	207233	1.04	23.22	4811164.27	PREDNISONE ISONE	12	222717	1.04	22.12	4925471.44
METFORMIN	13	197647	1.00	46.14	9120085.10	IBU/PAR/COD/200/250/10	13	219055	1.02	49.35	10811054.87
CONJUGATED OESTROGENS	14	182446	0.92	101.22	18468055.38	OESTRADIOL	14	176077	0.82	117.60	20706471.71
OESTRADIOL	15	175325	0.88	121.86	21364921.44	CIPROFLOXACIN	15	175212	0.82	37.18	6513658.42
MELOXICAM	16	163043	0.82	60.36	9841507.79	MELOXICAM	16	173339	0.81	62.03	10751394.68
CIPROFLOXACIN	17	162219	0.82	36.91	5987676.75	PARACETAMOL	17	170250	0.79	9.63	1639550.99
INDAPAMIDE	18	156749	0.79	41.78	6549074.53	CONJUGATED OESTROGENS	18	169163	0.79	99.59	16846655.82
ATENOLOL	19	153768	0.77	44.66	6867779.88	INDAPAMIDE	19	165140	0.77	38.56	6367491.05
PARACETAMOL	20	144972	0.73	10.84	1571765.69	ATENOLOL	20	155957	0.73	43.23	6741293.72
		19860674	25.18					21473074	24.90		

Table B.4: The top twenty active ingredients according to prevalence for the individual periods of 2005

Total for 2005	Period 1					Period 2					Period 3				
Active ingredien	Rank	Freq	% of total prevalence (n=6005318)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=7332706)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6522640)	Average cost per item (R)	Total cost (R)
AMOXYCILLIN	9	78007	1.30	23.73	1851329.67	6	115596	1.58	22.26	2573334.38	9	82887	1.27	22.54	1868120.8
AMOXYCILLIN/CLAVULANIC	1	126431	2.11	73.72	9319916.19	1	191696	2.61	73.48	14086644	2	138693	2.13	72.00	9986176.63
ASPIRIN	5	100952	1.68	17.67	1783830.89	7	113185	1.54	20.69	2342204.4	4	115631	1.77	20.45	2364425.76
ATENOLOL	19	49601	0.83	44.40	2202189.19	22	52291	0.71	44.94	2349983.86	19	51876	0.80	44.64	2315606.83
ATORVASTATIN	7	83510	1.39	214.68	17927534.47	11	87226	1.19	219.01	19103016.4	8	89354	1.37	221.11	19757085.37
CIPROFLOXACIN	17	51497	0.86	36.60	1884756.17	20	55242	0.75	36.79	2032257.5	16	55480	0.85	37.32	2070663.08
CONJUGATED OESTROGENS	11	62666	1.04	101.59	6366445.65	14	60561	0.83	101.33	6136662.38	14	59219	0.91	100.73	5964947.35
DICLOFENAC	2	117574	1.96	47.98	5641603.37	2	148946	2.03	43.17	6429440.06	1	139456	2.14	40.07	5587490.52
IBU/PAR/COD/200/250/10	7	80184	1.34	60.47	4848679.59	10	94532	1.29	59.33	5608537.07	13	62987	0.97	55.18	3475739.72
IBU/PAR/COD/200/350/10	20	46343	0.77	39.44	1827568.45	17	57449	0.78	39.34	2259901.03	34	35994	0.55	39.58	1424735.53
INDAPAMIDE	18	49618	0.83	42.36	2101775.07	21	52588	0.72	42.07	2212556.03	17	54543	0.84	40.97	2234743.43
MELOXICAM	16	53498	0.89	60.11	3215617.47	19	55741	0.76	59.73	3329330.12	18	53804	0.82	61.27	3296560.2
METFORMIN	13	60029	1.00	45.75	2746064.85	13	66334	0.90	46.47	3082786.26	10	71284	1.09	46.17	3291233.99
OESTRADIOL	15	58513	0.97	122.34	7158369.21	15	58640	0.80	122.41	7177964.77	15	58172	0.89	120.82	7028587.46
PARACETAMOL/CODEINE/CA	4	108300	1.80	24.53	2656595.68	3	135613	1.85	21.83	2961064.86	5	113170	1.74	21.94	2482636.31
PREDNISONE ISONE	14	59069	0.98	24.27	1433442.60	12	82524	1.13	22.67	1870450.93	12	65640	1.01	22.96	1507270.74
SIMVASTATIN	6	88954	1.48	119.48	10628589.46	9	96332	1.31	115.79	11154059.9	6	98946	1.52	114.57	11336644.82
THEOPHYLLINE/ETOPHYLLI	12	60639	1.01	29.10	1764723.43	4	118927	1.62	27.52	3272987.56	11	69568	1.07	29.49	2051569.35
THYROXINE	3	111246	1.85	36.78	4092107.72	5	116937	1.59	37.03	4329809.94	3	119197	1.83	36.58	4360719.29
UNKNOWN(NEW PRODUCTS)	10	64484	1.07	70.38	4538281.99	8	97704	1.33	79.24	7742176.55	7	91251	1.40	87.69	8002067.93
		6005318	25.16				7332706	25.34				6522640	24.95		

Table B.5: The top twenty active ingredients according to prevalence for the individual periods of 2006

Active ingredient	Rank	Freq	% of total prevalence (n=6984380)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=8048504)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6440190)	Average cost per item (R)	Total cost (R)
AMOXYCILLIN	9	86242	1.23	20.95	1806418.87	8	118345	1.47	19.24	2277223.55	10	70277	1.09	18.31	1286436.41
AMOXYCILLIN/CLAVULANIC	2	147012	2.10	71.15	10459723.69	1	206876	2.57	72.85	15071722.79	1	129359	2.01	70.90	9172153.25
ASPIRIN	4	114904	1.65	20.47	2352390.27	7	125144	1.55	20.72	2593029.50	3	123524	1.92	20.22	2497751.76
ATENOLOL	20	51446	0.74	43.69	2247777.13	22	53729	0.67	43.13	2317520.62	20	50782	0.79	42.85	2175995.97
ATORVASTATIN	8	89221	1.28	221.60	19771433.66	10	92163	1.15	222.42	20498823.34	8	85198	1.32	220.81	18812685.42
BETAMETHASONE	30	44477	0.64	61.01	2713452.92	28	51612	0.64	59.25	3057906.21	31	39595	0.61	58.74	2325781.33
CIPROFLOXACIN	16	60142	0.86	36.50	2195184.08	16	62335	0.77	37.57	2342021.63	18	52735	0.82	37.48	1976452.71
CONJUGATED OESTROGENS	17	58877	0.84	100.42	5912373.78	20	57016	0.71	100.05	5704697.15	16	53270	0.83	98.17	5229584.89
DICLOFENAC	1	147635	2.11	40.58	5991285.14	2	157669	1.96	37.93	5980199.09	4	119662	1.86	39.24	4695326.28
IBU/PAR/COD/200/250/10	12	74528	1.07	51.72	3854251.89	12	87667	1.09	48.89	4285605.91	13	56860	0.88	46.98	2671197.07
INDAPAMIDE	19	54433	0.78	39.12	2129385.35	21	56616	0.70	38.74	2193379.15	15	54091	0.84	37.80	2044726.55
MELOXICAM	14	60489	0.87	61.96	3747897.02	17	60856	0.76	61.56	3746471.02	19	51994	0.81	62.64	3257026.64
METFORMIN	11	74742	1.07	45.57	3405849.99	13	82060	1.02	45.70	3749895.25	9	82336	1.28	45.31	3730389.63
OESTRADIOL	15	60365	0.86	119.95	7240726.29	19	59598	0.74	117.50	7002649.30	14	56114	0.87	115.18	6463096.12
PARACETAMOL/CODEINE/CA	5	114581	1.64	23.25	2664090.20	5	131826	1.64	21.00	2768746.08	7	91344	1.42	21.47	1961084.63
PARACETAMOL	18	54469	0.78	9.99	543931.01	14	68217	0.85	9.36	638729.72	22	47564	0.74	9.61	456890.26
PREDNISONE ISONE	13	66378	0.95	23.10	1533643.89	11	90962	1.13	21.58	1962553.20	11	65377	1.02	21.86	1429274.35
SIMVASTATIN	7	102341	1.47	114.83	11751418.89	9	111807	1.39	114.97	12854966.81	5	111822	1.74	110.69	12377552.71
THEOPHYLLINE/ETOPHYLLI	10	77898	1.12	30.04	2340270.82	4	131846	1.64	28.75	3789915.21	12	65093	1.01	30.65	1995032.18
THYROXINE	3	122516	1.75	35.89	4397298.18	6	128828	1.60	35.81	4613139.16	2	126242	1.96	34.96	4413795.67
UNKNOWN(NEW PRODUCTS)	6	106038	1.52	86.75	9199229.64	3	135853	1.69	96.49	13107852.04	6	110495	1.72	118.00	13038152.77
		6984380	25.32				8048504	25.73				6440190	25.52		

Table B.6: The top twenty trade name products according to total cost for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (N=R1893376921.00)	Rank	Total cost (R)	% of total expenditure (n=R668291741.8)	Rank	Total cost (R)	% of total expenditure (n=R734323606.1)	Rank	Total cost (R)	% of total expenditure (n=R630482778.4)
ADCO-SIMVASTATIN 20MG	6	12594720.30	0.67	8	3887033.74	0.65	9	4267324.63	0.63	7	4490361.93	0.71
AROPAX 20MG TAB	12	10194183.86	0.54	6	3957913.92	0.67	14	3783787.89	0.56	23	2452482.05	0.39
AVELON 400MG TAB	18	8475199.73	0.45	29	2057851.88	0.35	12	3898433.19	0.58	20	2518914.66	0.40
CELEBREX 200MG CAP	4	15183683.29	0.80	4	5107211.92	0.87	4	5189127.78	0.77	4	4887293.59	0.78
CILIFT 20MG TAB	17	9052459.73	0.48	10	3681268.33	0.63	18	3032700.59	0.45	28	2338490.81	0.37
CIPRALEX 10MG	9	12240924.47	0.65	13	3309593.43	0.56	7	4295886.72	0.64	6	4635444.32	0.74
COVERSYL PLUS TAB	7	12363387.59	0.65	9	3731920.53	0.64	10	4166078.73	0.62	8	4465388.33	0.71
ELTROXIN 100MCG TAB	14	10060238.72	0.53	14	3228716.71	0.55	16	3412517.42	0.51	11	3419004.59	0.54
FOSAMAX 70MG TAB	3	17430911.77	0.92	3	5822288.22	0.99	8	5953097.70	0.88	3	5655525.85	0.90
KLACID XL 500MG TAB	15	9767900.77	0.52	21	2549477.99	0.43	5	4654463.46	0.69	18	2563959.32	0.41
LIPITOR 10MG TAB	1	31451055.35	1.66	1	10242674.82	1.74	1	10586519.82	1.57	1	10621860.71	1.68
LIPITOR 20MG TAB	2	19126984.68	1.01	2	6033914.66	1.03	2	6446088.97	0.95	2	6646981.05	1.05
LIVIFEM 2.5MG TAB	20	8183197.91	0.43	19	2843030.14	0.48	21	2755810.03	0.41	17	2584357.74	0.41
MYPRODOL CAP	10	11061813.32	0.58	5	4156036.87	0.71	6	4564713.21	0.68	27	2341063.24	0.37
NEXIAM 40MG	8	12320836.72	0.65	7	3869029.12	0.66	11	4147645.24	0.61	9	4304162.36	0.68
PLAVIX 75MG FILMCOAT TAB	19	8323378.10	0.44	22	2459590.36	0.42	20	2785053.16	0.41	15	3078784.58	0.49
PREMARIN 0.625MG TAB	11	10471615	0.55	11	3612256.24	0.62	15	3479557.48	0.52	12	3379801.77	0.54
PREXUM 4MG TAB	5	12654205.83	0.67	12	3601623.74	0.61	8	4281053.82	0.63	5	4771528.27	0.76
SERETIDE 50/250 ACCUHALER	13	10141795.41	0.54	16	3120614.68	0.53	14	3508270.44	0.52	10	3512910.29	0.56
SYNAP FORTE	16	9288151.75	0.49	18	3001587.43	0.51	17	3186793.70	0.47	14	3099770.62	0.49
		1893376921.00	13.22		587305502.88	13.66		675586131.02	13.08		630482778.40	12.97

Table B.7: The top twenty trade name products according to total cost for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name products	Rank	Total cost (R)	% of total expenditure (N=R2046944382.50)	Rank	Total cost (R)	% of total expenditure (n=R668291741.8)	Rank	Total cost (R)	% of total expenditure (n=R734323606.12)	Rank	Total cost (R)	% of total expenditure (n=R644329034.58)
ADCO-SIMVASTATIN 20MG	7	14384455.12	0.70	8	4661644.48	0.70	7	5064171.38	0.69	8	4658639.26	0.72
ASPEN LAMZID TAB	14	10354031.53	0.51	16	2962077.71	0.44	17	3556187.39	0.48	13	3835766.43	0.60
AVELON 400MG TAB	16	10152044.69	0.50	22	2601044.06	0.39	9	4710442.48	0.64	20	2840558.15	0.44
CELEBREX 200MG CAP	8	14185040.79	0.69	7	5035758.18	0.75	8	4972260.91	0.68	10	4177021.70	0.65
CIPRALEX 10MG	4	16651805.26	0.81	5	5316134.38	0.80	4	5756803.09	0.78	4	5578867.79	0.87
ELTROXIN 100MCG TAB	13	10444441.76	0.51	12	3426394.90	0.51	16	3590125.55	0.49	18	3427921.31	0.53
FOSAMAX 70MG TAB	5	15360158.66	0.75	3	5332305.68	0.80	5	5257807.29	0.72	6	4770045.69	0.74
HERCEPTIN	11	11365564.90	0.56	23	2448282.34	0.37	11	4072944.90	0.55	5	4844337.66	0.75
IN NOVOMIX 30 FLEXPEN 3ML PF D	15	10352796.98	0.51	17	2940681.58	0.44	18	3518302.91	0.48	12	3893812.49	0.60
KLACID XL 500MG TAB	17	9684590.57	0.47	20	2797514.47	0.42	10	4560104.44	0.62	28	2326971.66	0.36
LIPITOR 10MG TAB	1	30440185.64	1.49	1	10364229.62	1.55	1	10525307.49	1.43	1	9550648.53	1.48
LIPITOR 20MG TAB	2	20436897.83	1.00	2	6761091.71	1.01	2	7117709.96	0.97	2	6558096.16	1.02
NEXIAM 40MG	6	15089447.46	0.74	4	5317251.48	0.80	6	5101002.01	0.69	7	4671193.97	0.72
PLAVIX 75MG FILMCOAT TAB	12	10741777.94	0.52	10	3431520.15	0.51	15	3754047.56	0.51	15	3556210.23	0.55
PREMARIN 0.625MG TAB	19	9428394.11	0.46	14	3332592.51	0.50	21	3196827.74	0.44	19	2898973.86	0.45
PREXUM 4MG TAB	3	16875170.18	0.82	6	5204583.80	0.78	3	5880284.86	0.80	3	5790301.52	0.90
SERETIDE 50/250 ACCUHALER	18	9638955.77	0.47	15	3118114.95	0.47	20	3389770.80	0.46	18	3131070.02	0.49
STOCRIN 600MG TAB	9	11542031.56	0.56	12	3385726.24	0.51	13	3810448.56	0.52	9	4345856.76	0.67
SYNAP FORTE	10	11427845.41	0.56	9	4038601.48	0.60	12	4040928.63	0.55	17	3348315.30	0.52
TAVANIC 500MG	20	8740791.81	0.43	24	2426583.03	0.36	14	3767812.80	0.51	23	2546395.98	0.40
		2046944382.50	13.06		668291741.80	12.70		734323606.12	13.02		644329034.58	13.46

Table B.8: The top twenty trade name products according to prevalence for 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (N=19860679)	Average cost per item (R)	Total cost (R)	Pharmaceutical product	Rank	Freq	% of total prevalence (N=21473074)	Average cost per item (R)	Total cost (R)
ELTROXIN 100MCG TAB	1	247943	1.25	40.57	10060238.72	ELTROXIN 100MCG TAB	1	264536.00	1.23	39.48	10444441.76
MYPRODOL CAP	2	183299	0.92	60.35	11061813.32	ECOTRIN 81MG TAB	2	176553.00	0.82	20.59	3635173.90
LIPITOR 10MG TAB	3	166596	0.84	188.85	31451055.35	LIPITOR 10MG TAB	3	160500.00	0.75	189.66	30440185.64
ECOTRIN 81MG TAB	4	157340	0.79	19.55	3075933.44	ALCOPHYLLEX SYR	4	153362.00	0.71	9.88	1515762.83
ALCOPHYLLEX SYR	5	148635	0.75	10.39	1544224.46	MYBULEN TAB	5	142194.00	0.66	38.98	5543017.28
MYBULEN TAB	6	139786	0.70	39.43	5512205.01	PREXUM 4MG TAB	6	131136.00	0.61	128.68	16875170.18
STILPANE TAB	7	121792	0.61	13.34	1624439.96	ADCO-SIMVASTATIN 20MG	7	130043.00	0.61	110.61	14384455.12
ADCO-SIMVASTATIN 20MG	8	112239	0.57	112.21	12594720.30	ELTROXIN 50MCG TAB	8	113050.00	0.53	26.36	2979791.25
DISPRIN CV 100MG DISP	9	111033	0.56	23.28	2584839.73	BE-TABS PREDNISONE 5MG TA	9	112188.00	0.52	3.81	426907.80
PREMARIN 0.625MG TAB	10	107045	0.54	97.82	10471615.49	STILPANE TAB	10	112054.00	0.52	12.33	1381958.61
ELTROXIN 50MCG TAB	11	99437	0.50	27.38	2722398.23	DISPRIN CV 100MG DISP	11	111119.00	0.52	24.19	2688299.65
PREXUM 4MG TAB	12	98180	0.49	128.89	12654205.83	MYPRODOL CAP	12	107830.00	0.50	56.61	6104662.79
BE-TABS PREDNISONE 5MG TA	13	83936	0.42	4.49	376853.61	SYNAP FORTE	13	98640.00	0.46	115.85	11427845.41
SYNAP FORTE	14	80049	0.40	116.03	9288151.75	PREMARIN 0.625MG TAB	14	97313.00	0.45	96.89	9428394.11
SOLPHYLLEX SYR	15	79100	0.40	50.33	3981259.85	SOLPHYLLEX SYR	15	92611.00	0.43	49.03	4540786.20
TREPILINE 25MG TAB	16	77990	0.39	34.85	2717920.59	ADCO-ZOLPIDEM 10MG	16	83954.00	0.39	70.67	5933389.27
CILIFT 20MG TAB	17	74007	0.37	122.32	9052459.73	TREPILINE 25MG TAB	17	82353.00	0.38	33.44	2753634.23
LIPITOR 20MG TAB	18	70987	0.36	269.44	19126984.68	CILIFT 20MG TAB	18	78733.00	0.37	68.61	5402230.15
WARFARIN 5MG TAB	19	69840	0.35	48.61	3395259.54	COXFLAM 15MG	19	76120.00	0.35	78.27	5957966.55
COXFLAM 15MG	20	69317	0.35	74.42	5158351.33	LIPITOR 20MG TAB	20	75542.00	0.35	270.54	20436897.83
		19860679	11.57					21473074.00	11.18		

Table B.9: The top twenty trade name products according to prevalence for the individual periods of 2005

Trade name product	Rank	Freq	% of total prevalence (n=6005321)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=7332708)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6522640)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	9	34224	0.57	112.12	3837033.74	8	37953	0.52	112.44	4267324.63	5	40062	0.61	112.09	4490361.93
ALCOPHYLLEX SYR	8	34994	0.58	10.21	357303.48	3	73472	1.00	10.53	773769.58	4	40169	0.62	10.29	413151.40
BE-TABS PREDNISONE 5MG TA	16	23513	0.39	4.56	107159.54	14	32805	0.45	4.55	149283.30	13	27618	0.42	4.36	120410.77
CILIFT 20MG TAB	15	24361	0.41	151.11	3681268.33	24	25025	0.34	121.19	3032700.59	17	24621	0.38	94.98	2338490.81
COXFLAM 15MG	22	21587	0.36	73.53	1587389.50	26	24471	0.33	73.69	1803221.01	20	23259	0.36	76.00	1767740.82
DISPRIN CV 100MG DISP	10	34090	0.57	20.26	690614.64	9	37875	0.52	24.45	926213.66	6	39068	0.60	24.78	968011.43
ECOTRIN 81MG TAB	4	47876	0.80	18.02	862942.64	6	53908	0.74	20.63	1112030.30	3	55556	0.85	19.82	1100960.50
ELTROXIN 100MCG TAB	1	79723	1.33	40.50	3228716.71	1	83606	1.14	40.82	3412517.42	1	84614	1.30	40.41	3419004.59
ELTROXIN 50MCG TAB	11	31523	0.52	27.39	863391.01	12	33331	0.45	27.52	917292.52	12	34583	0.53	27.23	941714.70
LIPITOR 10MG TAB	3	54900	0.91	186.57	10242674.82	5	55759	0.76	189.86	10586519.82	2	55877	0.86	190.09	10621860.71
LIPITOR 20MG TAB	17	22682	0.38	266.02	6033914.66	28	23943	0.33	269.23	6446088.97	18	24362	0.37	272.84	6646981.05
MYBULEN TAB	5	46343	0.77	39.44	1827568.45	4	57449	0.78	39.34	2259901.03	9	35994	0.55	39.58	1424735.53
MYPRODOL CAP	2	68190	1.14	60.95	4156036.87	2	76132	1.04	59.96	4564713.21	7	38977	0.60	60.06	2341063.24
PREMARIN 0.625MG TAB	7	36906	0.61	97.88	3612256.24	11	35545	0.48	97.89	3479557.48	11	34594	0.53	97.70	3379801.77
PREXUM 4MG TAB	12	27960	0.47	128.81	3601623.74	13	33189	0.45	128.99	4281053.82	8	37031	0.57	128.85	4771528.27
SOLPHYLLEX SYR	24	20140	0.34	49.95	1006066.66	10	36854	0.50	50.69	1868302.20	22	22106	0.34	50.07	1106890.99
STILPANE TAB	6	38398	0.64	14.11	541662.33	7	47755	0.65	12.89	615749.62	10	35639	0.55	13.10	467028.01
SYNAP FORTE	13	25558	0.43	117.44	3001587.43	17	27730	0.38	114.92	3186793.70	14	26761	0.41	115.83	3099770.62
TREPILINE 25MG TAB	14	24843	0.41	35.72	887485.93	22	26990	0.37	34.75	937895.97	15	26157	0.40	34.12	892538.69
WARFARIN 5MG TAB	19	22479	0.37	48.53	1090870.56	90	23450	0.32	48.67	1141272.74	19	23911	0.37	48.64	1163116.24
		6005321	11.99				7332708	11.55				6522640	11.21		

Table B.10: The top twenty trade name products according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=6005321)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=8048504)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6440190)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	6	41607	0.30	112.04	4661644.48	9	45085	0.56	112.32	5064171.38	5	43351	0.67	107.46	4658639.26
ADCO-ZOLPIDEM 10MG	16	27947	0.20	71.16	1988711.05	19	30183	0.38	70.79	2136600.36	16	25824	0.40	70.02	1808077.86
ALCOPHYLLEX SYR	5	43039	0.31	9.61	413402.25	2	76093	0.95	10.11	769504.07	9	34230	0.53	9.72	332856.51
BE-TABS PREDNISONE 5MG TA	13	32837	0.24	3.98	130677.06	7	45765	0.57	3.69	168672.05	11	33586	0.52	3.80	127558.69
CILIFT 20MG TAB	19	25922	0.19	69.66	1805597.23	25	27040	0.34	68.76	1859211.05	17	25771	0.40	67.42	1737421.87
COXFLAM 15MG	17	26520	0.19	77.78	2062661.95	26	26773	0.33	77.76	2081737.50	22	22827	0.35	79.45	1813567.10
DISPRIN CV 100MG DISP	9	37766	0.27	24.94	941711.41	13	37534	0.47	24.17	907313.34	7	35819	0.56	23.43	839274.90
ECOTRIN 81MG TAB	2	55025	0.39	19.93	1096886.18	3	60643	0.75	21.05	1276582.37	2	60885	0.95	20.72	1261705.35
ELTROXIN 100MCG TAB	1	86060	0.62	39.81	3426394.90	1	90425	1.12	39.70	3590125.55	1	88051	1.37	38.93	3427921.31
ELTROXIN 50MCG TAB	10	36456	0.26	26.63	970903.28	12	38403	0.48	26.64	1023013.61	6	38191	0.59	25.81	985874.36
LIPITOR 10MG TAB	3	54537	0.39	190.04	10364229.62	5	55360	0.69	190.12	10525307.49	3	50603	0.79	188.74	9550648.53
LIPITOR 20MG TAB	20	24907	0.18	271.45	6761091.71	27	26213	0.33	271.53	7117709.96	20	24422	0.38	268.53	6558096.16
MYBULEN TAB	4	46549	0.33	39.45	1836301.85	34	22212	0.28	34.26	760936.12	8	35506	0.55	38.12	1353550.92
MYPRODOL CAP	8	39521	0.28	58.39	2307575.48	11	41590	0.52	56.74	2359804.22	14	26719	0.41	53.79	1437283.09
PREMARIN 0.625MG TAB	11	34200	0.24	97.44	3332592.51	16	32845	0.41	97.33	3196827.74	12	30268	0.47	95.78	2898973.86
PREXUM 4MG TAB	7	40294	0.29	129.17	5204583.80	8	45645	0.57	128.83	5880284.86	4	45197	0.70	128.11	5790301.52
SOLPHYLLEX SYR	18	26088	0.19	49.60	1293894.69	10	43471	0.54	49.24	2140689.41	21	23052	0.36	47.99	1106202.10
STILPANE TAB	14	28596	0.20	13.11	375000.67	6	49242	0.61	11.87	584448.39	10	34216	0.53	12.35	422509.55
SYNAP FORTE	12	34109	0.24	118.40	4038601.48	15	34869	0.43	115.89	4040928.63	13	29662	0.46	112.88	3348315.30
TREPILINE 25MG TAB	15	28020	0.20	33.68	943816.75	21	28696	0.36	33.41	958829.05	18	25637	0.40	33.19	850988.43
WARFARIN 5MG TAB	21	23985	0.17	48.09	1153356.69	29	24985	0.31	48.05	1200633.50	19	24516	0.38	47.83	1172640.67
		6005321	5.68				8048504	10.97				6440190	11.78		

Table B.11: The top twenty trade name products according to total cost for age group 1 for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R89329200.60)	Rank	Total cost (R)	% of total expenditure (n=R26082529.32)	Rank	Total cost (R)	% of total expenditure (n=R35799569.64)	Rank	Total cost (R)	% of total expenditure (n=R27447101.64)
ADVANTAN CREAM	20	747217.08	0.84	19	238088.38	0.91	27	234525.88	0.66	18	274602.82	1.00
BRONCHOPED P SYR	9	1182891.82	1.32	10	329671.29	1.26	7	537275.60	1.50	10	315944.93	1.15
CELESTAMINE SYR	2	2332724.08	2.61	2	704851.67	2.70	2	973684.16	2.72	2	654188.25	2.38
CEPODEM SUSP	15	842790.69	0.94	16	251804.37	0.97	17	349709.90	0.98	8	364656.37	1.33
DEMAZIN SYR ALCOHOL FREE	12	984810.60	1.10	12	296927.18	1.14	11	442182.19	1.24	20	245801.23	0.90
DESELEX 2.5MG/5ML SYR	8	1231189.82	1.38	11	308428.38	1.18	10	442575.41	1.24	5	480186.12	1.75
KLACID 250MG/5ML SUSP	7	1262223.65	1.41	6	386070.47	1.48	5	602840.78	1.68	18	273312.40	1.00
LOTEM SUSP	6	1291122.06	1.45	7	362775.07	1.39	8	517158.25	1.44	7	411188.74	1.50
MYPRODOL SUSP	5	1607582.29	1.80	4	463913.40	1.78	4	669672.53	1.87	6	473996.36	1.73
NASONEX AQ 140 DOSE	18	823308.86	0.92	17	251445.39	0.96	20	280850.78	0.78	13	291012.74	1.06
ORELOX JUNIOR SUSP	1	4199290.20	4.70	1	1253395.46	4.81	1	1955411.00	5.46	1	990483.74	3.61
PREFLAM SYR	13	963260.67	1.08	13	277141.95	1.06	13	400207.30	1.12	14	285911.42	1.04
PRELONE 15MG/5ML SYR	11	1053979.40	1.18	9	331844.89	1.27	12	441371.97	1.23	15	280762.54	1.02
PROZEF 125MG/5ML SUSP	19	812370.94	0.91	20	222107.42	0.85	14	371183.63	1.04	22	219079.89	0.80
PROZEF 250MG/5ML SUSP	16	841651.12	0.94	18	239755.35	0.92	15	363416.33	1.02	21	238479.44	0.87
SERETIDE 25/125 120 DOSE	17	837294.08	0.94	22	219762.79	0.84	19	320175.90	0.89	12	297355.39	1.08
SINGULAIR 4MG	3	1801547.66	2.02	16	251804.37	0.97	17	349709.90	0.98	3	602186.51	2.19
SINGULAIR 5MG	14	910025.20	1.02	16	251804.37	0.97	17	349709.90	0.98	11	308510.93	1.12
ZINNAT 125MG/5ML SUSP	4	1660944.34	1.86	3	626762.18	2.40	6	539442.28	1.51	4	494739.88	1.80
ZITHROMAX PE 200MG SUSP	10	1168399.90	1.31	8	336592.75	1.29	9	499098.08	1.39	9	332709.07	1.21
		512593.92	29.73		26082529.32	29.16		35799569.64	29.72		27447101.64	28.55

Table B.12: The top twenty trade name products according to total cost for age group 1 for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R92540896.32)	Rank	Total cost (R)	% of total expenditure (n=R29975388.23)	Rank	Total cost (R)	% of total expenditure (n=R36577890.15)	Rank	Total cost (R)	% of total expenditure (n=R25987617.94)
ADVANTAN CREAM	19	858807.79	0.93	17	293194.95	0.98	21	285160.62	0.78	15	280452.22	1.08
ALLECET SYRUP	16	908895.78	0.98	16	301534.47	1.01	19	320844.44	0.88	13	286516.87	1.10
AUGMENTIN BD SF SUSP	14	1051471.75	1.14	12	333035.28	1.11	12	430382.36	1.18	12	288054.11	1.11
BRONCHOPED P SYR	7	1229455.59	1.33	9	388615.29	1.30	7	555355.51	1.52	14	285484.79	1.10
CELESTAMINE SYR	2	2574071.85	2.78	2	828078.08	2.76	2	1079584.96	2.95	3	666408.81	2.56
CEPODEM SUSP	5	1781607.01	1.93	6	538691.63	1.80	4	764457.26	2.09	5	478458.12	1.84
DEMAZIN SYR ALCOHOL FREE	18	864740.98	0.93	18	285715.32	0.95	16	368275.70	1.01	21	210749.96	0.81
DESELEX 2.5MG/5ML SYR	4	1804761.76	1.95	5	550313.33	1.84	6	657907.48	1.80	4	596540.95	2.30
LOTEM SUSP	10	1183664.81	1.28	7	439302.31	1.47	10	480563.37	1.31	16	263799.13	1.02
MYPRODOL SUSP	13	1059561.99	1.14	8	427814.01	1.43	14	387413.09	1.06	17	244334.89	0.94
NASONEX AQ 140 DOSE	12	1066623.83	1.15	13	325638.80	1.09	13	394951.85	1.08	8	346033.18	1.33
ORELOX JUNIOR SUSP	1	3053914.62	3.30	1	981494.77	3.27	1	1287973.59	3.52	1	784446.26	3.02
PREFLAM SYR	8	1210905.60	1.31	11	369170.62	1.23	8	520689.13	1.42	10	321045.85	1.24
PRELONE 15MG/5ML SYR	15	934911.64	1.01	14	319491.05	1.07	15	375912.20	1.03	18	239508.39	0.92
PROZEF 250MG/5ML SUSP	20	817288.64	0.88	20	246285.33	0.82	17	360568.99	0.99	22	210434.32	0.81
SERETIDE 25/125 120 DOSE	17	908602.55	0.98	19	251302.87	0.84	18	356808.62	0.98	11	300491.06	1.16
SINGULAIR 4MG	3	2435068.87	2.63	3	692573.28	2.31	3	1031005.11	2.82	2	711490.48	2.74
SINGULAIR 5MG	11	1121926.08	1.21	15	311153.65	1.04	11	461763.63	1.26	7	349008.80	1.34
ZINNAT 125MG/5ML SUSP	6	1729384.60	1.87	4	570337.15	1.90	5	700648.56	1.92	6	458398.89	1.76
ZITHROMAX PE 200MG SUSP	9	1203687.19	1.30	10	382434.25	1.28	9	491684.84	1.34	9	329568.10	1.27
		92540896.32	30.04		29975388.23	29.48		36577890.15	30.93		25987617.94	29.44

Table B.13: The top twenty trade name products for age group 1 according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=457371)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=652416)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=491132)	Average cost per item (R)	Total cost (R)
ALCOPHYLLEX SYR	6	5925	1.30	8.03	47572.31	6	9920	1.52	8.15	80842.35	5	6108	1.24	7.92	48381.91
ALLERGEX 2MG/5ML SYR	11	4620	1.01	5.45	25197.40	13	5502	0.84	5.58	30683.89	8	5511	1.12	5.67	31242.62
BETANOID 0.6MG/5ML SYR	23	2740	0.60	34.14	93540.32	21	4313	0.66	35.16	151653.65	26	2906	0.59	34.63	100621.89
BRONCHOPED P SYR	4	7383	1.61	44.65	329671.29	2	11985	1.84	44.83	537275.60	4	7052	1.44	44.80	315944.93
CELESTAMINE SYR	7	5446	1.19	129.43	704851.67	9	7381	1.13	131.92	973684.16	10	4887	1.00	133.86	654188.25
CORYX PAED SYR	10	5058	1.11	23.48	118785.67	7	8801	1.35	23.13	203536.35	12	4608	0.94	22.74	104785.07
DEMAZIN SYR ALCOHOL FREE	5	6933	1.52	42.83	296927.18	5	10304	1.58	42.91	442182.19	6	5917	1.20	41.54	245801.23
GRIPPON SYR	12	4584	1.00	23.09	105835.96	10	7153	1.10	22.94	164084.86	11	4841	0.99	22.68	109775.86
LOTEM SUSP	3	7864	1.72	46.13	362775.07	4	11177	1.71	46.27	517158.25	1	8931	1.82	46.04	411188.74
MYPRODOL SUSP	2	8204	1.79	56.55	463913.40	3	11905	1.82	56.25	669672.53	2	8517	1.73	55.65	473996.36
ORELOX JUNIOR SUSP	1	9491	2.08	132.06	1253395.46	1	14324	2.20	136.51	1955411.00	3	7250	1.48	136.62	990483.74
PAINAGON SYR	13	4069	0.89	9.16	37260.99	11	6473	0.99	9.40	60861.49	9	5286	1.08	9.44	49911.94
PONSTEL S 50MG/5ML SUSP	9	5062	1.11	17.33	87709.35	8	7806	1.20	17.80	138925.55	7	5606	1.14	17.35	97242.06
PREFLAM SYR	15	3600	0.79	76.98	277141.95	14	5269	0.81	75.96	400207.30	16	3784	0.77	75.56	285911.42
PRELONE 15MG/5ML SYR	16	3474	0.76	95.52	331844.89	16	4582	0.70	96.33	441371.97	28	2872	0.58	97.76	280762.54
RINEX PAED SYR	21	2821	0.62	27.44	77410.45	15	4611	0.71	28.10	129551.89	29	2797	0.57	27.36	76532.54
STILPANE SYR	14	3747	0.82	12.33	46214.03	12	5531	0.85	12.22	67613.81	13	4179	0.85	12.14	50722.70
STOPAYNE SYR	19	2977	0.65	35.12	104560.89	23	4120	0.63	35.60	146667.19	30	2758	0.56	35.36	97515.90
TRIFEN EXP PAED SYR	32	2302	0.50	10.94	25183.81	20	4393	0.67	11.15	48988.60	18	3383	0.69	11.04	37359.81
ZINNAT 125MG/5ML SUSP	8	5199	1.14	120.55	626762.18	18	4466	0.68	120.79	539442.28	14	4107	0.84	120.46	494739.88
		457371	22.19				652416	22.99				491132	20.63		

Table B.14: The top twenty trade name products according to prevalence for age group one for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade anme product	Rank	Freq	% of total prevalence (n=541629)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=670034)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=451327)	Average cost per item (R)	Total cost (R)
ALCOPHYLLEX SYR	6	6658	1.23	7.65	50998.29	4	9671	1.44	7.88	76237.60	6	5290	1.17	7.63	40356.70
ALLERGEX 2MG/5ML SYR	9	5781	1.07	5.46	31565.07	15	5765	0.86	5.48	31564.29	5	5297	1.17	5.54	6170.27
BRONCHOPED P SYR	2	8848	1.63	43.92	388615.29	1	12743	1.90	43.58	555355.51	1	6701	1.48	42.60	285484.79
CELESTAMINE SYR	7	6343	1.17	130.55	828078.08	7	8430	1.26	128.06	1079584.96	7	5278	1.17	126.26	666408.81
CEPODEM SUSP	10	5638	1.04	95.55	538691.63	8	7993	1.19	95.64	764457.26	9	5020	1.11	95.31	478458.12
CORYX PAED SYR	11	5344	0.99	22.71	121351.97	6	8793	1.31	22.68	199406.28	14	4274	0.95	22.07	94347.67
DEMAZIN SYR ALCOHOL FREE	5	7348	1.36	38.88	285715.32	5	9497	1.42	38.78	368275.70	4	5684	1.26	37.08	210749.96
DESELEX 2.5MG/5ML SYR	17	3859	0.71	142.61	550313.33	21	4598	0.69	143.09	657907.48	13	4280	0.95	139.38	596540.95
GRIPPON SYR	14	4897	0.90	23.03	112782.76	12	6655	0.99	22.46	149476.36	18	3515	0.78	22.59	79420.25
LOTEM SUSP	1	9683	1.79	45.37	439302.31	2	10901	1.63	44.08	480563.37	3	6149	1.36	42.90	263799.13
MYBULEN SUSP	60	2030	0.37	42.29	85848.79	18	4963	0.74	41.57	206320.91	15	4104	0.91	41.74	171285.14
MYPRODOL SUSP	3	7855	1.45	54.46	427814.01	9	7370	1.10	52.57	387413.09	10	4797	1.06	50.93	244334.89
ORELOX JUNIOR SUSP	4	7429	1.37	132.12	981494.77	3	9807	1.46	131.33	1287973.59	2	6411	1.42	122.36	784446.26
PAINAGON SYR	12	5291	0.98	9.35	49470.32	13	6426	0.96	9.19	59032.51	12	4304	0.95	8.98	38664.98
PONSTEL S 50MG/5ML SUSP	8	5898	1.09	17.02	100361.93	11	6846	1.02	17.03	116612.39	8	5084	1.13	16.36	83176.55
PREFLAM SYR	13	5003	0.92	73.79	369170.62	10	7127	1.06	73.06	520689.13	11	4467	0.99	71.87	321045.85
STILPANE SYR	16	4460	0.82	11.62	51820.41	16	5757	0.86	11.58	66658.63	16	4066	0.90	11.28	45879.29
TRIFEN EXP PAED SYR	24	3305	0.61	10.97	36260.29	17	5011	0.75	10.78	54007.24	25	2824	0.63	10.37	29283.71
ZINNAT 125MG/5ML SUSP	15	4756	0.88	119.92	570337.15	14	5870	0.88	119.36	700648.56	17	3888	0.86	117.90	458398.89
ZITHROMAX PE 200MG SUSP	18	3591	0.66	106.50	382434.25	20	4676	0.70	105.15	491684.84	20	3210	0.71	102.67	329568.10
		541629	21.05				670034	22.22				451327	20.97		

Table B.15 The top twenty trade name products according to prevalence for age group one for 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=1600919)	Average cost per item (R)	Total cost (R)	Pharmaceutical product	Rank	Freq	% of total prevalence (n=1668287)	Average cost per item (R)	Total cost (R)
ORELOX JUNIOR SUSP	1	31065	1.94	135.18	4199290.20	BRONCHOPED P SYR	1	28292	1.70	43.46	1229455.59
MYPRODOL SUSP	2	28626	1.79	56.16	1607582.29	LOTEM SUSP	2	26733	1.60	44.28	1183664.81
LOTEM SUSP	3	27972	1.75	46.16	1291122.06	ORELOX JUNIOR SUSP	3	23647	1.42	129.15	3053914.62
BRONCHOPED P SYR	4	26420	1.65	44.77	1182891.82	DEMAZIN SYR ALCOHOL FREE	4	22529	1.35	38.38	864740.98
DEMAZIN SYR ALCOHOL FREE	5	23154	1.45	42.54	984910.60	ALCOPHYLLEX SYR	5	21629	1.30	7.75	167592.59
ALCOPHYLLEX SYR	6	21953	1.37	8.05	176796.57	CELESTAMINE SYR	6	20051	1.20	128.38	2574071.85
PONSTEL S 50MG/5ML SUSP	7	18474	1.15	17.53	323876.96	MYPRODOL SUSP	7	20022	1.20	52.92	1059561.99
CORYX PAED SYR	8	18467	1.15	23.13	427107.09	CEPODEM SUSP	8	18651	1.12	95.52	1781607.01
CELESTAMINE SYR	9	17714	1.11	131.69	2332724.08	CORYX PAED SYR	9	18411	1.10	22.55	415105.92
GRIPPON SYR	10	16578	1.04	22.90	379696.68	PONSTEL S 50MG/5ML SUSP	10	17828	1.07	16.84	300150.87
PAINAGON SYR	11	15828	0.99	9.35	148034.42	ALLERGEX 2MG/5ML SYR	11	16843	1.01	5.49	92488.67
ALLERGEX 2MG/5ML SYR	12	15633	0.98	5.57	87123.91	PREFLAM SYR	12	16597	0.99	72.96	1210905.60
ZINNAT 125MG/5ML SUSP	13	13772	0.86	120.60	1660944.34	PAINAGON SYR	13	16021	0.96	9.19	147167.81
STILPANE SYR	14	13457	0.84	12.23	164550.54	GRIPPON SYR	14	15067	0.90	22.68	341679.37
PREFLAM SYR	15	12653	0.79	76.13	963260.67	ZINNAT 125MG/5ML SUSP	15	14514	0.87	119.15	1729384.60
PRELONE 15MG/5ML SYR	16	10928	0.68	96.45	1053979.40	STILPANE SYR	16	14283	0.86	11.51	164358.33
ZITHROMAX PE 200MG SUSP	17	10694	0.67	109.26	1168399.90	DESELEX 2.5MG/5ML SYR	17	12737	0.76	141.69	1804761.76
RINEX PAED SYR	18	10229	0.64	27.71	283494.88	ZITHROMAX PE 200MG SUSP	18	11477	0.69	104.88	1203687.19
TRIFEN EXP PAED SYR	19	10078	0.63	11.07	111532.22	TRIFEN EXP PAED SYR	19	11140	0.67	10.73	119551.24
BETANOID 0.6MG/5ML SYR	20	9959	0.62	34.72	345815.86	MYBULEN SUSP	20	11097	0.67	41.76	463454.84
		1600919	22.09					1668287	21.43		

Table B.16: The top twenty trade name products for age group 2 according to total cost for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R97468107.60)	Rank	Total cost (R)	% of total expenditure (n=R29826987.96)	Rank	Total cost (R)	% of total expenditure (n=R37039365.6)	Rank	Total cost (R)	% of total expenditure (n=R30601754.04)
ACNETANE 20	9	896528.18	0.92	9	310232.57	1.04	11	319110.74	0.86	9	267184.87	0.87
ADCO-AMOCLAV BD 1000MG	18	632901.87	0.65	17	202118.65	0.68	15	273944.11	0.74	26	156839.11	0.51
DESELEX 5MG TAB	13	725946.45	0.74	15	223149.94	0.75	17	253843.22	0.69	11	248953.29	0.81
DIFFERIN GEL	15	680656.87	0.70	12	247132.16	0.83	20	240454.26	0.65	16	193070.45	0.63
FLIXONASE AQ NASAL SPRAY	4	1184410.55	1.22	2	506081.92	1.70	6	400204.01	1.08	5	278124.62	0.91
KLACID XL 500MG TAB	6	997565.16	1.02	11	267857.86	0.90	3	498931.12	1.35	14	230776.18	0.75
MINERVA	20	576979.58	0.59	19	193142.78	0.65	25	207746.80	0.56	22	176090.00	0.58
MYPRODOL CAP	5	1018215.57	1.04	5	387608.12	1.30	4	448214.00	1.21	18	182393.45	0.60
MYPRODOL SUSP	17	658431.25	0.68	21	181755.55	0.61	14	284074.08	0.77	17	192601.62	0.63
NASONEX AQ 140 DOSE	11	854219.41	0.88	10	299796.25	1.01	16	268509.52	0.72	4	285913.64	0.93
ORATANE 20MG	12	826345.61	0.85	14	232835.3	0.78	12	315678.69	0.85	6	277831.62	0.91
ORELOX 100MG TAB	14	693248.61	0.71	16	210172.95	0.70	9	321438.07	0.87	24	161637.59	0.53
RITALIN 10MG TAB	10	889937.98	0.91	8	321558.45	1.08	10	319684.01	0.86	12	248695.52	0.81
RITALIN LA 20MG CAP	1	1866445.78	1.91	1	646962.6	2.17	1	688172.74	1.86	1	531310.44	1.74
RITALIN LA 30MG CAP	8	932807.48	0.96	7	322150.97	1.08	7	347954.58	0.94	10	262701.93	0.86
ROACCUTANE 20MG CAP	2	1412560.43	1.45	3	425472.15	1.43	2	579703.93	1.57	3	407384.35	1.33
SERETIDE 50/100 ACCUHALER	16	673118.90	0.69	18	201973.95	0.68	22	229243.97	0.62	13	241900.98	0.79
SERETIDE 50/250 ACCUHALER	3	1246918.69	1.28	4	397243.54	1.33	5	423317.71	1.14	2	426357.44	1.39
TETRALYSAL 300MG CAP	7	939506.59	0.96	6	346204.37	1.16	8	321921.22	0.87	7	271381.00	0.89
ZITHROMAX 500MG TAB	19	620518.78	0.64	20	183153.31	0.61	13	289974.55	0.78	28	147390.92	0.48
		89329200.60	18.80		29826987.96	20.47		37039365.60	18.99		30601754.04	16.96

Table B.17 The top twenty trade name products for age group 2 according to total cost for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R104158832.70)	Rank	Total cost (R)	% of total expenditure (n=R34110522.42)	Rank	Total cost (R)	% of total expenditure (n=R40631512.75)	Rank	Total cost (R)	% of total expenditure (n=R29416797.5)
ACNETANE 20	8	953927.65	0.92	8	307144.69	0.90	8	493766.59	1.22	8	268282.88	0.91
ADVANTAN CREAM	15	694415.46	0.67	14	244806.23	0.72	24	223146.15	0.55	13	226463.08	0.77
CONCERTA 36MG OROS	3	1217363.80	1.17	5	348673.05	1.02	5	441655.67	1.09	2	427035.08	1.45
DESELEX 5MG TAB	5	1205020.52	1.16	7	338053.87	0.99	6	389493.33	0.96	4	377841.98	1.28
DIFFERIN GEL	17	640000.33	0.61	13	259664.81	0.76	28	214702.69	0.53	21	165632.83	0.56
FLIXONASE AQ NASAL SPRAY	14	739921.53	0.71	11	267022.86	0.78	20	256048.31	0.63	15	216850.36	0.74
FLOMIST AQ NASAL SPRAY	10	847286.23	0.81	12	265610.25	0.78	12	310776.04	0.76	7	270899.94	0.92
KLACID XL 500MG TAB	7	989007.06	0.95	9	287529.37	0.84	2	493766.59	1.22	16	207711.10	0.71
NASONEX AQ 140 DOSE	6	1079488.41	1.04	4	350262.07	1.03	7	381147.68	0.94	5	348078.66	1.18
ORATANE 20MG	12	802655.97	0.77	15	241148.83	0.71	9	326210.66	0.80	12	235296.48	0.80
ORELOX 100MG TAB	19	626663.09	0.60	24	183650.76	0.54	14	294926.42	0.73	23	148085.91	0.50
RITALIN 10MG TAB	18	638765.35	0.61	16	233406.69	0.68	23	236253.80	0.58	20	169104.86	0.57
RITALIN LA 20MG CAP	1	1591478.42	1.53	1	552145.21	1.62	1	589619.15	1.45	1	449714.06	1.53
RITALIN LA 30MG CAP	11	820673.46	0.79	10	267659.66	0.78	18	302643.96	0.74	10	250369.84	0.85
ROACCUTANE 20MG CAP	4	1208020.52	1.16	2	394431.43	1.16	3	470669.21	1.16	6	342919.88	1.17
SERETIDE 50/250 ACCUHALER	2	1232140.61	1.18	3	392259.58	1.15	4	458912.35	1.13	3	380968.68	1.30
SINGULAIR 10MG	20	625781.31	0.60	23	183999.58	0.54	21	240642.68	0.59	17	201139.05	0.68
SINGULAIR 5MG	16	689410.40	0.66	22	185467.76	0.54	16	279557.93	0.69	14	224384.71	0.76
STRATTERA 40MG CAP	13	759461.87	0.73	17	231214.50	0.68	15	280109.64	0.69	12	248137.73	0.84
TETRALYSAL 300MG CAP	9	922563.74	0.89	6	346616.27	1.02	11	313210.15	0.77	9	262737.32	0.89
		104158832.70	17.55		34110522.42	17.24		40631512.75	17.22		29416797.50	18.43

Table B.18: The top twenty trade name products according to prevalence for age group 2 in 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=1390573)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (n=1499217)	Average cost per item (R)	Total cost (R)
ALCOPHYLLEX SYR	1	20081	1.44	9.94	199604.82	ALCOPHYLLEX SYR	1	20856	1.39	9.53	198779.71
MYPRODOL CAP	2	17940	1.29	56.76	1018215.57	MYBULEN TAB	2	14612	0.97	37.57	548961.89
MYBULEN TAB	3	14235	1.02	37.63	535624.11	SOLPHYLLEX SYR	3	11197	0.75	48.68	545069.24
MYPRODOL SUSP	4	11158	0.80	59.01	658431.25	FLUSTAT CAP	4	10550	0.70	13.73	144853.38
SOLPHYLLEX SYR	5	9928	0.71	49.82	494596.99	BE-TABS PREDNISONE 5MG TA	5	10448	0.70	2.92	30510.09
FLUSTAT CAP	6	9318	0.67	14.56	135714.31	MYPRODOL CAP	6	10156	0.68	53.36	541951.72
STILPANE TAB	7	8616	0.62	8.80	75781.40	CLAVUMOX 375MG	7	9150	0.61	40.98	374994.31
CLAMENTIN 375MG	8	8233	0.59	40.18	330775.13	STILPANE TAB	8	8555	0.57	8.24	70522.70
BE-TABS PREDNISONE 5MG TA	9	7671	0.55	3.29	25215.96	MYPRODOL SUSP	9	8304	0.55	55.44	460398.47
PAINAGON TAB	10	7605	0.55	10.40	79117.64	DESELEX 5MG TAB	10	8015	0.53	137.92	1105389.18
ALLERGEX 4MG TAB	11	7405	0.53	8.92	66016.57	PAINAGON TAB	11	7977	0.53	9.92	79148.41
MYPAID CAP	12	7091	0.51	44.36	314576.69	BECLATE AQUANASE 50MCG 150D	12	7483	0.50	47.26	353633.11
BECLATE AQUANASE 50MCG 150D	13	7034	0.51	47.63	334995.07	ALLERGEX 4MG TAB	13	7418	0.49	8.46	62730.99
CLAVUMOX 375MG	14	6987	0.50	42.14	294425.49	BENYLIN & CODEINE SYR	14	7289	0.49	50.43	367559.72
BENYLIN & CODEINE SYR	15	6834	0.49	50.10	342364.61	DILINCT SYR	15	7156	0.48	44.92	321453.57
PURBAC TAB	16	6597	0.47	12.55	82779.15	CORYX EFF TAB	16	7100	0.47	31.10	220800.79
LOTEM SUSP	17	6463	0.46	47.84	309195.61	DEMAZIN NS TAB	17	6814	0.45	55.91	381004.04
DILINCT SYR	18	6436	0.46	46.44	298876.17	LOTEM SUSP	18	6784	0.45	45.68	309914.16
KLACID XL 500MG TAB	19	6386	0.46	156.21	997565.16	BRONCHOPED P SYR	19	6688	0.45	44.73	299163.66
BACTROBAN TOPICAL OINT	20	6316	0.45	51.50	325274.59	CLAMENTIN 375MG	20	6678	0.45	40.56	270828.43
		1390573	13.11					1499217	12.22		

Table B.19: The top twenty trade name products for age group 2 according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=407425)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=555721)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=427418)	Average cost per item (R)	Total cost (R)
ALCOPHYLLEX SYR	2	4817	1.18	9.91	47727.47	1	9821	1.77	10.08	98999.17	1	5443	1.27	9.71	52878.18
ALLERGEX 4MG TAB	9	2339	0.57	8.91	20850.39	19	2641	0.48	8.84	23358.54	9	2425	0.57	8.99	21807.64
BACTROBAN TOPICAL OINT	8	2387	0.59	51.92	123926.45	31	2116	0.38	186.75	395161.78	18	1813	0.42	51.44	93252.99
BECLATE AQUANASE 50MCG 150D	11	2283	0.56	45.89	104765.93	21	2479	0.45	48.56	120368.35	12	2272	0.53	48.35	109860.79
BENYLIN & CODEINE SYR	19	1802	0.44	51.41	92648.69	15	2970	0.53	50.30	149390.73	16	2062	0.48	48.65	100325.19
BE-TABS PREDNISONE 5MG TA	12	2249	0.55	3.44	7737.03	13	3011	0.54	3.29	9913.82	10	2411	0.56	3.14	7565.11
CLAMENTIN 375MG	10	2289	0.56	39.73	90943.21	8	3540	0.64	39.62	140239.94	11	2404	0.56	41.43	99591.98
CLAVUMOX 375MG	16	2099	0.52	42.19	88556.62	17	2759	0.50	42.33	116799.39	13	2129	0.50	41.84	89069.48
DILINCT SYR	26	1721	0.42	46.78	80501.21	11	3071	0.55	46.42	142549.14	23	1644	0.38	46.12	75825.82
FLUSTAT CAP	17	1875	0.46	14.40	27006.84	6	4545	0.82	14.71	66850.58	5	2898	0.68	14.44	41856.89
KLACID XL 500MG TAB	25	1733	0.43	154.56	267857.86	9	3201	0.58	155.87	498931.12	33	1452	0.34	158.94	230776.18
LOTEM SUSP	28	1683	0.41	47.21	79450.72	18	2695	0.48	48.53	130800.22	15	2085	0.49	47.46	98944.67
MYBULEN TAB	3	4769	1.17	37.62	179425.15	3	5902	1.06	37.84	222144.91	2	3564	0.83	37.61	134054.05
MYPAID CAP	14	2187	0.54	44.90	98190.20	10	3088	0.56	43.91	135590.84	17	1816	0.42	44.49	80795.65
MYPRODOL CAP	1	6795	1.67	57.04	387608.12	2	7892	1.42	37.64	297046.36	4	3253	0.76	56.07	182393.45
MYPRODOL SUSP	4	3044	0.75	59.71	181755.55	4	4807	0.87	59.10	284074.08	3	3307	0.77	58.24	192601.62
PAINAGON TAB	22	1752	0.43	10.41	18240.16	12	1741	0.31	10.50	18285.77	6	2822	0.66	10.29	29042.80
PURBAC TAB	13	2195	0.54	12.78	28057.00	26	2294	0.41	12.53	28749.78	14	2108	0.49	12.32	25972.37
SOLPHYLLEX SYR	6	2553	0.63	49.60	126625.58	5	4660	0.84	50.20	233926.49	7	2715	0.64	49.37	134044.92
STILPANE TAB	5	2572	0.63	8.92	22951.88	7	3601	0.65	59.10	212804.40	8	2443	0.57	8.78	21456.75
		407425	13.04				555721	13.83				427418	11.95		

Table B.20: The top twenty trade name products for age group 2 according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=479622)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=620616)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=398979)	Average cost per item (R)	Total cost (R)
ALCOPHYLLEX SYR	1	5822	1.21	9.38	54611.92	1	10586	1.71	9.74	103139.23	1	4448	1.11	9.22	41028.56
ALLERGEX 4MG TAB	10	2727	0.57	8.60	23448.91	21	2768	0.45	8.30	22977.59	15	1923	0.48	8.48	16304.49
BECLATE AQUANASE 50MCG 150D	9	2733	0.57	47.88	130726.20	23	2663	0.43	47.08	125378.25	11	2087	0.52	46.73	97528.66
BENYLIN & CODEINE SYR	15	2298	0.48	50.08	115084.35	12	3309	0.53	50.87	168340.17	19	1682	0.42	50.02	84135.20
BE-TABS PREDNISONE 5MG TA	6	3032	0.63	3.08	9348.68	5	4522	0.73	2.83	12793.46	3	2894	0.73	2.89	8367.95
BRONCHOPED P SYR	27	1812	0.38	45.33	82133.53	11	3372	0.54	44.96	151614.96	28	1504	0.38	43.49	65415.17
CLAMENTIN 375MG	16	2223	0.46	41.70	92690.15	19	2906	0.47	40.24	116947.21	26	1549	0.39	39.50	61191.07
CLAVUMOX 375MG	8	2846	0.59	40.79	116091.71	6	4225	0.68	41.24	174251.58	12	2079	0.52	40.72	84651.02
CORYX EFF TAB	21	1900	0.40	31.17	59226.82	9	3756	0.61	31.29	117514.05	31	1444	0.36	30.51	44059.92
DEMAZIN NS TAB	17	2059	0.43	57.63	118658.90	16	3136	0.51	54.74	171658.96	22	1619	0.41	56.01	90686.18
DESELEX 5MG TAB	12	2401	0.50	140.80	338053.87	20	2890	0.47	134.77	389493.33	4	2724	0.68	138.71	377841.98
DILINCT SYR	23	1882	0.39	45.65	85921.20	10	3747	0.60	44.87	168113.37	27	1527	0.38	44.15	67419.00
FLUSTAT CAP	7	3001	0.63	14.64	43922.45	4	5311	0.86	13.73	72909.36	10	2238	0.56	12.52	28021.57
LOTEM SUSP	13	2361	0.49	46.84	110582.97	18	2966	0.48	45.82	135897.77	30	1457	0.37	43.54	63433.42
MYBULEN TAB	2	4608	0.96	37.78	174101.77	2	6352	1.02	37.70	239473.28	2	3652	0.92	37.07	135386.84
MYPRODOL CAP	3	3576	0.75	54.91	196355.58	7	4179	0.67	53.19	222289.73	6	2401	0.60	51.36	123306.41
MYPRODOL SUSP	5	3162	0.66	56.65	179118.56	15	3181	0.51	55.90	177827.92	14	1961	0.49	52.75	103451.99
PAINAGON TAB	11	2622	0.55	10.24	26859.65	13	3243	0.52	9.89	32059.05	10	2112	0.53	9.58	20229.71
SOLPHYLLEX SYR	4	3232	0.67	48.95	158196.11	3	5351	0.86	48.90	261657.86	5	2614	0.66	47.90	125215.27
STILPANE TAB	18	2010	0.42	8.34	16762.83	8	4159	0.67	8.28	34423.78	7	2386	0.60	8.10	19336.09
		479622	11.74				620616	13.31				398979	11.10		

Table B.21: The top twenty trade name products according to total cost for age group 3 for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R478014067.20)	Rank	Total cost (R)	% of total expenditure (n=R146671114.27)	Rank	Total cost (R)	% of total expenditure (n=R173272982.45)	Rank	Total cost (R)	% of total expenditure (n=R158069747)
ADCO-AMOCLAV BD 1000MG	10	3024062.21	0.63	14	929836.01	0.63	8	1284992.35	0.74	14	809233.85	0.51
AROPAX 20MG TAB	12	2871980.91	0.60	8	1134082.64	0.77	10	1087226.05	0.63	23	650672.22	0.41
ASPEN LAMZID TAB	4	4555111.57	0.95	9	1093887.87	0.75	5	1573371.86	0.91	3	1887851.84	1.19
AVELON 400MG TAB	8	3455664.03	0.72	16	860885.10	0.59	6	1541325.77	0.89	8	1053453.16	0.67
CILIFT 20MG TAB	16	2597932.85	0.54	10	1059274.96	0.72	20	875287.78	0.51	22	663370.11	0.42
CIPRALEX 10MG	3	5196332.59	1.09	2	1423925.46	0.97	3	1854480.58	1.07	2	1917926.55	1.21
EFEXOR XR 150MG CAP	18	2532144.65	0.53	18	831998.87	0.57	21	869009.26	0.50	13	831136.52	0.53
FLIXONASE AQ NASAL SPRAY	14	2837821.81	0.59	6	1219988.20	0.83	17	934973.11	0.54	20	682860.50	0.43
KLACID XL 500MG TAB	5	4213966.81	0.88	7	1162461.40	0.79	2	1922352.75	1.11	6	1129152.66	0.71
LAMISIL CREAM	19	2325624.63	0.49	20	804535.52	0.55	25	739109.84	0.43	15	781979.27	0.49
LIPITOR 10MG TAB	13	2842575.75	0.59	15	919808.71	0.63	16	966727.81	0.56	10	956039.23	0.60
MYBULEN TAB	11	2910423.42	0.61	11	980115.93	0.67	9	1184836.62	0.68	17	745470.87	0.47
MYPRODOL CAP	2	5302055.19	1.11	1	2043486.39	1.39	1	2185471.21	1.26	7	1073097.59	0.68
NEXIAM 40MG	6	4001627.83	0.84	5	1264281.01	0.86	7	1325863.90	0.77	4	1411482.92	0.89
SERETIDE 50/250 ACCUHALER	15	2602709.95	0.54	21	783473.31	0.53	19	906228.11	0.52	11	913008.53	0.58
SPORANOX 100MG CAP	7	3710248.51	0.78	3	1315569.12	0.90	11	1087099.14	0.63	5	1307580.25	0.83
STOCRIN 600MG TAB	1	5471390.26	1.14	4	1272955.06	0.87	4	1783496.53	1.03	1	2414938.67	1.53
SYNAP FORTE	9	3048593.00	0.64	12	978021.58	0.67	12	1048888.15	0.61	9	1021683.27	0.65
TAVANIC 500MG	17	2574043.11	0.54	24	695822.10	0.47	14	1035588.04	0.60	12	842632.97	0.53
ZITHROMAX 500MG TAB	20	2305336.68	0.48	26	657790.83	0.45	15	1032321.53	0.60	29	615224.32	0.39
		478014067.16	14.30		146671114.27	14.61		173272982.45	14.57		158069747.00	13.73

Table B.22: The top twenty trade name products according to total cost for age group 3 for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R506572754.89)	Rank	Total cost (R)	% of total expenditure (n=R168461300.03)	Rank	Total cost (R)	% of total expenditure (n=R184798667.43)	Rank	Total cost (R)	% of total expenditure (n=R153312787.43)
ADCO-AMOCLAV BD 1000MG	11	2842830.90	0.56	12	939422.24	0.56	11	1182735.76	0.64	18	720672.90	0.47
ASPEN LAMIVUDINE 150MG TAB	16	2592617.09	0.51	19	768062.30	0.46	17	895064.91	0.48	12	929489.88	0.61
ASPEN LAMZID TAB	2	7631247.20	1.51	2	2213442.27	1.31	2	2610969.92	1.41	2	2806835.01	1.83
ASPEN NEVIRAPINE 200MG TAB	19	2456545.16	0.48	21	739983.80	0.44	20	834156.59	0.45	13	882404.77	0.58
AVELON 400MG TAB	6	4092117.54	0.81	8	1111684.46	0.66	5	1829448.29	0.99	5	1150984.79	0.75
CIPRALEX 10MG	3	6509621.47	1.29	3	2145600.59	1.27	3	2251721.08	1.22	3	2112299.80	1.38
CYMBALTA 60MG CAP	14	2661295.10	0.53	15	846237.48	0.50	16	942387.04	0.51	14	872670.58	0.57
DESELEX 5MG TAB	12	2824492.69	0.56	16	831948.23	0.49	14	979621.18	0.53	8	1012923.28	0.66
HERCEPTIN	20	2248775.05	0.44	52	474550.64	0.28	27	714628.50	0.39	7	1059595.91	0.69
KETEK 400MG TAB	15	2651267.69	0.52	22	703735.86	0.42	8	1334197.13	0.72	26	613334.70	0.40
KLACID XL 500MG TAB	5	4126867.95	0.81	7	1261664.27	0.75	4	1859666.45	1.01	9	1005537.23	0.66
LIPITOR 10MG TAB	18	2466878.01	0.49	14	882327.45	0.52	19	867185.59	0.47	19	717364.97	0.47
MYBULEN TAB	10	2887248.45	0.57	11	974692.27	0.58	10	1230808.52	0.67	20	681747.66	0.44
MYPRODOL CAP	13	2755672.38	0.54	9	1078774.14	0.64	13	1068426.83	0.58	27	608471.41	0.40
NEXIAM 40MG	4	4859944.13	0.96	4	1780953.49	1.06	6	1625835.19	0.88	4	1453155.45	0.95
SERETIDE 50/250 ACCUHALER	17	2504987.95	0.49	18	817056.92	0.49	18	877254.39	0.47	15	810676.64	0.53
SPORANOX 100MG CAP	7	3721777.36	0.73	5	1614012.77	0.96	12	1133778.74	0.61	10	973985.85	0.64
STOCRIN 600MG TAB	1	8109884.56	1.60	1	2413328.70	1.43	1	2674546.90	1.45	1	3022008.96	1.97
SYNAP FORTE	8	3670414.30	0.72	6	1290011.38	0.77	9	1312263.60	0.71	6	1068139.32	0.70
TAVANIC 500MG	9	3396281.50	0.67	10	981442.84	0.58	7	1460989.45	0.79	11	953849.21	0.62
		506572754.89	14.81		168461300.03	14.17		184798667.43	14.98		153312787.43	15.30

Table B.23: The top twenty trade name products according to prevalence for the age group 3 in 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=5933729)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (n=6377057)	Average cost per item (R)	Total cost (R)
MYPRODOL CAP	1	90110	1.52	58.84	5302055.19	MYBULEN TAB	1	75199	1.18	38.39	2887248.45
MYBULEN TAB	2	74795	1.26	38.91	2910423.42	ALCOPHYLLEX SYR	2	63199	0.99	10.28	649468.53
ALCOPHYLLEX SYR	3	61463	1.04	10.86	667592.55	MYPRODOL CAP	3	50431	0.79	54.64	2755672.38
STILPANE TAB	4	50727	0.85	10.40	527609.28	STILPANE TAB	4	46223	0.72	9.29	429489.08
SOLPHYLLEX SYR	5	36002	0.61	50.26	1809402.99	SOLPHYLLEX SYR	5	42535	0.67	48.89	2079715.96
MYPAID CAP	6	35624	0.60	47.53	1693131.53	BE-TABS PREDNISONE 5MG TA	6	40236	0.63	3.29	132531.41
ELTROXIN 100MCG TAB	7	35146	0.59	44.97	1580649.62	FLUSTAT CAP	7	37749	0.59	13.72	517830.39
FLUSTAT CAP	8	34584	0.58	15.14	523732.12	STOCRIN 600MG TAB	8	37347	0.59	217.15	8109884.56
CORENZA C EFF TAB	9	30959	0.52	40.81	1263383.24	SYNAP FORTE	9	36866	0.58	99.56	3670414.30
BENYLIN & CODEINE SYR	10	30409	0.51	53.75	1634409.27	ELTROXIN 100MCG TAB	10	36788	0.58	42.93	1579239.56
SYNAP FORTE	11	30306	0.51	100.59	3048593.00	CORENZA C EFF TAB	11	36087	0.57	39.25	1416247.39
BE-TABS PREDNISONE 5MG TA	12	30012	0.51	4.05	121482.49	BENYLIN FOUR FLU SYR	12	35643	0.56	42.85	1527227.68
BENYLIN FOUR FLU SYR	13	29110	0.49	43.91	1278129.94	BENYLIN & CODEINE SYR	13	32235	0.51	53.54	1725780.24
PAINAGON TAB	14	28700	0.48	10.87	312028.72	PAINAGON TAB	14	30121	0.47	9.69	292020.05
CATAFLAM D 50MG DISP TAB	15	27767	0.47	80.98	2248581.84	DILINCT SYR	15	29920	0.47	45.12	1350104.09
DILINCT SYR	16	27689	0.47	47.67	1319936.57	DEMAZIN NS TAB	16	29726	0.47	56.36	1675215.19
ADCO-AMOCLAV BD 1000MG	17	26037	0.44	116.14	3024062.21	PURBAC DS TAB	17	29198	0.46	26.18	764370.04
KLACID XL 500MG TAB	18	25599	0.43	164.61	4213966.81	CORYX EFF TAB	18	29195	0.46	31.47	918834.68
DEMAZIN NS TAB	19	25320	0.43	57.87	1465204.20	GAVISCON ANISEED	19	28383	0.45	69.89	1983747.70
ALLERGEX 4MG TAB	20	24910	0.42	10.01	249447.95	ADCO-DOL TAB	20	28290	0.44	23.18	655720.50
		5933729	12.73					6377057	12.16		

Table B.24: The top twenty trade name products according to prevalence for age group 3 for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=1760402)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2237946)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1935380)	Average cost per item (R)	Total cost (R)
ADCO-AMOCLAV BD 1000MG	18	8022	0.46	115.91	929836.01	17	11106	0.50	115.70	1284992.35	25	6909	0.36	117.13	809233.85
ALCOPHYLLEX SYR	4	14576	0.83	10.74	156571.37	2	30667	1.37	10.99	336888.25	3	16220	0.84	10.74	174132.93
ALLERGEX 4MG TAB	15	7760	0.44	9.95	77227.31	23	8388	0.37	10.07	84442.95	14	8762	0.45	10.02	87777.69
BENYLIN & CODEINE SYR	11	8268	0.47	53.92	445812.52	10	13477	0.60	53.85	725731.28	15	8664	0.45	53.42	462865.47
BENYLIN FOUR FLU SYR	22	6586	0.37	43.64	287393.46	8	14739	0.66	44.10	649976.63	18	7785	0.40	43.77	340759.85
BE-TABS PREDNISONE 5MG TA	10	8395	0.48	4.15	34879.96	15	11714	0.52	4.15	48587.44	10	9903	0.51	3.84	38015.09
CATAFLAM D 50MG DISP TAB	9	9329	0.53	88.64	826879.38	19	10798	0.48	84.45	911929.87	19	7640	0.39	66.72	509772.59
CORENZA C EFF TAB	12	8085	0.46	40.86	330354.09	7	15922	0.71	40.77	649101.24	24	6952	0.36	40.84	283927.91
DEMAZIN NS TAB	23	6531	0.37	58.03	379004.35	16	11322	0.51	57.20	647620.78	21	7467	0.39	58.74	438579.07
DILINCT SYR	17	7081	0.40	48.11	340688.88	11	13138	0.59	47.62	625672.37	20	7470	0.39	47.33	353575.32
ELTROXIN 100MCG TAB	6	11301	0.64	45.16	510300.40	13	11981	0.54	45.34	543238.05	5	11864	0.61	44.43	527111.17
FLUSTAT CAP	19	6996	0.40	15.09	105574.67	5	17159	0.77	15.34	263236.55	6	10429	0.54	14.85	154920.90
KLACID XL 500MG TAB	18	7028	0.40	165.40	1162461.40	14	11830	0.53	162.50	1922352.75	28	6741	0.35	167.51	1129152.66
MYBULEN TAB	2	25267	1.44	38.79	980115.93	3	30408	1.36	38.96	1184836.62	1	19120	0.99	38.99	745470.87
MYPAID CAP	5	12204	0.69	47.80	583321.15	9	14312	0.64	47.18	675286.79	12	9108	0.47	47.71	434523.59
MYPRODOL CAP	1	34450	1.96	59.32	2043486.39	1	37285	1.67	58.62	2185471.21	2	18375	0.95	58.40	1073097.59
PAINAGON TAB	16	7167	0.41	10.96	78531.81	18	11106	0.50	10.88	120856.60	7	10427	0.54	10.80	112640.31
SOLPHYLLEX SYR	8	9465	0.54	49.81	471427.81	6	16546	0.74	50.65	837972.75	9	9991	0.52	50.05	500002.43
STILPANE TAB	3	15554	0.88	10.67	166021.50	4	20284	0.91	10.34	209773.20	4	14889	0.77	10.20	151814.58
SYNAP FORTE	7	9657	0.55	101.28	978021.58	20	10523	0.47	99.68	1048888.15	8	10126	0.52	100.90	1021683.27
		1760402	12.71				2237946	14.42				1935380	10.79		

Table B.25: The top twenty trade name products according to prevalence for age group 3 for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade nam eproduct	Rank	Freq	% of total prevalence (n=2098368)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2457733)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1820956)	Average cost per item (R)	Total cost (R)
ADCO-DOL TAB	15	10016	0.48	24.39	244289.88	21	10679	0.43	22.24	237518.36	19	7595	0.42	22.90	173912.24
ALCOPHYLLEX SYR	3	17879	0.85	10.00	178858.12	2	31529	1.28	10.49	330848.02	3	13791	0.76	10.13	139762.39
BENYLIN & CODEINE SYR	13	10150	0.48	54.13	549393.46	11	14674	0.60	53.71	788129.62	21	7411	0.41	52.39	388257.16
BENYLIN FOUR FLU SYR	14	10033	0.48	43.28	434261.37	8	17563	0.71	43.08	756581.16	17	8047	0.44	41.80	336385.15
BE-TABS PREDNISONE 5MG TA	7	11848	0.56	3.41	40418.54	9	16744	0.68	3.22	53926.08	7	11644	0.64	3.28	38186.79
CORENZA C EFF TAB	11	10664	0.51	39.73	423635.55	7	18184	0.74	39.34	715322.25	23	7239	0.40	38.30	277289.59
CORYX EFF TAB	26	7951	0.38	31.46	250127.97	10	15819	0.62	31.80	487197.70	33	5925	0.33	30.63	181509.01
DEMAZIN NS TAB	21	8761	0.42	58.39	511570.98	13	13469	0.55	55.43	746612.77	20	7496	0.41	55.63	417031.44
DILINCT SYR	23	8263	0.39	46.43	383652.99	12	14614	0.59	44.93	656638.78	24	7043	0.39	43.99	309812.32
ELTROXIN 100MCG TAB	5	12139	0.58	43.59	529133.50	16	12649	0.51	43.20	546487.20	5	12000	0.66	41.97	503618.86
FLUSTAT CAP	10	10731	0.51	15.03	161253.50	6	18738	0.76	13.62	255142.74	15	8280	0.45	12.25	101434.15
GAVISCON ANISEED	16	9259	0.44	69.02	639041.66	26	10007	0.41	69.83	698792.10	11	9117	0.50	70.85	645913.94
MYBULEN TAB	1	25087	1.20	38.85	974692.27	1	31802	1.29	38.70	1230808.52	1	18310	1.01	37.23	681747.66
MYPRODOL CAP	2	19077	0.91	56.55	1078774.14	5	19399	0.79	55.08	1068426.83	6	11955	0.66	50.90	608471.41
PAINAGON TAB	12	10293	0.49	10.68	109915.87	18	11523	0.47	9.52	109654.51	14	8305	0.46	8.72	72449.67
PURBAC DS TAB	20	8916	0.42	25.68	228945.75	24	10077	0.41	25.75	259513.58	10	10205	0.56	27.04	275910.71
SOLPHYLLEX SYR	6	12122	0.58	49.72	602709.58	4	19845	0.81	49.04	973113.41	9	10568	0.58	47.68	503892.97
STILPANE TAB	8	11486	0.55	9.59	110166.18	3	20790	0.85	9.26	192479.92	2	13947	0.77	9.09	126842.98
STOCRIN 600MG TAB	9	11018	0.52	219.13	2413328.70	15	12830	0.52	208.46	2674546.90	4	13504	0.74	223.79	3022008.96
SYNAP FORTE	4	12682	0.60	101.72	1290011.38	14	13157	0.54	99.74	1312263.60	8	11027	0.61	96.87	1068139.32
		2098368	11.36				2457733	13.57				1820956	11.17		

Table B.26: The top twenty trade name products according to total cost for age group 4 for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=497543992.28)	Rank	Total cost (R)	% of total expenditure (n=153412408.25)	Rank	Total cost (R)	% of total expenditure (n=175480855.5)	Rank	Total cost (R)	% of total expenditure (n=168650728.54)
ACTIVELLE TAB	20	2572342.96	0.52	19	840218.98	0.55	23	862373.75	0.49	17	869750.23	0.52
ADCO-SIMVASTATIN 20MG	7	3712471.28	0.75	10	1121334.59	0.73	7	1256441.35	0.72	7	1334695.34	0.79
AROPAX 20MG TAB	11	3339329.46	0.67	4	1331708.04	0.87	9	1232280.84	0.70	24	775340.58	0.46
CELEBREX 200MG CAP	9	3608972.35	0.73	8	1190426.82	0.78	8	1234451.13	0.70	10	1184094.40	0.70
CILIFT 20MG TAB	16	2844335.89	0.57	9	1154924.19	0.75	19	955998.01	0.54	28	733413.69	0.43
CIPRALEX 10MG	6	3824244.86	0.77	14	1032395.30	0.67	5	1320258.20	0.75	4	1471591.36	0.87
COVERSYL PLUS TAB	3	4254923.90	0.86	5	1262586.48	0.82	3	1418155.90	0.81	3	1574181.52	0.93
ELTROXIN 100MCG TAB	12	3293578.78	0.66	12	1060296.02	0.69	15	1118501.33	0.64	11	1114781.43	0.66
FOSAMAX 70MG TAB	13	3126070.91	0.63	13	1044331.95	0.68	16	1063695.71	0.61	13	1018043.25	0.60
GLEEVEC 100MG CAP	18	2634719.75	0.53	34	618765.78	0.40	17	1043288.34	0.59	14	972665.63	0.58
IN ACTRAPHANE PSET 3M	17	2664329.94	0.54	20	832621.19	0.54	21	899424.74	0.51	15	932284.01	0.55
IN NOVOMIX 30 FLEXPEN 3ML PF D	14	3033534.03	0.61	21	819048.90	0.53	18	984391.39	0.56	9	1230093.74	0.73
LIPITOR 10MG TAB	1	10173730.85	2.04	1	3338422.55	2.18	1	3454824.50	1.97	1	3380483.80	2.00
LIPITOR 20MG TAB	2	6957664.00	1.40	2	2197633.68	1.43	2	2366584.43	1.35	2	2393445.89	1.42
LIVIFEM 2.5MG TAB	10	3570933.60	0.72	7	1255392.78	0.82	10	1227162.25	0.70	12	1088378.57	0.65
MYPRODOL CAP	15	2965691.51	0.60	11	1095892.09	0.71	12	1216617.43	0.69	36	653181.99	0.39
NEXIAM 40MG	4	3983734.70	0.80	6	1256884.08	0.82	4	1340144.66	0.76	6	1386705.96	0.82
PREMARIN 0.625MG TAB	5	3960078.70	0.80	3	1343473.32	0.88	6	1309298.24	0.75	8	1307307.14	0.78
PREXUM 4MG TAB	8	3658445.05	0.74	15	1013718.83	0.66	11	1226577.10	0.70	5	1418149.12	0.84
SYNAP FORTE	19	2616239.49	0.53	17	848240.61	0.55	22	896014.28	0.51	16	871984.60	0.52
		497543992.28	15.43		153412408.25	16.07		175480855.50	15.06		168650728.54	15.24

Table B.27: The top twenty trade name products according to total cost for age group 4 for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name products	Rank	Total cost (R)	% of total expenditure (n=R549795115.63)	Rank	Total cost (R)	% of total expenditure (n=R179885502.5)	Rank	Total cost (R)	% of total expenditure (n=R196025409.63)	Rank	Total cost (R)	% of total expenditure (n=R173884203.5)
ADCO-SIMVASTATIN 20MG	7	4204893.27	0.76	6	1392086.81	0.77	7	1480553.09	0.76	9	1332253.37	0.77
AVELON 400MG TAB	16	2902231.65	0.53	29	721089.94	0.40	9	1358682.94	0.69	25	822458.77	0.47
CELEBREX 200MG CAP	10	3363125.71	0.61	9	1212269.43	0.67	12	1172869.92	0.60	15	977986.36	0.56
CIPRALEX 10MG	3	5386870.53	0.98	4	1714230.44	0.95	3	1861522.78	0.95	3	1811117.31	1.04
COVERSYL PLUS TAB	18	2767138.77	0.50	10	1177208.48	0.65	28	863759.26	0.44	30	726171.03	0.42
ELTROXIN 100MCG TAB	11	3363014.85	0.61	12	1115236.79	0.62	13	1159637.31	0.59	12	1088140.75	0.63
FOSAMAX 70MG TAB	20	2708497.12	0.49	15	953383.66	0.53	24	940503.39	0.48	26	814610.07	0.47
HERCEPTIN	8	3943781.27	0.72	20	872492.17	0.49	8	1424941.50	0.73	6	1646297.60	0.95
IN ACTRAPHANE PSET 3M	15	3034664.45	0.55	14	1007525.26	0.56	20	997219.92	0.51	14	1029919.27	0.59
IN NOVOMIX 30 FLEXPEN 3ML PF D	6	4770212.21	0.87	7	1356638.01	0.75	6	1643706.80	0.84	4	1769867.40	1.02
LIPITOR 10MG TAB	1	9697182.40	1.76	1	3321310.52	1.85	1	3374746.37	1.72	1	3001125.51	1.73
LIPITOR 20MG TAB	2	7364058.99	1.34	2	2453595.32	1.36	2	2561984.94	1.31	2	2348478.73	1.35
LIVIFEM 2.5MG TAB	13	3100442.72	0.56	13	1110566.23	0.62	18	1045986.76	0.53	17	943889.73	0.54
NEXIAM 40MG	5	4863464.65	0.88	3	1715185.51	0.95	5	1652676.46	0.84	7	1495602.68	0.86
PLAVIX 75MG FILMCOAT TAB	19	2765985.10	0.50	19	873966.79	0.49	21	978672.15	0.50	20	913346.16	0.53
PREMARIN 0.625MG TAB	9	3707932.42	0.67	8	1316794.55	0.73	10	1252476.34	0.64	11	1138661.53	0.65
PREXUM 4MG TAB	4	4967796.70	0.90	5	1502681.90	0.84	4	1756822.49	0.90	5	1708292.31	0.98
PREXUM PLUS TAB	17	2875646.78	0.52	65	453279.26	0.25	16	1089192.49	0.56	8	1333175.03	0.77
STOCRIN 600MG TAB	14	3099217.00	0.56	18	877105.85	0.49	19	1020715.50	0.52	10	1201895.65	0.69
SYNAP FORTE	12	3252681.23	0.59	11	1150894.15	0.64	14	1147058.49	0.59	16	954728.59	0.55
		549795115.63	14.94		179885502.50	14.62		196025409.63	14.68		173884203.50	15.56

Table B.27: The top twenty trade name products according to total cost for age group 4 for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name products	Rank	Total cost (R)	% of total expenditure (n=R549795115.63)	Rank	Total cost (R)	% of total expenditure (n=R179885502.5)	Rank	Total cost (R)	% of total expenditure (n=R196025409.63)	Rank	Total cost (R)	% of total expenditure (n=R173884203.5)
ADCO-SIMVASTATIN 20MG	7	4204893.27	0.76	6	1392086.81	0.77	7	1480553.09	0.76	9	1332253.37	0.77
AVELON 400MG TAB	16	2902231.65	0.53	29	721089.94	0.40	9	1358682.94	0.69	25	822458.77	0.47
CELEBREX 200MG CAP	10	3363125.71	0.61	9	1212269.43	0.67	12	1172869.92	0.60	15	977986.36	0.56
CIPRALEX 10MG	3	5386870.53	0.98	4	1714230.44	0.95	3	1861522.78	0.95	3	1811117.31	1.04
COVERSYL PLUS TAB	18	2767138.77	0.50	10	1177208.48	0.65	28	863759.26	0.44	30	726171.03	0.42
ELTROXIN 100MCG TAB	11	3363014.85	0.61	12	1115236.79	0.62	13	1159637.31	0.59	12	1088140.75	0.63
FOSAMAX 70MG TAB	20	2708497.12	0.49	15	953383.66	0.53	24	940503.39	0.48	26	814610.07	0.47
HERCEPTIN	8	3943731.27	0.72	20	872492.17	0.49	8	1424941.50	0.73	6	1646297.60	0.95
IN ACTRAPHANE PSET 3M	15	3034664.45	0.55	14	1007525.26	0.56	20	997219.92	0.51	14	1029919.27	0.59
IN NOVOMIX 30 FLEXPEN 3ML PF D	6	4770212.21	0.87	7	1356633.01	0.75	6	1643706.80	0.84	4	1769867.40	1.02
LIPITOR 10MG TAB	1	9697182.40	1.76	1	3321310.52	1.85	1	3374746.37	1.72	1	3001125.51	1.73
LIPITOR 20MG TAB	2	7364058.99	1.34	2	2453595.32	1.36	2	2561984.94	1.31	2	2348478.73	1.35
LIVIFEM 2.5MG TAB	13	3100442.72	0.56	13	1110566.23	0.62	18	1045986.76	0.53	17	943889.73	0.54
NEXIAM 40MG	5	4863464.65	0.88	3	1715185.51	0.95	5	1652676.46	0.84	7	1495602.68	0.86
PLAVIX 75MG FILMCOAT TAB	19	2765985.10	0.50	19	873966.79	0.49	21	978672.15	0.50	20	913346.16	0.53
PREMARIN 0.625MG TAB	9	3707932.42	0.67	8	1316794.55	0.73	10	1252476.34	0.64	11	1138661.53	0.65
PREXUM 4MG TAB	4	4967796.70	0.90	5	1502681.90	0.84	4	1756822.49	0.90	5	1708292.31	0.98
PREXUM PLUS TAB	17	2875646.78	0.52	65	453279.26	0.25	16	1089192.49	0.56	8	1333175.03	0.77
STOCRIN 600MG TAB	14	3099217.00	0.56	18	877105.85	0.49	19	1020715.50	0.52	10	1201395.65	0.69
SYNAP FORTE	12	3252681.23	0.59	11	1150894.15	0.64	14	1147058.49	0.59	16	954728.59	0.55
		549795115.63	14.94		179885502.50	14.62		196025409.63	14.68		173884203.50	15.56

Table B.30: The top twenty trade name products according to prevalence for age group 4 for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name products	Rank	Freq	% of total prevalence (n=1764443)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2018940)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1663697)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	6	12380	0.70	112	1392087	8	13127	0.65	112.79	1480553.09	5	12356	0.74	107.82	1332253.37
ADCO-ZOLPIDEM 10MG	15	8740	0.50	72	627500	17	9441	0.47	71.34	673554.80	18	7974	0.48	69.92	557554.31
ALCOPHYLLEX SYR	12	9683	0.55	10	95358	2	17770	0.88	10.42	185199.91	19	7823	0.47	10.18	79663.43
BE-TABS PREDNISONE 5MG TA	13	9655	0.55	4	38110	9	12881	0.64	3.67	47289.18	8	9966	0.60	3.78	37714.34
CILIFT 20MG TAB	18	7997	0.45	71	569901	24	8214	0.41	70.47	578844.47	20	7749	0.47	68.79	533077.12
DISPRIN CV 100MG DISP	10	10386	0.59	25	258458	14	10183	0.50	24.23	246719.44	10	9657	0.58	23.36	225562.13
ECOTRIN 81MG TAB	4	13132	0.74	20	262739	5	14512	0.72	21.14	306818.01	3	14491	0.87	20.68	299674.97
ELTROXIN 100MCG TAB	1	26805	1.52	42	1115237	1	27929	1.38	41.52	1159637.31	1	26752	1.61	40.68	1088140.75
ELTROXIN 50MCG TAB	9	10690	0.60	27	283529	12	11324	0.56	26.73	302659.22	7	11049	0.66	25.97	286988.10
ESTROFEM 2MG TAB	22	7569	0.43	110	829929	21	8574	0.42	109.11	935546.01	16	8536	0.51	107.92	921165.92
GLUCOPHAGE F 850MG TAB	20	7903	0.45	56	446224	20	8723	0.43	56.02	488679.57	14	8627	0.52	55.51	478855.50
LIPITOR 10MG TAB	2	17807	0.98	192	3321311	3	17613	0.87	191.61	3374746.37	2	15791	0.95	190.05	3001125.51
LIPITOR 20MG TAB	14	8931	0.51	275	2453595	18	9342	0.46	274.24	2561984.94	13	8656	0.52	271.31	2348478.73
MYBULEN TAB	5	12624	0.72	40	502403	4	16353	0.81	39.46	645239.27	9	9754	0.59	38.66	377126.52
MYPRODOL CAP	8	10972	0.62	59	651112	11	11666	0.58	57.55	671405.89	21	7581	0.46	54.94	416523.40
PREMARIN 0.625MG TAB	3	13519	0.77	97	1316795	10	12847	0.64	97.49	1252476.34	6	11904	0.72	95.65	1138661.53
PREXUM 4MG TAB	7	11505	0.65	131	1502682	6	13473	0.67	130.40	1756822.49	4	13161	0.79	129.80	1708292.31
STILPANE TAB	21	7735	0.44	12	95768	7	13372	0.66	11.26	150588.17	11	9039	0.54	11.39	102927.83
SYNAP FORTE	11	9895	0.56	116	1150894	15	10097	0.50	113.60	1147058.49	15	8617	0.52	110.80	954728.59
TREPILINE 25MG TAB	16	8555	0.48	35	301883	19	8922	0.44	34.73	309887.18	17	8035	0.48	34.66	278457.98
		1764443	12.80				2018940	12.70				1663697	13.07		

Table B.31: The top twenty trade name products according to total cost for age group 5 for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R731018015.8)	Rank	Total cost (R)	% of total expenditure (n=R231312409.07)	Rank	Total cost (R)	% of total expenditure (n=R253992930.63)	Rank	Total cost (R)	% of total expenditure (n=R245712676.1)
ADALAT XL 30MG TAB	17	3719273.74	0.51	23	1143657.00	0.49	18	1251524.73	0.49	15	1324092.01	0.54
ADCO-SIMVASTATIN 10MG	15	3838203.90	0.53	18	1213635.54	0.52	15	1297886.43	0.51	14	1326681.93	0.54
ADCO-SIMVASTATIN 20MG	5	7883224.10	1.08	5	2401546.24	1.04	5	2669518.89	1.05	6	2812158.97	1.14
ADCO-SIMVASTATIN 40MG	20	3526856.73	0.48	17	1251739.32	0.54	25	1107504.86	0.44	21	1167612.55	0.48
AROPAX 20MG TAB	16	3836364.20	0.52	12	1438406.11	0.62	12	1411443.69	0.56	32	986514.40	0.40
CELEBREX 200MG CAP	3	9978992.06	1.37	3	3404518.86	1.47	3	3401009.05	1.34	4	3173464.15	1.29
COVERSYL PLUS TAB	7	6606023.04	0.90	8	2038742.40	0.88	7	2242235.00	0.88	7	2325045.64	0.95
COZAAR COMP TAB	13	3986322.59	0.55	15	1319254.88	0.57	14	1338483.49	0.53	13	1328584.22	0.54
ELTROXIN 100MCG TAB	10	5149215.67	0.70	10	1645252.24	0.71	10	1738136.53	0.68	10	1765826.90	0.72
FOSAMAX 70MG TAB	2	13906441.80	1.90	2	4645857.18	2.01	2	4746539.21	1.87	2	4514045.41	1.84
LIPITOR 10MG TAB	1	18356531.20	2.51	1	5956235.48	2.57	1	6137690.82	2.42	1	6262604.90	2.55
LIPITOR 20MG TAB	4	9901874.47	1.35	4	3097306.77	1.34	4	3313182.21	1.30	3	3491385.49	1.42
LIVIFEM 2.5MG TAB	11	4420757.08	0.60	11	1527169.34	0.66	11	1463872.54	0.58	12	1429715.20	0.58
NEXIAM 20MG	19	3536662.27	0.48	22	1147989.38	0.50	19	1217723.06	0.48	20	1170949.83	0.48
NEXIAM 40MG	12	4131284.67	0.57	16	1296468.16	0.56	13	1404469.08	0.55	11	1430297.43	0.58
NORVASC 5MG TAB	14	3878979.34	0.53	13	1410645.14	0.61	17	1257488.26	0.50	17	1210845.94	0.49
PLAVIX 75MG FILMCOAT TAB	9	5801435.16	0.79	9	1728223.73	0.75	9	1953895.50	0.77	8	2119315.93	0.86
PREMARIN 0.625MG TAB	8	6064099.98	0.83	7	2114521.17	0.91	8	2020926.27	0.80	9	1928652.54	0.78
PREXUM 4MG TAB	6	7583908.93	1.04	6	2192838.75	0.95	6	2570116.20	1.01	5	2820953.98	1.15
SERETIDE 50/250 ACCUHALER	18	3718617.22	0.51	20	1161772.31	0.50	26	1294059.75	0.51	16	1262785.16	0.51
		731018015.80	17.76		231312409.07	18.22		253992930.63	17.26		245712676.10	17.85

Table B.32: The top twenty trade name products according to total cost for age group 5 for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R793875296.06)	Rank	Total cost (R)	% of total expenditure (n=R255858603.79)	Rank	Total cost (R)	% of total expenditure (n=R276289645.17)	Rank	Total cost (R)	% of total expenditure (n=R261727047.1)
ADALAT XL 30MG TAB	18	4070780.72	0.51	16	1291905.66	0.50	18	1400328.05	0.51	18	1378547.01	0.53
ADCO-SIMVASTATIN 10MG	17	4108646.75	0.52	14	1361527.01	0.53	16	1442654.92	0.52	21	1304464.32	0.50
ADCO-SIMVASTATIN 20MG	6	9083840.14	1.14	6	2910761.79	1.14	6	3197750.18	1.16	5	2975328.17	1.14
ADCO-SIMVASTATIN 40MG	19	4066349.18	0.51	19	1252248.56	0.49	19	1394317.73	0.50	16	1419782.89	0.54
CELEBREX 200MG CAP	5	9282263.38	1.17	4	3250340.18	1.27	5	3257547.64	1.18	6	2774375.56	1.06
CIPRALEX 10MG	16	4168833.11	0.53	17	1269921.12	0.50	17	1430929.09	0.52	15	1467982.90	0.56
COVERSYL PLUS TAB	20	3845711.52	0.48	11	1734905.15	0.68	34	1136792.05	0.41	44	974014.32	0.37
ELTROXIN 100MCG TAB	8	5468541.21	0.69	9	1770347.15	0.69	9	1872258.01	0.68	11	1825936.05	0.70
FOSAMAX 70MG TAB	2	12330676.65	1.55	2	4267881.51	1.67	2	4210476.23	1.52	2	3852318.91	1.47
HERCEPTIN	10	5173058.58	0.65	27	1101239.53	0.43	8	1933374.90	0.70	9	2138444.15	0.82
LIPITOR 10MG TAB	1	18228432.11	2.30	1	6140400.46	2.40	1	6263862.74	2.27	1	5824168.91	2.23
LIPITOR 20MG TAB	3	10872422.76	1.37	3	3540813.48	1.38	3	3780321.62	1.37	3	3551287.66	1.36
LIVIFEM 2.5MG TAB	14	4260588.93	0.54	13	1461650.40	0.57	15	1480121.63	0.53	19	1338816.90	0.51
MABTHERA 500MG VIAL	12	5094623.53	0.64	44	855841.74	0.33	11	1760176.13	0.64	7	2478605.66	0.95
NEXIAM 40MG	11	5125228.41	0.65	10	1741499.22	0.68	12	1733791.54	0.63	12	1649937.65	0.63
PLAVIX 75MG FILMCOAT TAB	7	7382465.91	0.93	7	2342951.65	0.92	7	2573260.28	0.93	8	2466253.98	0.94
PREMARIN 0.625MG TAB	9	5323270.53	0.67	8	1871966.44	0.73	10	1808769.12	0.65	13	1642534.97	0.63
PREXUM 4MG TAB	4	10001917.07	1.26	5	3101452.89	1.21	4	3459575.98	1.25	4	3440888.20	1.31
PREXUM PLUS TAB	13	4280965.24	0.54	83	615264.32	0.24	13	1618015.52	0.59	10	2047685.40	0.78
SYNAP FORTE	15	4215927.36	0.53	12	1503278.63	0.59	14	1477371.38	0.53	22	1234682.35	0.47
		793875296.06	17.18		255858603.79	16.96		276289645.17	17.09		261727047.10	17.49

Table B.33: The top twenty trade name products according to prevalence for age group 5 in 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=6033952)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (n=6481394)	Average cost per item (R)	Total cost (R)
ELTROXIN 100MCG TAB	1	134239	2.22	38.36	5149215.67	ELTROXIN 100MCG TAB	1	145400	2.24	37.61	5468541.21
ECOTRIN 81MG TAB	2	111415	1.85	19.48	2170267.86	ECOTRIN 81MG TAB	2	124124	1.92	20.56	2552277.92
LIPITOR 10MG TAB	3	97775	1.62	187.74	18356531.20	LIPITOR 10MG TAB	3	96583	1.49	188.73	18228432.11
DISPRIN CV 100MG DISP	4	73937	1.23	23.26	1719663.93	ADCO-SIMVASTATIN 20MG	4	82330	1.27	110.33	9083840.14
ADCO-SIMVASTATIN 20MG	5	70441	1.17	111.91	7883224.10	PREXUM 4MG TAB	5	78099	1.20	128.07	10001917.07
PREMARIN 0.625MG TAB	6	62136	1.03	97.59	6064099.98	DISPRIN CV 100MG DISP	6	73887	1.14	24.20	1788099.56
PREXUM 4MG TAB	7	59211	0.98	128.08	7583908.93	ELTROXIN 50MCG TAB	7	61993	0.96	26.15	1620977.31
ELTROXIN 50MCG TAB	8	55089	0.91	27.10	1492775.20	PREMARIN 0.625MG TAB	8	54847	0.85	97.06	5323270.53
WARFARIN 5MG TAB	9	51768	0.86	46.24	2393930.04	WARFARIN 5MG TAB	9	54718	0.84	45.72	2501748.27
PLENISH K 600MG TAB	10	43911	0.73	52.28	2295868.59	PLENISH K 600MG TAB	10	46111	0.71	49.73	2293055.21
CELEBREX 200MG CAP	11	43296	0.72	230.48	9978992.06	ADCO-SIMVASTATIN 10MG	11	41282	0.64	99.53	4108646.75
FOSAMAX 70MG TAB	12	41401	0.69	335.90	13906441.80	CELEBREX 200MG CAP	12	40624	0.63	228.49	9282263.38
ADCO-SIMVASTATIN 10MG	13	37838	0.63	101.44	3838203.90	LIPITOR 20MG TAB	13	40601	0.63	267.79	10872422.76
LIPITOR 20MG TAB	14	37086	0.61	267.00	9901874.47	COXFLAM 15MG	14	39502	0.61	85.28	3368757.03
COVERSYL PLUS TAB	15	36628	0.61	180.35	6606023.04	ADCO-ZOLPIDEM 10MG	15	38148	0.59	72.98	2784126.11
COXFLAM 15MG	16	34257	0.57	82.29	2818849.84	FOSAMAX 70MG TAB	16	36811	0.57	334.97	12330676.65
CONCOR 5MG TAB	17	33492	0.56	73.27	2454028.77	TREPILINE 25MG TAB	17	35501	0.55	35.40	1256803.77
TREPILINE 25MG TAB	18	33288	0.55	36.36	1210262.58	PURESIS 40MG TAB	18	32883	0.51	33.23	1092866.03
LANOXIN 0.25MG TAB	19	32216	0.53	10.38	334284.25	CILIFT 20MG TAB	19	31908	0.49	66.73	2129076.94
COXFLAM 7.5MG	20	30747	0.51	38.47	1182832.63	ADCO-SIMVASTATIN 40MG	20	31421	0.48	129.42	4066349.18
		6033952	18.56					6481394	18.31		

Table B.34: The top twenty trade name products for age group 5 according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=1907873)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2103598)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2022481)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 10MG	14	11955	0.63	101.52	1213635.54	13	12771	0.61	101.63	1297886.43	13	13112	0.65	101.18	1326681.93
ADCO-SIMVASTATIN 20MG	6	21474	1.13	111.84	2401546.24	5	23788	1.13	112.22	2669518.89	5	25179	1.24	111.69	2812158.97
CELEBREX 200MG CAP	10	14618	0.77	232.90	3404518.86	10	14842	0.71	229.15	3401009.05	11	13836	0.68	229.36	3173464.15
CONCOR 5MG TAB	13	12846	0.65	74.70	922272.20	18	11081	0.53	72.81	806803.47	21	10065	0.50	72.03	724953.10
COVERSYL PLUS TAB	16	11354	0.60	179.56	2038742.40	15	12406	0.59	180.74	2242235.00	15	12868	0.64	180.68	2325045.64
COXFLAM 15MG	19	10532	0.55	81.24	855614.93	16	11996	0.57	82.07	984497.70	16	11729	0.58	83.45	978737.21
COXFLAM 7.5MG	20	10374	0.54	38.22	396545.90	22	10551	0.50	38.46	405824.74	23	9822	0.49	38.74	380461.99
DISPRIN CV 100MG DISP	4	22830	1.20	20.16	460343.33	4	25384	1.20	24.49	620522.40	4	25773	1.27	24.79	638798.20
ECOTRIN 81MG TAB	2	34046	1.78	17.95	611285.32	2	38211	1.82	20.56	785555.32	2	39158	1.94	19.75	773427.22
ELTROXIN 100MCG TAB	1	43010	2.25	38.25	1645252.24	1	45135	2.15	38.51	1738136.53	1	46094	2.28	38.31	1765826.90
ELTROXIN 50MCG TAB	7	17530	0.92	27.13	475509.48	8	18358	0.87	27.20	499388.19	8	19201	0.95	26.97	517877.53
FOSAMAX 70MG TAB	12	13858	0.73	335.25	4645857.18	12	14088	0.67	336.92	4746539.21	12	13455	0.67	335.49	4514045.41
LANOXIN 0.25MG TAB	17	10859	0.57	10.05	109103.69	20	10942	0.52	10.79	118081.34	18	10415	0.51	10.28	107099.22
LIPITOR 10MG TAB	3	32072	1.68	185.71	5956235.48	3	32526	1.55	188.70	6137690.82	3	33177	1.64	188.76	6262604.90
LIPITOR 20MG TAB	15	11732	0.61	264.01	3097306.77	14	12410	0.59	266.98	3313182.21	14	12944	0.64	269.73	3491385.49
PLENISH K 600MG TAB	11	14315	0.75	54.32	777584.05	11	14558	0.69	51.55	750518.19	10	15038	0.74	51.06	767766.35
PREMARIN 0.625MG TAB	5	21639	1.13	97.72	2114521.17	6	20709	0.98	97.59	2020926.27	7	19788	0.98	97.47	1928652.54
PREXUM 4MG TAB	8	17143	0.90	127.91	2192838.75	7	20052	0.95	128.17	2570116.20	6	22016	1.09	128.13	2820953.98
TREPILINE 25MG TAB	18	10787	0.57	37.12	400392.17	17	11407	0.54	36.43	415509.41	17	11094	0.55	35.55	394361.00
WARFARIN 5MG TAB	9	16738	0.88	46.28	774660.29	9	17370	0.83	46.20	802572.60	9	17660	0.87	46.25	816697.15
		1907873	18.83				2103598	17.99				382424	18.91		

Table B.35: The top twenty trade name products for age group 5 according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=2100310)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2281166)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2099918)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 10MG	12	13471	0.64	101.07	1361527.01	12	14260	0.63	101.17	1442654.92	12	13551	0.65	96.26	1304464.82
ADCO-SIMVASTATIN 20MG	4	26051	1.24	111.73	2910761.79	4	28533	1.25	112.07	3197750.18	4	27746	1.32	107.23	2975328.17
ADCO-SIMVASTATIN 40MG	25	9743	0.46	128.53	1252248.56	21	10761	0.47	129.57	1394317.73	21	10917	0.52	130.05	1419782.89
ADCO-ZOLPIDEM 10MG	16	12315	0.59	73.47	904754.40	15	13614	0.60	73.07	994817.49	15	12219	0.58	72.39	884564.22
CELEBREX 200MG CAP	11	14201	0.68	228.88	3250340.18	11	14307	0.63	227.69	3257547.64	16	12116	0.58	228.98	2774375.56
CILIFT 20MG TAB	22	10268	0.49	67.44	692521.26	18	10917	0.48	67.03	731762.07	22	10723	0.51	65.73	704793.61
COXFLAM 15MG	13	13241	0.63	84.82	1123134.82	14	13839	0.61	85.07	1177245.49	14	12422	0.59	86.01	1068376.72
DISPRIN CV 100MG DISP	5	24847	1.18	24.93	619490.79	6	24955	1.09	24.17	603063.24	6	24085	1.15	23.48	565545.53
ECOTRIN 81MG TAB	2	38720	1.84	19.88	769695.65	2	42559	1.87	21.01	894045.86	2	42845	2.04	20.74	888536.41
ELTROXIN 100MCG TAB	1	46826	2.23	37.81	1770347.15	1	49542	2.17	37.79	1872258.01	1	49032	2.33	37.24	1825936.05
ELTROXIN 50MCG TAB	7	19861	0.95	26.36	523568.49	7	20975	0.92	26.41	554039.60	7	21157	1.01	25.68	543369.22
FOSAMAX 70MG TAB	15	12731	0.61	335.24	4267881.51	16	12532	0.55	335.98	4210476.23	18	11548	0.55	333.59	3852318.91
LIPITOR 10MG TAB	3	32509	1.55	188.88	6140400.46	3	33099	1.45	189.25	6263862.74	3	30975	1.48	188.03	5824168.91
LIPITOR 20MG TAB	14	13194	0.63	268.37	3540813.48	13	14056	0.62	268.95	3780321.62	13	13351	0.64	265.99	3551287.66
PLENISH K 600MG TAB	10	15848	0.75	50.76	804452.58	10	15168	0.66	49.61	752435.47	10	15095	0.72	48.77	736167.16
PREMARIN 0.625MG TAB	8	19174	0.91	97.63	1871966.44	9	18569	0.81	97.41	1808769.12	9	17104	0.81	96.03	1642534.97
PREXUM 4MG TAB	6	24127	1.15	128.55	3101452.89	5	26982	1.18	128.22	3459575.98	5	26990	1.29	127.49	3440888.20
PURESIS 40MG TAB	19	10977	0.52	34.06	373915.51	19	10917	0.48	33.12	361599.61	20	10989	0.52	32.52	357350.91
SPIRACTIN 25MG TAB	28	9492	0.45	41.11	390199.76	30	10175	0.45	40.27	409744.64	23	10574	0.50	39.45	417150.78
TREPILINE 25MG TAB	17	11839	0.56	35.66	422185.87	17	12232	0.54	35.50	434186.99	19	11430	0.54	35.03	400430.91
WARFARIN 5MG TAB	9	17849	0.85	45.84	818260.96	8	18591	0.81	45.83	851995.02	8	18273	0.87	45.50	831492.29
		2100310	18.92				2281166	18.26				2099918	19.20		

Table B.36: The top twenty trade name products according to total cost for females for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R1128652112.2)	Rank	Total cost (R)	% of total expenditure (n=R351967752.1)	Rank	Total cost (R)	% of total expenditure (n=R401215797.02)	Rank	Total cost (R)	% of total expenditure (n=R375466054.67)
ADCO-SIMVASTATIN 20MG	15	6211598.68	0.55	15	1875134.79	0.53	17	2114400.70	0.53	12	2222063.19	0.59
AROPAX 20MG TAB	9	7359782.39	0.65	5	2859836.31	0.81	9	2733528.01	0.68	17	1765418.07	0.47
AVELON 400MG TAB	19	4952003.4	0.44	32	1200248.27	0.34	14	2280420.11	0.57	23	1471335.02	0.39
CELEBREX 200MG CAP	3	10797181.22	0.96	3	3658941.33	1.04	3	3662160.24	0.91	3	3476079.65	0.93
CILIFT 20MG TAB	12	6647660.64	0.59	8	2704271.17	0.77	15	2226245.17	0.55	18	1717144.3	0.46
CIPRALEX 10MG	6	8684023.21	0.77	11	2344275.74	0.67	5	3062036.09	0.76	5	3277711.38	0.87
COVERSYL PLUS TAB	11	6830536.95	0.61	13	2054183.53	0.58	18	2311229.11	0.58	9	2465174.31	0.66
ELTROXIN 100MCG TAB	5	8839796.6	0.78	7	2836510.79	0.81	6	2999251.36	0.75	6	3004034.45	0.80
ESTROFEM 2MG TAB	20	4728340.44	0.42	22	1606327.32	0.46	23	1577476.49	0.39	21	1544536.63	0.41
FOSAMAX 70MG TAB	1	15875985.94	1.41	1	5310725.50	1.51	1	5428934.95	1.35	1	5136325.49	1.37
KLACID XL 500MG TAB	18	5876237.9	0.52	23	1551671.66	0.44	7	2778368.32	0.69	20	1546197.92	0.41
LIPITOR 10MG TAB	2	14585759.61	1.29	2	4742841.18	1.35	2	4914406.89	1.22	2	4928511.54	1.31
LIPITOR 20MG TAB	8	7825385.82	0.69	10	2447438.83	0.70	11	2633125.35	0.66	7	2744771.64	0.73
LIVIFEM 2.5MG TAB	7	8162923.15	0.72	6	2836591.22	0.81	8	2747925.42	0.68	8	2578406.51	0.69
MYPRODOL CAP	13	6534520.86	0.58	9	2494981.11	0.71	10	2657399.10	0.66	30	1382140.65	0.37
NEXIAM 40MG	10	6911486.04	0.61	12	2191562.53	0.62	12	2324735.17	0.58	11	2395198.34	0.64
PREMARIN 0.625MG TAB	4	10439514.9	0.92	4	3600892.44	1.02	4	3467635.14	0.86	4	3370987.32	0.90
PREXUM 4MG TAB	14	6404441.61	0.57	17	1827439.66	0.52	16	2167233.49	0.54	10	2409768.46	0.64
SERETIDE 50/250 ACCUHALER	16	6000895.3	0.53	16	1831618.17	0.52	18	2071663.41	0.52	14	2097613.72	0.56
SYNAP FORTE	17	5928271.66	0.53	14	1938484.37	0.55	19	2017838.80	0.50	15	1971948.49	0.53
		1128652112	14.14		351967752.10	14.75		401215797.02	14.00		375466054.7	13.72

Table B.37: The top twenty trade name products according to total cost for females for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Pharmaceutical product	Rank	Total cost (R)	% of total expenditure (n=R1213068355.9)	Rank	Total cost (R)	% of total expenditure (n=R398777934.96)	Rank	Total cost (R)	% of total expenditure (n=R433671758.73)	Rank	Total cost (R)	% of total expenditure (n=R380618662.25)
ADCO-SIMVASTATIN 20MG	13	7171172.31	0.59	13	2318648.74	0.58	15	2522398.77	0.58	12	2330124.8	0.61
ASPEN LAMZID TAB	14	6234824.52	0.51	18	1803395.65	0.45	17	2128812.85	0.49	13	2302616.02	0.60
AVELON 400MG TAB	16	5932449.3	0.49	23	1537467.44	0.39	12	2770771.72	0.64	23	1624210.14	0.43
CELEBREX 200MG CAP	5	10129318.57	0.84	4	3590862.03	0.90	5	3538560.11	0.82	5	2999896.43	0.79
CIPRALEX 10MG	3	11906812.69	0.98	3	3803233.25	0.95	3	4116298.34	0.95	4	3987281.1	1.05
ELTROXIN 100MCG TAB	7	9129458.21	0.75	7	2997364.76	0.75	7	3140715.29	0.72	6	2991378.16	0.79
ESTROFEM 2MG TAB	19	5031094.19	0.41	22	1565136.7	0.39	22	1749407.29	0.40	20	1716550.2	0.45
FOSAMAX 70MG TAB	2	13993997.6	1.15	1	4847200.24	1.22	2	4795879.63	1.11	8	4350917.73	1.14
HERCEPTIN	4	11365564.9	0.94	12	2448282.34	0.61	4	4072944.9	0.94	1	4844337.66	1.27
KLACID XL 500MG TAB	17	5869923.41	0.48	19	1674383.41	0.42	11	2777333.98	0.64	28	1418206.02	0.37
LIPITOR 10MG TAB	1	14277564.89	1.18	2	4842881.73	1.21	1	4934914.37	1.14	2	4499768.79	1.18
LIPITOR 20MG TAB	10	8368495.73	0.69	8	2767823.64	0.69	9	2906846.31	0.67	9	2693825.78	0.71
LIVIFEM 2.5MG TAB	11	7559218.83	0.62	9	2638203.77	0.66	14	2576373.17	0.59	11	2344641.89	0.62
NEXIAM 40MG	8	8521078.61	0.70	6	3025689.17	0.76	10	2869562.45	0.66	10	2625826.99	0.69
PREMARIN 0.625MG TAB	6	9412145.45	0.78	5	3327087.79	0.83	6	3190729.47	0.74	8	2894328.19	0.76
PREXUM 4MG TAB	9	8463824.76	0.70	11	2611939.47	0.65	8	2942526.12	0.68	7	2909359.17	0.76
SERETIDE 50/250 ACCUHALER	18	5672988.59	0.47	15	1843438.86	0.46	20	1980695.47	0.46	18	1848854.26	0.49
STOCRIN 600MG TAB	15	6123228.16	0.50	16	1831892.82	0.46	19	2008133.44	0.46	14	2283201.9	0.60
SYNAP FORTE	12	7384706.29	0.61	10	2626490.31	0.66	13	2615236.52	0.60	16	2142979.46	0.56
TAVANIC 500MG	20	4996690.23	0.41	31	1379972.43	0.35	16	2163333.58	0.50	27	1458384.22	0.38
		1213068356	13.81		398777935	13.41		433671759	13.79		380618662.3	100.00

Table B.38: The top twenty trade name products according to prevalence for the female gender for 2005 and 2006

Total for 2005						Total for 2006					
Trade name product	Rank	Freq	% of total prevalence (N=11974255)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (N=12924812)	Average cost per item (R)	Total cost (R)
ELTROXIN 100MCG TAB	1	219536	1.83	40.27	8839796.60	ELTROXIN 100MCG TAB	1	233060	1.80	39.17	9129458.21
MYPRODOL CAP	2	108043	0.90	60.48	6534520.86	ELTROXIN 50MCG TAB	2	98699	0.76	26.32	2597720.70
PREMARIN 0.625MG TAB	3	106719	0.89	97.82	10439514.90	PREMARIN 0.625MG TAB	3	97157	0.75	96.88	9412145.45
ELTROXIN 50MCG TAB	4	86843	0.73	27.33	2373494.64	ECOTRIN 81MG TAB	4	90295	0.70	20.50	1851000.36
MYBULEN TAB	5	81101	0.68	39.47	3201243.64	MYBULEN TAB	5	83755	0.65	39.03	3268865.76
ECOTRIN 81MG TAB	6	80317	0.67	19.36	1554906.50	ALCOPHYLLEX SYR	6	82381	0.64	9.93	817880.32
ALCOPHYLLEX SYR	7	79512	0.66	10.42	828416.46	LIPITOR 10MG TAB	7	75676	0.59	188.67	14277564.89
LIPITOR 10MG TAB	8	77623	0.65	187.91	14585759.61	STILPANE TAB	8	70199	0.54	12.87	903543.68
STILPANE TAB	9	76392	0.64	13.84	1057538.75	BE-TABS PREDNISONE 5MG TA	9	65833	0.51	3.75	246848.34
TREPILINE 25MG TAB	10	57480	0.48	34.98	2010752.46	PREXUM 4MG TAB	10	65815	0.51	128.60	8463824.76
ADCO-SIMVASTATIN 20MG	11	55435	0.46	112.05	6211598.68	ADCO-SIMVASTATIN 20MG	11	65061	0.50	110.22	7171172.31
CILIFT 20MG TAB	12	54472	0.45	122.04	6647660.64	MYPRODOL CAP	12	64377	0.50	56.94	3665643.52
SYNAP FORTE	13	50932	0.43	116.40	5928271.66	SYNAP FORTE	13	63042	0.49	117.14	7384706.29
PREXUM 4MG TAB	14	49647	0.41	129.00	6404441.61	TREPILINE 25MG TAB	14	61385	0.47	33.56	2059806.40
BE-TABS PREDNISONE 5MG TA	15	49418	0.41	4.41	217796.45	ADCO-ZOLPIDEM 10MG	15	58097	0.45	70.53	4097611.98
CELEBREX 200MG CAP	16	47911	0.40	225.36	10797181.22	CILIFT 20MG TAB	16	58064	0.45	68.42	3972649.81
FOSAMAX 70MG TAB	17	47197	0.39	336.38	15875985.94	COXFLAM 15MG	17	52788	0.41	79.77	4210829.39
DISPRIN CV 100MG DISP	18	47175	0.39	23.25	1096881.00	SOLPHYLLEX SYR	18	52518	0.41	48.90	2568164.84
COXFLAM 15MG	19	47064	0.39	76.31	3591398.46	DISPRIN CV 100MG DISP	19	47188	0.37	24.12	1138153.78
ADCO-ZOLPIDEM 10MG	20	46029	0.38	71.83	3306362.51	CIPRALEX 10MG	20	47170	0.36	252.42	11906812.69
		11974255	12.27					12924812	11.86		

Table B.39: The top twenty trade name products for females according to prevalence for the individual periods of 2005

Total for 2005	Period 1					Period 2					Period 3				
Trade name products	Rank	Freq	% of total prevalence (n=3657414)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=4375243)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=3941588)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	12	16730	0.46	112.08	1875134.79	13	18845	0.43	112.20	2114400.70	10	19860	0.50	121.34	2409768.46
ADCO-ZOLPIDEM 10MG	21	13936	0.38	72.86	1015427.39	19	16566	0.38	71.06	1177253.32	19	15527	0.39	109.43	1699102.35
ALCOPHYLLEX SYR	9	18956	0.52	10.24	194194.13	3	39000	0.89	10.55	411604.92	8	21556	0.55	119.61	2578406.51
BE-TABS PREDNISONE 5MG TA	22	13867	0.38	4.56	63206.51	12	19255	0.44	4.45	85763.04	16	16296	0.41	109.69	1787498.87
CELEBREX 200MG CAP	14	15952	0.44	229.37	3658941.33	21	16388	0.37	223.47	3662160.24	18	15571	0.40	110.28	1717144.30
CILIFT 20MG TAB	11	17924	0.49	150.87	2704271.17	14	18401	0.42	120.99	2226245.17	13	18147	0.46	117.02	2123538.84
COXFLAM 15MG	16	14702	0.40	75.45	1109261.23	20	16492	0.38	75.72	1248798.13	17	15870	0.40	111.31	1766418.07
DISPRIN CV 100MG DISP	18	14447	0.40	20.15	291167.46	23	16061	0.37	24.45	392660.02	15	16667	0.42	118.31	1971948.49
ECOTRIN 81MG TAB	7	24570	0.67	17.90	439797.06	8	27527	0.63	20.41	561736.18	4	28220	0.72	119.45	3370987.32
ELTROXIN 100MCG TAB	1	70579	1.93	40.19	2836510.79	1	74069	1.69	40.49	2999251.36	1	74888	1.90	68.59	5136325.49
ELTROXIN 50MCG TAB	5	27526	0.75	27.38	753555.38	7	29164	0.67	27.45	800619.37	3	30153	0.76	115.28	3476079.65
FOSAMAX 70MG TAB	15	15828	0.43	335.53	5310725.50	22	16094	0.37	337.33	5428934.95	20	15275	0.39	101.22	1546197.92
LIPITOR 10MG TAB	6	25518	0.70	185.86	4742841.18	9	26020	0.59	188.87	4914406.89	5	26085	0.66	125.66	3277711.38
MYBULEN TAB	4	27542	0.75	39.46	1086709.71	5	32653	0.75	39.39	1286046.62	9	20906	0.53	117.92	2465174.31
MYPRODOL CAP	2	40908	1.12	60.99	2494981.11	2	44224	1.01	60.09	2657399.10	6	22911	0.58	131.12	3004034.45
PREMARIN 0.625MG TAB	3	36790	1.01	97.88	3600892.44	4	35420	0.81	97.90	3467635.14	2	34509	0.88	142.82	4928511.54
PREXUM 4MG TAB	19	14153	0.39	129.12	1827439.66	18	16780	0.38	129.16	2167233.49	12	18714	0.47	118.74	2222063.19
SOLPHYLLEX SYR	30	11264	0.31	49.87	561733.10	10	20536	0.47	50.66	1040324.95	27	12566	0.32	113.68	1428541.90
STILPANE TAB	8	24529	0.67	14.55	356830.35	6	29392	0.67	13.42	394398.02	7	22471	0.57	122.15	2744771.64
SYNAP FORTE	13	16502	0.45	117.47	1938484.37	16	17512	0.40	115.23	2017838.80	14	16918	0.43	123.99	2097613.72
TREPILINE 25MG TAB	10	18374	0.50	35.96	660748.29	11	19863	0.45	34.88	692917.12	11	19243	0.49	124.47	2395198.34
		3657414	13.14				4375243	12.58				3941588	12.24		

Table B.40: The top twenty trade name products for females according to prevalence for the individual periods of 2006

Total for 2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=4238435)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=4807841)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=3878536)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	11	20771	0.49	111.63	2318648.74	13	22549	0.47	111.86	2522398.77	7	21741	0.56	107.18	2330124.80
ADCO-ZOLPIDEM 10MG	13	19395	0.46	70.97	1376450.56	16	20848	0.43	70.67	1473391.35	15	17854	0.46	69.89	1247770.07
ALCOPHYLLEX SYR	8	23182	0.55	9.61	222708.47	2	41005	0.85	10.17	417095.69	14	18194	0.47	9.79	178076.16
BE-TABS PREDNISONE 5MG TA	14	19236	0.45	3.93	75620.46	8	27002	0.56	3.63	97951.42	10	19595	0.51	3.74	73276.46
CILIFT 20MG TAB	15	19152	0.45	69.52	1331429.69	17	19902	0.41	68.39	1361096.93	12	19010	0.49	67.34	1280123.19
CIPRALEX 10MG	21	15084	0.36	252.14	3803233.25	24	16278	0.34	252.87	4116298.34	18	15808	0.41	252.23	3987281.10
COXFLAM 15MG	17	18223	0.43	79.06	1440744.19	19	18606	0.39	79.43	1477810.55	16	15959	0.41	80.97	1292274.65
DISPRIN CV 100MG DISP	19	15935	0.38	24.91	396916.46	27	16034	0.33	24.07	385944.33	20	15219	0.39	23.35	355292.99
ECOTRIN 81MG TAB	4	28122	0.66	19.80	556777.07	6	31075	0.65	20.98	652069.84	3	31098	0.80	20.65	642153.45
ELTROXIN 100MCG TAB	1	75912	1.79	39.48	2997364.76	1	79694	1.66	39.41	3140715.29	1	77454	2.00	38.62	2991378.16
ELTROXIN 50MCG TAB	3	31864	0.75	26.58	846788.00	4	33537	0.70	26.61	892333.09	2	33298	0.86	25.79	858599.61
LIPITOR 10MG TAB	6	25641	0.60	188.87	4842881.73	9	26089	0.54	189.16	4934914.37	5	23946	0.62	187.91	4499768.79
MYBULEN TAB	43	10265	0.24	35.16	360953.84	3	35178	0.73	39.14	1376789.05	9	20551	0.53	38.13	783691.93
MYPRODOL CAP	7	23826	0.56	58.59	1395993.56	10	24745	0.51	56.99	1410333.85	19	15806	0.41	54.37	859316.11
PREMARIN 0.625MG TAB	2	34144	0.81	97.44	3327087.79	5	32789	0.68	97.31	3190729.47	4	30224	0.78	95.76	2894328.19
PREXUM 4MG TAB	12	20224	0.48	129.15	2611939.47	12	22875	0.48	128.64	2942526.12	6	22716	0.59	128.08	2909359.17
SOLPHYLLEX SYR	22	14790	0.35	49.43	731089.67	11	24511	0.51	49.10	1203409.66	23	13217	0.34	47.94	633665.51
STILPANE TAB	16	18427	0.43	13.63	251153.28	7	30471	0.63	12.36	376628.48	8	21301	0.55	12.95	275761.92
SYNAP FORTE	9	21950	0.52	119.66	2626490.31	14	22339	0.46	117.07	2615236.52	13	18753	0.48	114.27	2142979.46
TREPILINE 25MG TAB	10	20962	0.49	33.74	707353.18	15	21303	0.44	33.59	715490.08	28	12145	0.31	28.97	351874.11
		4238435	11.26				4807841	11.79				3878536	11.96		

Table B.41: The top twenty trade name products according to total cost for males for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R763226111.46)	Rank	Total cost (R)	% of total expenditure (n=R234825846.23)	Rank	Total cost (R)	% of total expenditure (n=R273822187.04)	Rank	Total cost (R)	% of total expenditure (n=R254578078.19)
ADCO-SIMVASTATIN 20MG	3	6376696.26	0.84	3	1959898.79	0.83	3	2150772.06	0.79	4	2266025.41	0.89
AVELON 400MG TAB	19	3516177.96	0.46	29	854990.38	0.36	10	1615329.19	0.59	20	1045858.39	0.41
CELEBREX 200MG CAP	10	4376265.87	0.57	11	1445303.52	0.62	11	1523154.12	0.56	12	1407808.23	0.55
CIPRALEX 10MG	18	3540580.77	0.46	24	959541.79	0.41	17	1227992.74	0.45	15	1353046.24	0.53
COVERSYL PLUS TAB	6	5525866.13	0.72	5	1676891.55	0.71	7	1851984.18	0.68	6	1996990.4	0.78
FLIXONASE AQ NASAL SPRAY	17	3566973.04	0.47	10	1485894.83	0.63	18	1217665.24	0.44	29	863412.97	0.34
FLOMAX 0.4MG SR	12	4003289.6	0.52	14	1231413.19	0.52	14	1386714.55	0.51	13	1385161.86	0.54
GLEEVEC 100MG CAP	9	4506532.52	0.59	9	1542598.85	0.66	12	1490066.62	0.54	10	1473867.05	0.58
IN ACTRAPHANE PSET 3M	14	3676179.59	0.48	15	1123856.59	0.48	16	1232337.85	0.45	16	1319985.15	0.52
IN NOVOMIX 30 FLEXPEN 3ML PF D	15	3649429.41	0.48	22	975754.13	0.42	21	1178243.98	0.43	9	1495431.3	0.59
KLACID XL 500MG TAB	13	3883051.93	0.51	21	994800.78	0.42	6	1872542.14	0.68	21	1015709.01	0.40
LIPITOR 10MG TAB	1	16855208.2	2.21	1	5496092.44	2.34	1	5668808.83	2.07	1	5690306.93	2.24
LIPITOR 20MG TAB	2	11295518.88	1.48	2	3584246.79	1.53	2	3811013.16	1.39	2	3900258.93	1.53
LIPITOR 40MG TAB	16	3582255.22	0.47	20	1017924.21	0.43	20	1186772.03	0.43	14	1377558.98	0.54
MYPRODOL CAP	8	4521211.04	0.59	8	1658671.6	0.71	5	1904906.34	0.70	23	957633.1	0.38
NEXIAM 40MG	7	5398749.73	0.71	6	1673318.04	0.71	9	1819187.97	0.66	7	1906243.72	0.75
PLAVIX 75MG FILMCOAT TAB	5	5536539.12	0.73	7	1664982.31	0.71	8	1828665.1	0.67	5	2042891.71	0.80
PREXUM 4MG TAB	4	6245368.67	0.82	4	1773313.11	0.76	4	2112384.39	0.77	3	2359671.17	0.93
SERETIDE 50/250 ACCUHALER	11	4134782.16	0.54	13	1287914.86	0.55	13	1434804.28	0.52	11	1412063.02	0.55
STOCRIN 600MG TAB	20	3442987.48	0.45	36	779072.24	0.33	25	1129213.64	0.41	8	1534701.6	0.60
		763226111.5	14.10		234825846.2	14.13		273822187	13.75		254578078.2	14.46

Table B.42: The top twenty trade name products according to total cost for males for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R832725542.36)	Rank	Total cost (R)	% of total expenditure (n=R269121989.86)	Rank	Total cost (R)	% of total expenditure (n=R300238662.09)	Rank	Total cost (R)	% of total expenditure (n=R263364890.41)
ADCO-SIMVASTATIN 20MG	4	7208438.15	0.87	4	2340481.59	0.87	4	2540099.39	0.85	5	2327857.17	0.88
ASPEN LAMZID TAB	14	4119207.01	0.49	19	1158682.06	0.43	18	1427374.54	0.48	13	1533150.41	0.58
AVELON 400MG TAB	13	4215828.82	0.51	22	1062345.72	0.39	8	1937789.54	0.65	19	1215693.56	0.46
CELEBREX 200MG CAP	15	4045837.21	0.49	12	1441464.61	0.54	17	1429965.03	0.48	22	1174407.57	0.45
CIPRALEX 10MG	10	4727620.46	0.57	10	1506939.98	0.56	12	1632777.21	0.54	12	1587903.27	0.60
FLOMAX 0.4MG SR	11	4433945.79	0.53	11	1459282.11	0.54	14	1601325.92	0.53	14	1373387.76	0.52
GLEEVEC 400MG TAB	9	4754619.13	0.57	18	1189893.87	0.44	9	1861135.9	0.62	8	2047621.42	0.78
IN ACTRAPHANE PSET 3M	18	3920125.61	0.47	15	1278126.34	0.47	23	1334309.3	0.44	17	1312689.97	0.50
IN NOVOMIX 30 FLEXPEN 3ML PF D	7	5865953.33	0.70	7	1665696.79	0.62	7	1989694.23	0.66	6	2210562.31	0.84
KLACID XL 500MG TAB	20	3809427.63	0.46	21	1121610.64	0.42	11	1779834.02	0.59	30	907982.97	0.34
LIPITOR 10MG TAB	1	16154064.45	1.94	1	5518495.79	2.05	1	5587350.88	1.86	1	5048217.78	1.92
LIPITOR 20MG TAB	2	12062518.39	1.45	2	3991006.68	1.48	2	4209191.81	1.40	2	3862319.9	1.47
LIPITOR 40MG TAB	12	4231532.08	0.51	14	1406242.87	0.52	16	1467363.61	0.49	15	1357925.6	0.52
MABTHERA 500MG VIAL	19	3819191.03	0.46	73	627881.8	0.23	15	1503003.38	0.50	11	1689305.85	0.64
NEXIAM 40MG	6	6563280.58	0.79	5	2290314.62	0.85	6	2228740.05	0.74	9	2044225.91	0.78
PLAVIX 75MG FILMCOAT TAB	5	7099216.14	0.85	6	2260811.24	0.84	5	2462784.07	0.82	4	2375620.83	0.90
PREXUM 4MG TAB	3	8403966.09	1.01	3	2590686.23	0.96	3	2935034.47	0.98	3	2878245.39	1.09
SERETIDE 50/250 ACCUHALER	17	3956949.48	0.48	16	1271545.39	0.47	20	1405837.48	0.47	18	1279566.61	0.49
STOCRIN 600MG TAB	8	5418803.4	0.65	8	1553833.42	0.58	10	1802315.12	0.60	7	2062654.86	0.78
SYNAP FORTE	16	4037912.59	0.48	13	1409919.36	0.52	19	1423953.86	0.47	20	1204039.37	0.46
		832725542.4	14.27		269121989.9	13.80		300238662	14.18		263364890.4	15.00

Table B.43: The top twenty trade name products according to prevalence for men for 2005 and 2006

Total for 2005						Total for 2006					
Trade name product	Rank	Freq	% of total prevalence (N=7870112)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (N=8537499)	Average cost per item (R)	Total cost (R)
LIPITOR 10MG TAB	1	88863	1.13	189.68	16855208.20	ECOTRIN 81MG TAB	1	86204	1.01	187.39	16154064.45
ECOTRIN 81MG TAB	2	76967	0.98	19.75	1520011.91	LIPITOR 10MG TAB	2	84779	0.99	142.28	12062518.39
MYPRODOL CAP	3	75138	0.95	60.17	4521211.04	ALCOPHYLLEX SYR	3	70861	0.83	118.60	8403966.09
ALCOPHYLLEX SYR	4	68880	0.88	10.35	713235.66	PREXUM 4MG TAB	4	65264	0.76	110.45	7208438.15
DISPRIN CV 100MG DISP	5	63818	0.81	23.30	1487146.56	ADCO-SIMVASTATIN 20MG	5	64935	0.76	109.33	7099216.14
MYBULEN TAB	6	58582	0.74	39.38	2307250.21	DISPRIN CV 100MG DISP	6	63905	0.75	102.70	6563280.58
ADCO-SIMVASTATIN 20MG	7	56746	0.72	112.37	6376696.26	MYBULEN TAB	7	58400	0.68	100.44	5865953.33
PREXUM 4MG TAB	8	48497	0.62	128.78	6245368.67	BE-TABS PREDNISONE 5MG TA	8	46288	0.54	117.07	5418803.40
STILPANE TAB	9	45243	0.57	12.49	565216.44	LIPITOR 20MG TAB	9	44351	0.52	107.20	4754619.13
LIPITOR 20MG TAB	10	41699	0.53	270.88	11295518.88	MYPRODOL CAP	10	43394	0.51	108.95	4727620.46
WARFARIN 5MG TAB	11	36126	0.46	49.48	1787418.16	STILPANE TAB	11	41780	0.49	106.13	4433945.79
SOLPHYLLEX SYR	12	34672	0.44	50.44	1748722.20	SOLPHYLLEX SYR	12	40051	0.47	105.65	4231532.08
BE-TABS PREDNISONE 5MG TA	13	34391	0.44	4.62	158721.46	WARFARIN 5MG TAB	13	38311	0.45	110.04	4215828.82
CATAFLAM D 50MG DISP TAB	14	31057	0.39	83.37	2589217.81	GLUCOPHAGE F 850MG TAB	14	35738	0.42	115.26	4119207.01
COVERSYL PLUS TAB	15	30415	0.39	181.68	5525866.13	SYNAP FORTE	15	35548	0.42	113.81	4045837.21
GLUCOPHAGE F 850MG TAB	16	29781	0.38	58.09	1730101.82	FLUSTAT CAP	16	31774	0.37	127.08	4037912.59
SYNAP FORTE	17	29065	0.37	115.39	3353823.81	ELTROXIN 100MCG TAB	17	31392	0.37	126.05	3956949.48
ELTROXIN 100MCG TAB	18	28254	0.36	42.99	1214659.19	ADCO-SIMVASTATIN 10MG	18	28501	0.33	137.54	3920125.61
FLUSTAT CAP	19	27933	0.35	15.17	423810.91	ADCO-SIMVASTATIN 40MG	19	28207	0.33	135.40	3819191.09
MYPAID CAP	20	27192	0.35	47.76	1298580.78	CORENZA C EFF TAB	20	27319	0.32	139.44	3809427.63
		7870112	11.86					8537499	11.33		

Table B.44: The top twenty trade name products according to prevalence for males for the individual periods of 2005

Total for 2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=2342549)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2951302)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2576261)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	6	17476	0.75	112.15	1959898.79	7	19089	0.65	112.67	2150772.06	4	20181	0.78	112.29	2266025.41
ALCOPHYLLEX SYR	7	15973	0.68	10.17	162420.37	1	34349	1.16	10.50	360823.88	5	18558	0.72	10.24	189991.41
BE-TABS PREDNISONE 5MG TA	13	9598	0.41	4.56	43802.38	13	13503	0.46	4.70	63400.85	12	11290	0.44	4.56	51518.23
CATAFLAM D 50MG DISP TAB	12	10440	0.45	90.92	949233.45	17	11775	0.40	87.81	1033995.87	20	8842	0.34	68.54	605988.49
COVERSYL PLUS TAB	14	9293	0.40	180.45	1676891.55	24	10159	0.34	182.30	1851984.18	13	10963	0.43	182.16	1996990.40
DISPRIN CV 100MG DISP	4	19626	0.84	20.34	399105.97	6	21803	0.74	24.46	533311.00	3	22389	0.87	24.78	554729.59
ECOTRIN 81MG TAB	3	23291	0.99	18.16	422886.08	4	26361	0.89	20.86	549930.75	2	27315	1.06	20.03	547195.08
ELTROXIN 100MCG TAB	15	9089	0.39	42.92	390116.33	27	9489	0.32	43.37	411491.03	16	9676	0.38	42.69	413051.83
FLUSTAT CAP	52	5262	0.22	15.07	79277.62	11	14149	0.48	15.37	217536.14	21	8522	0.33	14.90	126997.15
GLUCOPHAGE F 850MG TAB	18	8987	0.38	58.27	523695.89	26	9878	0.33	58.37	576568.70	14	10916	0.42	57.70	629837.23
LIPITOR 10MG TAB	1	29362	1.25	187.18	5496092.44	3	29725	1.01	190.71	5668808.83	1	29776	1.16	191.10	5690306.93
LIPITOR 20MG TAB	10	13376	0.57	267.96	3584246.79	12	14084	0.48	270.59	3811013.16	9	14239	0.55	273.91	3900258.93
MYBULEN TAB	5	18760	0.80	39.41	739402.44	5	24752	0.84	39.28	972254.53	8	15070	0.58	39.52	595593.24
MYPAID CAP	19	8927	0.38	48.16	429945.30	19	11384	0.39	47.11	536275.03	33	6881	0.27	48.30	332360.45
MYPRODOL CAP	2	27237	1.16	60.90	1658671.60	2	31861	1.08	59.79	1904906.34	7	16040	0.62	59.70	957633.10
PREXUM 4MG TAB	9	13798	0.59	128.52	1773313.11	9	16398	0.56	128.82	2112384.39	6	18301	0.71	128.94	2359671.17
SOLPHYLLEX SYR	20	8865	0.38	50.06	443792.64	10	16283	0.55	50.74	826237.43	17	9524	0.37	50.26	478692.13
STILPANE TAB	8	13832	0.59	13.33	184420.00	8	18289	0.62	12.06	220511.06	10	13122	0.51	12.22	160285.38
SYNAP FORTE	17	9037	0.39	117.35	1060504.74	23	10202	0.35	114.39	1167036.88	15	9826	0.38	114.62	1126282.19
WARFARIN 5MG TAB	11	11817	0.50	49.39	583585.78	16	12058	0.41	49.52	597125.70	11	12251	0.48	49.52	606706.68
		2342549	12.13				2951302	12.05				2576261	11.40		

Table B.45: The top twenty trade name products according to prevalence for males for the individual periods of 2006

Total for 2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=2741639)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=3236996)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=2558864)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 10MG	17	9345	0.34	101.67	950111.47	28	9877	0.31	101.71	1004559.93	19	9279	0.36	96.81	898329.94
ADCO-SIMVASTATIN 20MG	4	20813	0.76	112.45	2340481.59	5	22519	0.70	112.80	2540099.39	4	21603	0.84	107.76	2327857.17
ADCO-SIMVASTATIN 40MG	19	8727	0.32	131.94	1151429.42	29	9665	0.30	133.45	1289812.47	18	9815	0.38	133.85	1313759.12
ALCOPHYLLEX SYR	6	19807	0.72	9.60	190168.72	1	35037	1.08	10.03	351373.18	6	16017	0.63	9.64	154383.52
BE-TABS PREDNISONE 5MG TA	10	13570	0.49	4.05	54990.94	9	18741	0.58	3.77	70671.97	9	13977	0.55	3.88	54252.97
CORENZA C EFF TAB	27	7722	0.28	40.62	313639.60	14	14138	0.44	40.32	570095.17	61	5459	0.21	38.86	212120.52
DISPRIN CV 100MG DISP	1	21818	0.80	24.96	544496.72	7	21491	0.66	24.25	521170.98	5	20596	0.80	23.49	483886.38
ECOTRIN 81MG TAB	2	26885	0.98	20.08	539772.64	2	29549	0.91	21.12	624125.45	1	29770	1.16	20.80	619191.25
ELTROXIN 100MCG TAB	16	10119	0.37	42.30	428011.47	24	10702	0.33	41.88	448228.08	16	10571	0.41	41.20	435547.16
FLUSTAT CAP	18	8735	0.32	14.93	130375.12	12	16045	0.50	13.69	219604.50	27	6994	0.27	12.47	87237.69
GLUCOPHAGE F 850MG TAB	13	11352	0.41	57.16	648830.34	19	12255	0.38	56.75	695511.19	12	12131	0.47	56.32	683268.06
LIPITOR 10MG TAB	1	28881	1.05	191.08	5518495.79	3	29255	0.90	190.99	5587350.88	2	26643	1.04	189.48	5048217.78
LIPITOR 20MG TAB	9	14690	0.53	272.80	3991006.68	13	15403	0.48	273.27	4209191.81	8	14318	0.56	269.75	3862319.90
MYBULEN TAB	7	18508	0.68	39.30	727358.64	4	24949	0.77	39.12	975930.04	7	14943	0.58	38.10	569333.44
MYPRODOL CAP	8	15668	0.57	58.09	910165.62	12	16826	0.52	56.37	948560.04	14	10900	0.43	52.96	577287.87
PREXUM 4MG TAB	5	20055	0.73	129.18	2590686.23	5	22749	0.70	129.02	2935034.47	3	22460	0.88	128.15	2878245.39
SOLPHYLLEX SYR	14	11290	0.41	49.82	562422.26	8	18936	0.58	49.43	936081.97	17	9825	0.38	48.05	472045.27
STILPANE TAB	15	10147	0.37	12.18	123638.64	10	18741	0.58	11.06	207340.00	10	12892	0.50	11.35	146331.76
SYNAP FORTE	12	12137	0.44	116.17	1409919.36	17	12514	0.39	113.79	1423953.86	15	10897	0.43	110.49	1204039.37
WARFARIN 5MG TAB	11	12486	0.46	48.82	609609.39	16	13010	0.40	48.96	636919.64	11	12815	0.50	48.47	621151.12
		2741639	11.04				3236996	11.50				2558864	11.41		

Table B.46: The top twenty trade name products according to total cost provided by pharmacies for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R1726420150.5)	Rank	Total cost (R)	% of total expenditure (n=545165465.5)	Rank	Total cost (R)	% of total expenditure (n=612659768.99)	Rank	Total cost (R)	% of total expenditure (n=568592407.64)
ADCO-SIMVASTATIN 20MG	6	11988654.27	0.69	6	3673041.23	0.67	8	4058751.21	0.66	8	4256861.83	0.75
AROPAX 20MG TAB	13	9677609.96	0.56	5	3793532.62	0.70	12	3603025.13	0.59	23	2281052.21	0.40
AVELON 400MG TAB	20	7538188.42	0.44	35	1852341.61	0.34	13	3486126.82	0.57	27	2199719.99	0.39
CELEBREX 200MG CAP	4	14284870.63	0.83	4	4848860.29	0.89	4	4878030.89	0.80	5	4557979.45	0.80
CILIFT 20MG TAB	16	8626856.57	0.50	10	3534937.59	0.65	18	2881700.27	0.47	26	2210218.71	0.39
CIPRALEX 10MG	8	11759698.41	0.68	13	3212809.59	0.59	7	4121078.16	0.67	6	4425810.66	0.78
COVERSYL PLUS TAB	7	11835215.26	0.69	9	3596628.46	0.66	9	3980988.63	0.65	7	4257598.17	0.75
ELTROXIN 100MCG TAB	12	9714183.26	0.56	14	3133830.50	0.57	16	3292738.87	0.54	12	3287613.89	0.58
FOSAMAX 70MG TAB	3	16685576.24	0.97	3	5639379.10	1.03	3	5672738.64	0.93	3	5373458.50	0.95
KLACID XL 500MG TAB	15	8879226.41	0.51	22	2344116.63	0.43	5	4255118.87	0.69	24	2279990.91	0.40
LIPITOR 10MG TAB	1	30437894.92	1.76	1	9994479.04	1.83	1	10224926.90	1.67	1	10218488.98	1.80
LIPITOR 20MG TAB	2	18530633.54	1.07	2	5884651.94	1.08	2	6235584.32	1.02	2	6410397.28	1.13
LIVIFEM 2.5MG TAB	19	7882961.07	0.46	19	2778511.89	0.51	21	2642081.19	0.43	18	2462367.99	0.43
MYPRODOL CAP	14	9249215.42	0.54	8	3609713.57	0.66	11	3831579.25	0.63	36	1807922.60	0.32
NEXIAM 40MG	9	11470696.80	0.66	7	3648368.61	0.67	10	3869153.05	0.63	9	3953175.14	0.70
PLAVIX 75MG FILMCOAT TAB	18	8093696.25	0.47	21	2410429.80	0.44	19	2699481.35	0.44	14	2983785.10	0.52
PREMARIN 0.625MG TAB	10	10037121.47	0.58	12	3478946.87	0.64	15	3339771.86	0.55	13	3218402.74	0.57
PREXUM 4MG TAB	5	12235601.52	0.71	11	3497760.13	0.64	6	4145196.76	0.68	4	4592644.63	0.81
SERETIDE 50/250 ACCUHALER	11	9788721.24	0.57	16	3034293.00	0.56	14	3376087.47	0.55	10	3378340.77	0.59
SYNAP FORTE	17	8510332.66	0.49	18	2794227.99	0.51	17	2921565.33	0.48	15	2794539.34	0.49
		1726420150.50	18.74		545165465.50	14.08		612659768.99	13.63		568592407.64	13.53

Table B.47: The top twenty trade name products according to total cost provided by pharmacies for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R1888460214.9)	Rank	Total cost (R)	% of total expenditure (n=R615211036.86)	Rank	Total cost (R)	% of total expenditure (n=R673920508.7)	Rank	Total cost (R)	% of total expenditure (n=R599328669.3)
ADCO-SIMVASTATIN 20MG	7	13867023.57	0.73	8	4489873.52	0.73	6	4875507.34	0.72	7	4501642.71	0.75
ASPEN LAMZID TAB	13	10307482.26	0.55	16	2958302.27	0.48	15	3537945.73	0.52	12	3811234.26	0.64
AVELON 400MG TAB	17	9122598.85	0.48	23	2339749.47	0.38	9	4264239.46	0.63	21	2518609.92	0.42
CELEBREX 200MG CAP	8	13591951.87	0.72	7	4838534.35	0.79	8	4756236.02	0.71	10	3997181.50	0.67
CIPRALEX 10MG	4	16185556.09	0.86	4	5162300.43	0.84	4	5589177.28	0.83	4	5434078.38	0.91
ELTROXIN 100MCG TAB	15	10184625.83	0.54	12	3339546.97	0.54	17	3496667.81	0.52	16	3348411.05	0.56
FOSAMAX 70MG TAB	5	14981447.88	0.79	3	5195808.97	0.84	5	5125725.38	0.76	6	4659913.53	0.78
HERCEPTIN	10	11115453.11	0.59	26	2262227.13	0.37	11	4046976.66	0.60	5	4806249.32	0.80
IN NOVOMIX 30 FLEXPEN 3ML PF D	14	10207145.47	0.54	17	2895247.46	0.47	18	3468379.84	0.51	11	3843518.17	0.64
KLACID XL 500MG TAB	19	8844294.03	0.47	21	2544211.86	0.41	10	4184995.81	0.62	31	2115086.36	0.35
LIPITOR 10MG TAB	1	29843991.75	1.58	1	10171244.11	1.65	1	10314830.29	1.53	1	9357917.35	1.56
LIPITOR 20MG TAB	2	20069245.17	1.06	2	6636534.18	1.08	2	6987217.59	1.04	2	6445493.40	1.08
NEXIAM 40MG	6	14328583.83	0.76	6	5021900.96	0.82	7	4868499.74	0.72	8	4438183.13	0.74
PLAVIX 75MG FILMCOAT TAB	11	10580673.38	0.56	10	3383889.71	0.55	14	3692864.34	0.55	15	3503918.33	0.58
PREMARIN 0.625MG TAB	18	9107459.91	0.48	13	3222752.30	0.52	21	3085945.46	0.46	20	2798762.15	0.47
PREXUM 4MG TAB	3	16356015.55	0.87	5	5048682.40	0.82	3	5694461.30	0.84	3	5612871.85	0.94
SERETIDE 50/250 ACCUHALER	16	9423421.67	0.50	15	3048889.79	0.50	20	3314055.29	0.49	18	3060476.59	0.51
STOCRIN 600MG TAB	9	11502382.89	0.61	11	3383154.20	0.55	12	3794951.58	0.56	9	4324277.11	0.72
SYNAP FORTE	12	10487890.73	0.56	9	3714287.11	0.60	13	3707072.54	0.55	17	3066531.08	0.51
TAVANIC 500MG	20	8184546.50	0.43	25	2279470.21	0.37	16	3535914.60	0.52	26	2369161.69	0.40
		1888460215	13.68		615211036.86	13.32		673920508.70	13.70		599328669.30	14.02

Table B.48: The top twenty trade name products according to prevalence provided by pharmacies in 2005 and 2006

2005						2006					
Trade name products	Rank	Freq	% of total prevalence (N=15926285)	Average cost per item (R)	Total cost (R)	Trade name products	Rank	Freq	% of total prevalence (N=17262616)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	6	106374	0.67	112.70	11988654.27	ELTROXIN 50MCG TAB	6	110481	0.64	26.44	2921235.21
ADCO-ZOLPIDEM 10MG	20	62181	0.39	72.21	4490222.93	COXFLAM 15MG	20	67425	0.39	80.74	5444180.36
ALCOPHYLLEX SYR	12	80292	0.50	11.95	959456.38	ALCOPHYLLEX SYR	12	79911	0.46	11.54	922204.53
CELEBREX 200MG CAP	19	63496	0.40	224.97	14284870.63	TREPILINE 25MG TAB	19	69991	0.41	35.37	2475293.14
CILIFT 20MG TAB	14	70141	0.44	122.99	8626856.57	STILPANE TAB	14	78917	0.46	13.99	1104347.39
COVERSYL PLUS TAB	18	65135	0.41	181.70	11835215.26	WARFARIN 5MG TAB	18	71755	0.42	48.12	3452918.86
DISPRIN CV 100MG DISP	5	106617	0.67	23.40	2494865.73	ADCO-SIMVASTATIN 20MG	5	124905	0.72	111.02	13867023.57
ECOTRIN 81MG TAB	3	151902	0.95	19.63	2982371.08	LIPITOR 10MG TAB	3	157140	0.91	189.92	29843991.75
ELTROXIN 100MCG TAB	1	238721	1.50	40.69	9714183.26	ELTROXIN 100MCG TAB	1	257325	1.49	39.58	10184625.83
ELTROXIN 50MCG TAB	8	96136	0.60	27.48	2641347.82	PREMARIN 0.625MG TAB	8	93557	0.54	97.35	9107459.91
LIPITOR 10MG TAB	2	160827	1.01	189.26	30437894.92	ECOTRIN 81MG TAB	2	172098	1.00	20.64	3552305.49
LIPITOR 20MG TAB	15	68615	0.43	270.07	18530633.54	CILIFT 20MG TAB	15	75060	0.43	69.01	5179804.64
MYBULEN TAB	11	89649	0.56	41.34	3706404.76	MYPRODOL CAP	11	81677	0.47	58.52	4779489.69
MYPRODOL CAP	4	149457	0.94	61.89	9249215.42	PREXUM 4MG TAB	4	126682	0.73	129.11	16356015.55
PREMARIN 0.625MG TAB	7	102118	0.64	98.29	10037121.47	DISPRIN CV 100MG DISP	7	107352	0.62	24.24	2602398.67
PREXUM 4MG TAB	9	94619	0.59	129.31	12235601.52	MYBULEN TAB	9	93546	0.54	40.74	3810899.54
STILPANE TAB	10	92035	0.58	14.57	1340827.45	SYNAP FORTE	10	87306	0.51	120.13	10487890.73
SYNAP FORTE	13	71304	0.45	119.35	8510332.66	ADCO-ZOLPIDEM 10MG	13	79534	0.46	71.08	5653251.99
TREPILINE 25MG TAB	17	66013	0.41	36.66	2419735.02	SOLPHYLLEX SYR	17	72810	0.42	50.05	3644154.52
WARFARIN 5MG TAB	16	67285	0.42	48.79	3282561.20	LIPITOR 20MG TAB	16	74118	0.43	270.77	20069245.17
		15926285	12.58					17262616	12.06		

Table B.49: The top twenty trade name products provided by pharmacies according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name products	Rank	Freq	% of total prevalence (n=4962897)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=5816660)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=5146718)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	7	32597	0.66	112.68	3673041.23	9	35950	0.62	112.90	4058751.21	4	37827	0.73	112.54	4256861.83
ADCO-ZOLPIDEM 10MG	23	18922	0.38	73.30	1386924.92	24	22372	0.38	71.33	1595734.38	18	20887	0.41	72.18	1507563.63
ALCOPHYLLEX SYR	21	19027	0.38	11.94	227117.08	5	42199	0.73	11.97	505164.92	21	19066	0.37	11.92	227174.38
CELEBREX 200MG CAP	17	21225	0.43	228.45	4848860.29	26	21860	0.38	223.15	4878030.89	19	20411	0.40	223.31	4557979.45
CILIFT 20MG TAB	12	23255	0.47	152.01	3534937.59	18	23692	0.41	121.63	2881700.27	14	23194	0.45	95.29	2210218.71
COVERSYL PLUS TAB	20	19878	0.40	180.94	3596628.46	27	21854	0.38	182.16	3980988.63	12	23403	0.45	181.93	4257598.17
DISPRIN CV 100MG DISP	6	32788	0.66	20.32	666412.79	7	36359	0.63	24.61	894766.62	5	37470	0.73	24.92	933686.32
ECOTRIN 81MG TAB	4	46529	0.94	18.07	840550.62	4	51980	0.89	20.75	1078523.42	3	53393	1.04	19.91	1063297.04
ELTROXIN 100MCG TAB	1	77178	1.56	40.61	3133830.50	1	80435	1.38	40.94	3292738.87	1	81108	1.58	40.53	3287613.89
ELTROXIN 50MCG TAB	8	30723	0.62	27.49	844655.20	11	32100	0.55	27.61	886141.38	7	33313	0.65	27.33	910551.24
LIPITOR 10MG TAB	3	53431	1.08	187.05	9994479.04	3	53744	0.92	190.25	10224926.90	2	53652	1.04	190.46	10218488.98
LIPITOR 20MG TAB	14	22066	0.44	266.68	5884651.94	21	23103	0.40	269.90	6235584.32	11	23446	0.46	273.41	6410397.28
MYBULEN TAB	9	30198	0.61	41.49	1252895.64	6	37684	0.65	41.06	1547149.52	16	21767	0.42	41.64	906359.60
MYPRODOL CAP	2	57908	1.17	62.34	3609713.57	2	62461	1.07	61.34	3831579.25	9	29088	0.57	62.15	1807922.60
PREMARIN 0.625MG TAB	5	35360	0.71	98.39	3478946.87	10	33969	0.58	98.32	3339771.86	8	32789	0.64	98.15	3218402.74
PREXUM 4MG TAB	11	27068	0.55	129.22	3497760.13	12	32030	0.55	129.42	4145196.76	6	35521	0.69	129.29	4592644.63
STILPANE TAB	10	29904	0.60	15.37	459492.69	8	36001	0.62	13.99	503622.16	10	26130	0.51	14.46	377712.60
SYNAP FORTE	13	23155	0.47	120.67	2794227.99	16	24777	0.43	117.91	2921565.33	13	23372	0.45	119.57	2794539.34
TREPILINE 25MG TAB	16	21510	0.43	37.50	806682.52	22	22807	0.39	36.58	834203.20	17	21696	0.42	35.90	778849.30
WARFARIN 5MG TAB	15	21839	0.44	48.68	1063029.02	23	22529	0.39	48.84	1100377.03	15	22917	0.45	48.84	1119155.15
		4962897	12.99				5816660	12.34				5146718	12.44		

Table B.50: The top twenty trade name products provided by pharmacies according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=5623573)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6363179)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=5275864)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	4	39919	0.71	112.47	4489873.52	5	43233	0.68	112.77	4875507.34	5	41753	0.79	107.82	4501642.71
ADCO-ZOLPIDEM 10MG	12	26457	0.47	71.53	1892439.27	16	28549	0.45	71.24	2033768.22	13	24528	0.46	70.41	1727044.50
ALCOPHYLLEX SYR	19	21599	0.38	11.42	246764.89	6	41401	0.65	11.69	484001.25	32	16911	0.32	11.32	191438.39
BE-TABS PREDNISONE 5MG TA	27	18581	0.33	5.02	93258.73	17	28440	0.45	4.36	123951.05	22	19897	0.38	4.52	89866.48
CILIFT 20MG TAB	13	24767	0.44	70.04	1734712.70	20	25726	0.40	69.15	1778930.01	12	24567	0.47	67.82	1666161.93
COXFLAM 15MG	16	23560	0.42	80.14	1888119.10	25	23622	0.37	80.24	1895483.65	21	20243	0.38	82.03	1660577.61
DISPRIN CV 100MG DISP	6	36577	0.65	25.01	914638.43	9	36197	0.57	24.22	876704.26	7	34578	0.66	23.46	811055.98
ECOTRIN 81MG TAB	2	53623	0.95	19.99	1071952.97	2	59057	0.93	21.11	1246604.81	2	59418	1.13	20.76	1233747.71
ELTROXIN 100MCG TAB	1	83664	1.49	39.92	3339546.97	1	87839	1.38	39.81	3496667.81	1	85822	1.63	39.02	3348411.05
ELTROXIN 50MCG TAB	7	35654	0.63	26.73	952941.17	8	37497	0.59	26.72	1001820.25	6	37330	0.71	25.89	966473.79
LIPITOR 10MG TAB	3	53450	0.95	190.29	10171244.11	3	54167	0.85	190.48	10314830.29	3	49523	0.94	188.96	9357917.35
LIPITOR 20MG TAB	14	24426	0.43	271.70	6636534.18	21	25706	0.40	271.81	6987217.59	16	23986	0.45	268.72	6445493.40
MYBULEN TAB	10	29741	0.53	41.30	1228311.59	7	39645	0.62	40.95	1623557.11	14	24160	0.46	39.69	959030.84
MYPRODOL CAP	11	29304	0.52	60.37	1769074.86	13	31380	0.49	58.87	1847425.81	19	20993	0.40	55.40	1162989.02
PREMARIN 0.625MG TAB	8	32928	0.59	97.87	3222752.30	12	31547	0.50	97.82	3085945.46	8	29082	0.55	96.24	2798762.15
PREXUM 4MG TAB	5	38969	0.69	129.56	5048682.40	4	44054	0.69	129.26	5694461.30	4	43659	0.83	128.56	5612871.85
SOLPHYLLEX SYR	21	20560	0.37	50.49	1038132.21	10	34498	0.54	50.32	1735875.29	30	17752	0.34	49.02	870147.02
STILPANE TAB	23	20241	0.36	14.98	303305.86	11	34054	0.54	13.45	458018.71	47	13353	0.25	40.79	544648.03
SYNAP FORTE	9	30321	0.54	122.50	3714287.11	14	30845	0.48	120.18	3707072.54	11	24622	0.47	13.93	343022.82
TREPILINE 25MG TAB	15	23698	0.42	35.75	847232.51	23	24357	0.38	35.33	860431.21	9	26140	0.50	117.31	3066531.08
WARFARIN 5MG TAB	17	23415	0.42	48.21	1128752.61	24	24351	0.38	48.19	1173359.77	17	21936	0.42	34.99	767629.42
		5623573	12.30				6363179	12.35				5275864	12.51		

Table B.51: The top twenty trade name products according to total cost provided by general medical practitioners for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R151430854.29)	Rank	Total cost (R)	% of total expenditure (n=R40018709.53)	Rank	Total cost (R)	% of total expenditure (n=R56582596.91)	Rank	Total cost (R)	% of total expenditure (n=R54829547.85)
ADCO-AMOCLAV BD 1000MG	17	674830.9	0.45	17	169338.2	0.42	14	291850.51	0.52	22	213642.19	0.39
AMOXIL 500MG CAP	3	1450521.57	0.96	3	417620.5	1.04	3	580264.85	1.03	3	452636.22	0.83
AUGMENTIN 375MG TAB	7	892556.46	0.59	4	264159.63	0.66	11	307087.00	0.54	8	321309.83	0.59
AVELON 400MG TAB	6	926659.11	0.61	12	205510.27	0.51	5	407389.82	0.72	9	313759.02	0.57
BENYLIN & CODEINE SYR	14	742322.58	0.49	18	167820.74	0.42	10	315156.33	0.56	16	259345.51	0.47
CELEBREX 200MG CAP	10	851064.02	0.56	5	258130.33	0.65	15	291179.12	0.51	10	301754.57	0.55
CELESTONE SOLUSPAN 1ML IN	9	877617.21	0.58	10	215063.02	0.54	8	332832.36	0.59	6	329721.83	0.60
CELESTONE SOLUSPAN 2ML I	16	678087.87	0.45	35	135469.22	0.34	19	262874.79	0.46	14	279743.86	0.51
CLAMENTIN 375MG	4	1028229.43	0.68	8	244910.59	0.61	4	427174.74	0.75	5	356144.10	0.65
ELOCON CREAM	20	646913.84	0.43	14	182428.06	0.46	24	228080.82	0.40	19	236404.96	0.43
FLAGYL 400MG TAB	12	803318.71	0.53	7	247426.04	0.62	16	274271.41	0.48	12	281621.26	0.51
FOSAMAX 70MG TAB	18	658071.5	0.43	15	181947.56	0.45	23	239659.70	0.42	18	236464.24	0.43
KLACID XL 500MG TAB	8	880208.23	0.58	13	205361.36	0.51	6	394998.22	0.70	13	279848.65	0.51
LIPITOR 10MG TAB	5	942065.28	0.62	6	247877.74	0.62	9	329318.45	0.58	4	364869.09	0.67
MEDIFED LINCTUS	19	650740.57	0.43	29	141224.49	0.35	13	292439.38	0.52	21	217076.70	0.40
MYBULEN TAB	1	1803008.18	1.19	1	574500.86	1.44	2	711257.92	1.26	2	517249.40	0.94
MYPRODOL CAP	2	1793923.85	1.18	2	545069.02	1.36	1	725948.58	1.28	1	522906.25	0.95
NEXIAM 40MG	11	814179.77	0.54	9	220324.88	0.55	18	265671.04	0.47	7	328183.85	0.60
SOLPHYLLEX SYR	13	785367.37	0.52	16	177708.87	0.44	7	338700.61	0.60	15	268957.89	0.49
SYNAP FORTE	15	741135.98	0.49	11	206716.68	0.52	20	250214.36	0.44	11	284204.94	0.52
		151430854.29	12.31		40018709.5	12.52		56582596.91	12.84		54829547.85	11.61

Table B.52: The top twenty trade name products according to total cost provided by general medical practitioners for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name products	Rank	Total cost (R)	% of total expenditure (n=R149025447.75)	Rank	Total cost (R)	% of total expenditure (n=R49808829.86)	Rank	Total cost (R)	% of total expenditure (n=R57169064.75)	Rank	Total cost (R)	% of total expenditure (n=R42047553.14)
ADCO-AMOCLAV BD 1000MG	18	651044.70	0.44	20	206228.31	0.41	14	292489.03	0.51	33	152327.36	0.36
ADVANTAN CREAM	20	604231.84	0.41	24	201059.77	0.40	34	204022.97	0.36	19	199149.10	0.47
AMOXIL 500MG CAP	3	1249753.09	0.84	3	413037.59	0.83	2	526206.15	0.92	3	310509.35	0.74
AUGMENTIN 375MG TAB	6	947180.90	0.64	6	313718.94	0.63	7	389063.43	0.68	7	244398.53	0.58
AVELON 400MG TAB	5	1029162.79	0.69	12	261294.59	0.52	5	445986.84	0.78	2	321881.36	0.77
BENYLIN & CODEINE SYR	10	842047.80	0.57	10	271699.43	0.55	11	365374.57	0.64	15	204973.80	0.49
CELESTONE SOLUSPAN 1ML IN	14	757543.33	0.51	11	266620.57	0.54	15	289952.40	0.51	13	209983.73	0.50
CELESTONE SOLUSPAN 2ML I	15	739782.04	0.50	15	242980.83	0.49	16	286817.48	0.50	18	200970.36	0.48
CLAMENTIN 375MG	8	921789.70	0.62	4	329134.42	0.66	8	382220.34	0.67	12	210434.94	0.50
CLAVUMOX 375MG	4	1049605.89	0.70	7	296547.44	0.60	4	467403.52	0.82	4	285654.93	0.68
FLAGYL 400MG TAB	17	714006.90	0.48	9	282610.70	0.57	25	230035.99	0.40	17	201360.21	0.48
FLUSTAT CAP	16	726761.06	0.49	21	203593.09	0.41	12	363906.51	0.64	27	159261.46	0.38
KLACID XL 500MG TAB	11	839770.62	0.56	14	253170.04	0.51	10	374940.91	0.66	10	211659.67	0.50
MEDIFED LINCTUS	12	805490.25	0.54	16	218275.69	0.44	9	379020.80	0.66	14	208193.76	0.50
MYBULEN TAB	1	1731490.81	1.16	1	607729.95	1.22	1	729386.86	1.28	1	394374.00	0.94
MYPRODOL CAP	2	1322734.96	0.89	2	537523.43	1.08	3	511433.62	0.89	6	273777.91	0.65
NEXIAM 40MG	13	758831.74	0.51	8	295173.58	0.59	24	231114.55	0.40	9	232543.61	0.55
SOLPHYLLEX SYR	9	896631.68	0.60	13	255762.48	0.51	6	404814.12	0.71	8	236055.08	0.56
STILPANE CAP	19	612252.22	0.41	23	201932.29	0.41	19	249214.53	0.44	26	161105.40	0.38
SYNAP FORTE	7	936867.33	0.63	5	323479.70	0.65	13	332673.24	0.58	5	280714.39	0.67
		149025447.75	12.17		49808829.86	12.01		57169064.75	13.04		42047553.14	11.18

Table B.53: The top twenty trade name products according to prevalence provided by general medical practitioners in 2005 and 2006

2005						2006					
Trade name products	Rank	Freq	% of total prevalence (n=3849539)	Average cost per item (R)	Total cost (R)	Trade name products	Rank	Freq	% of total prevalence (n=4148630)	Average cost per item (R)	Total cost (R)
ALCOPHYLLEX SYR	1	68094	1.77	8.55	582333.63	ALCOPHYLLEX SYR	1	73106	1.76	8.07	590119.06
MYBULEN TAB	2	50055	1.30	36.02	1803008.18	FLUSTAT CAP	2	54726	1.32	13.28	726761.06
PAINAGON TAB	3	49336	1.28	10.67	526486.80	PAINAGON TAB	3	53065	1.28	9.63	511113.34
FLUSTAT CAP	4	45319	1.18	13.98	633599.09	MYBULEN TAB	4	48616	1.17	35.62	1731490.81
BE-TABS PREDNISONE 5MG TA	5	34496	0.90	2.87	99124.08	BE-TABS PREDNISONE 5MG TA	5	45234	1.09	2.65	119679.32
MYPRODOL CAP	6	33520	0.87	53.52	1793923.85	STILPANE TAB	6	33131	0.80	8.38	277536.35
VOLTAREN 75MG/3ML INJ	7	32596	0.85	9.53	310505.84	VOLTAREN 75MG/3ML INJ	7	32528	0.78	8.82	286747.43
STILPANE TAB	8	29701	0.77	9.49	281998.95	CLAVUMOX 375MG	8	26473	0.64	39.65	1049605.89
CLAMENTIN 375MG	9	26000	0.68	39.55	1028229.43	MYPRODOL CAP	9	26104	0.63	50.67	1322734.96
SALTERPYN TAB	10	23962	0.62	5.47	131170.83	MEDIFED LINCTUS	10	26068	0.63	30.90	805490.25
ALLERGEX 4MG TAB	11	23037	0.60	8.06	185697.28	ALLERGEX 4MG TAB	11	24337	0.59	7.49	182303.15
STILPANE CAP	12	21778	0.57	24.62	536128.80	STILPANE CAP	12	24101	0.58	25.40	612252.22
MEDIFED LINCTUS	13	21461	0.56	30.32	650740.57	CLAMENTIN 375MG	13	22790	0.55	40.45	921789.70
ADCO-DICLOFENAC 75MG/3ML	14	19712	0.51	3.60	71030.10	BETAMOX 500MG CAP	14	22475	0.54	8.57	192664.99
BETAMOX 500MG CAP	15	19504	0.51	9.58	186781.48	ADCO-DICLOFENAC 75MG/3ML	15	21859	0.53	2.94	64197.30
SCOPEX 10MG TAB	16	18159	0.47	26.94	489171.66	PAINAMOL PLUS	16	21470	0.52	11.22	240960.54
GRIPPON SYR	17	17259	0.45	21.42	369652.56	PAINAMOL GREEN 500MG TAB	17	20637	0.50	1.83	37753.76
SOLPHYLLEX SYR	18	17002	0.44	46.19	785367.37	SOLPHYLLEX SYR	18	19801	0.48	45.28	896631.68
PAINAGON SYR	19	16976	0.44	9.01	152973.64	SCOPEX 10MG TAB	19	19195	0.46	26.79	514143.98
PAINAMOL PLUS	20	16760	0.44	12.71	212966.60	SINUEND TAB	20	18234	0.44	4.88	89051.68
		3849539	15.19					4148630	15.28		

Table B.54: The top twenty trade name products according to prevalence provided by general medical practitioners for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=1029429)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1480875)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1339235)	Average cost per item (R)	Total cost (R)
ADCO-DICLOFENAC 75MG/3ML	23	4175	0.41	3.66	15298.41	14	8055	0.54	3.82	30797.77	13	7482	0.56	3.33	24933.92
ALCOPHYLLEX SYR	2	15948	1.55	8.15	130025.77	1	31146	2.10	8.58	267367.59	1	21000	1.57	8.81	184940.27
ALLERGEX 4MG TAB	9	7288	0.71	7.82	57014.46	15	7877	0.53	8.14	64147.34	10	7872	0.59	8.20	64535.48
BE-TABS PREDNISONE 5MG TA	5	8889	0.86	2.92	25912.98	6	13024	0.88	2.81	36658.42	5	12583	0.94	2.90	36552.68
BETAMOX 500MG CAP	17	4874	0.47	10.10	49208.15	13	8084	0.55	9.44	76282.96	16	6546	0.49	9.36	61290.37
CLAMENTIN 375MG	11	6350	0.62	38.57	244910.59	9	10933	0.74	39.07	427174.74	9	8717	0.65	40.86	356144.10
FLUSTAT CAP	6	8747	0.85	13.93	121876.27	2	21587	1.46	13.98	301885.71	3	14985	1.12	14.00	209837.11
GRIPPON SYR	22	4237	0.41	20.91	88608.51	16	7480	0.51	21.49	160741.07	22	5542	0.41	21.71	120302.98
MEDIFED LINCTUS	16	4883	0.47	28.92	141224.49	10	9540	0.64	30.65	292439.38	14	7038	0.53	30.84	217076.70
MYBULEN TAB	1	16138	1.57	35.60	574500.86	3	19722	1.33	36.06	711257.92	4	14195	1.06	36.44	517249.40
MYPRODOL CAP	4	10266	1.00	53.09	545069.02	5	13539	0.91	53.62	725948.58	7	9715	0.73	53.82	522906.25
PAINAGON SYR	21	4246	0.41	8.77	37233.94	4	19238	1.30	10.76	206921.51	18	5801	0.43	9.15	53096.92
PAINAGON TAB	3	11729	1.14	10.66	125019.99	21	6194	0.42	12.77	79095.76	2	18369	1.37	10.59	194545.30
PAINAMOL PLUS	15	4889	0.47	12.58	61520.00	11	9173	0.62	5.48	50237.10	20	5677	0.42	12.74	72350.84
SALTERPYN TAB	10	7243	0.70	5.39	39021.90	25	5877	0.40	26.41	155235.55	12	7546	0.56	5.55	41911.83
SCOPEX 10MG TAB	12	5654	0.55	26.67	150790.02	27	5636	0.38	2.58	14524.02	15	6628	0.49	27.63	183146.09
SOLPHYLLEX SYR	25	3936	0.38	45.15	177708.87	17	7290	0.49	46.46	338700.61	19	5776	0.43	46.56	268957.89
STILPANE CAP	13	5624	0.55	23.59	132681.52	12	8529	0.58	24.43	208372.07	11	7625	0.57	25.58	195075.21
STILPANE TAB	7	8489	0.82	9.64	81808.41	8	11726	0.79	9.52	111689.66	8	9486	0.71	9.33	88500.88
VOLTAREN 75MG/3ML INJ	8	7632	0.74	9.00	68650.52	7	13019	0.88	9.54	124187.73	6	11945	0.89	9.85	117667.59
		1029429	14.69				1480875	16.05				1339235	14.53		

Table B.55 The top twenty trade name products according to prevalence provided by general medical practitioners for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=1341745)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1662220)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1144665)	Average cost per item (R)	Total cost (R)
ADCO-DICLOFENAC 75MG/3ML	15	7115	0.53	3.56	25332.62	17	8965	0.54	2.83	25335.90	14	5779	0.50	2.34	13528.78
ALCOPHYLLEX SYR	1	21338	1.59	7.76	165607.19	1	34522	2.08	8.22	283787.24	1	17246	1.51	8.16	140724.63
ALLERGEX 4MG TAB	8	8885	0.66	7.65	67995.26	14	9460	0.57	7.44	70413.16	12	5992	0.52	7.33	43894.73
BE-TABS PREDNISONE 5MG TA	5	14243	1.06	2.62	37358.91	5	17309	1.04	2.58	44659.08	3	13682	1.20	2.75	37661.33
BETAMOX 500MG CAP	18	6415	0.48	9.03	57913.60	10	10245	0.62	8.58	87950.29	13	5815	0.51	8.05	46801.10
CLAMENTIN 375MG	10	7932	0.59	41.49	329134.42	13	9461	0.57	40.40	382220.34	18	5397	0.47	38.99	210434.94
CLAVUMOX 375MG	12	7487	0.56	39.61	296547.44	9	11751	0.71	39.78	467403.52	8	7235	0.63	39.48	285654.93
FLUSTAT CAP	4	14574	1.09	13.97	203593.09	2	27234	1.64	13.36	363906.51	4	12918	1.13	12.33	159261.46
MEDIFED LINCTUS	17	6994	0.52	31.21	218275.69	8	12272	0.74	30.89	379020.80	9	6802	0.59	30.61	208193.76
MYBULEN TAB	3	16795	1.25	36.19	607729.95	4	20483	1.23	35.61	729386.86	5	11338	0.99	34.78	394374.00
MYPRODOL CAP	7	10196	0.76	52.72	537523.43	11	10192	0.61	50.18	511433.62	15	5716	0.50	47.90	273777.91
PAINAGON TAB	2	17537	1.31	10.37	181850.92	3	20757	1.25	9.45	196256.58	2	14771	1.29	9.00	133005.84
PAINAMOL GREEN 500MG TAB	19	6311	0.47	1.86	11737.54	21	8310	0.50	1.83	15233.43	11	6016	0.53	1.79	10782.79
PAINAMOL PLUS	14	7127	0.53	11.77	83858.14	15	9097	0.55	10.74	97703.76	20	5246	0.46	11.32	59398.64
SCOPEX 10MG TAB	13	7240	0.54	28.10	203466.15	29	6264	0.38	26.04	163114.23	16	5691	0.50	25.93	147563.60
SINUEND TAB	30	5043	0.38	5.47	27603.92	18	8897	0.54	4.68	41597.57	24	4294	0.38	4.62	19850.19
SOLPHYLLEX SYR	23	5528	0.41	46.27	255762.48	16	8973	0.54	45.11	404814.12	19	5300	0.46	44.54	236055.08
STILPANE CAP	11	7687	0.57	26.27	201932.29	12	9847	0.59	25.31	249214.53	10	6567	0.57	24.53	161105.40
STILPANE TAB	9	8352	0.62	8.58	71673.54	6	15186	0.91	8.32	126385.20	6	9593	0.84	8.28	79477.61
VOLTAREN 75MG/3ML INJ	6	11369	0.85	9.20	104639.06	7	13054	0.79	8.82	115076.17	7	8105	0.71	8.27	67032.20
		1341745	14.77				1662220	16.38				1144665	14.28		

Table B.56: The top trade name products according to total cost provided by other medical providers for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name products	Rank	Total cost (R)	% of total expenditure (n=R14786584.36)	Rank	Total cost (R) (n=R2085586.8)	% of total expenditure (n=R2085586.8)	Rank	Total cost (R)	% of total expenditure (n=R5990244.68)	Rank	Total cost (R)	% of total expenditure (n=R6710752.88)
CAMPTO 5ML 20MG/ML INJ	3	458585.65	3.10	5	96800.12	4.64	9	98290.17	1.64	2	263495.4	3.93
CELESTONE 5ML 4MG/ML INJ	16	156002.03	1.06	22	21765.83	1.04	15	57782.22	0.96	14	74242.37	1.11
DUOVISC 0.4ML/0.35ML	4	454190.48	3.07	1	137510.8	6.59	3	188136.2	3.14	8	128543.5	1.92
ECHOSEED CONV PACK IODINE	10	226472.4	1.53	0	0.00	0.00	0	0.00	0.00	4	226472.4	3.37
ELOXATIN 100MG IV	17	155622.43	1.05	0	0.00	0.00	0	0.00	0.00	22	51593.53	0.77
GEMZAR 200MG INJ	13	185973.23	1.26	10	39919.94	1.91	8	98442.8	1.64	25	47610.49	0.71
GEMZAR 1000MG INJ	2	739674.14	5.00	3	127570.1	6.12	1	368014.4	6.14	3	244089.7	3.64
HERCEPTIN	1	872133.08	5.90	0	0.00	0.00	2	347791.3	5.81	1	524341.8	7.81
INTRON A HSA-FREE REDIPEN M/DO	11	212702.97	1.44	8	71284.62	3.42	11	82714.69	1.38	19	58756.66	0.88
KYTRIL 1MG/ML 3ML INJ	19	129876.96	0.88	17	25557.05	1.23	20	44899.56	0.75	18	59420.35	0.89
MABTHERA 500MG VIAL	12	188876.17	1.28	0	0.00	0.00	14	65178.22	1.09	9	123697.9	1.84
RAPID STRAND W/ACTIVITY 2	15	160081.21	1.08	0	0.00	0.00	10	97477.29	1.63	17	62603.92	0.93
SANDOSTATIN LAR VIAL	18	132021.54	0.89	7	75440.88	3.62	16	56580.66	0.94	0	0.00	0.00
TAXOL 100MG/VIAL INJ	14	170822.59	1.16	21	21974.54	1.05	12	81701.07	1.36	16	67146.98	1.00
TAXOTERE 20MG/1.5ML INJ	6	348331.17	2.36	2	133429.7	6.40	4	137578.6	2.30	13	77322.89	1.15
TAXOTERE 80MG INJ	7	301324.15	2.04	23	19967.11	0.96	5	134602.2	2.25	6	146754.8	2.19
VISCOAT 0.5ML	20	123030.63	0.83	11	39582.77	1.90	19	50072.64	0.84	36	33375.22	0.50
VISCOAT 0.75ML	8	264367.53	1.79	9	63588.87	3.05	7	103240.6	1.72	10	97538.11	1.45
ZOLADEX-DEPOT 10.8MG INJ	9	241346.33	1.63	6	80055.71	3.84	13	72976.76	1.22	12	88313.86	1.32
ZOMETA INF (POWDER) 4MG	5	386072.75	2.61	4	106595.1	5.11	6	133848.9	2.23	7	145628.8	2.17
			39.95		2085586.80	50.87		2880830.74	37.05			37.57

Table B.57 The top trade name products according to total cost provided by other medical providers for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R9002585.31)	Rank	Total cost (R)	% of total expenditure (n=R3133641.21)	Rank	Total cost (R)	% of total expenditure (n=R3077781.47)	Rank	Total cost (R)	% of total expenditure (n=R2791162.63)
ALIMTA 500MG/VIAL	13	137576.72	1.53	0	0	0.00	6	94131.44	3.06	14	43445.28	1.56
AVASTIN 400MG/16ML VIAL	12	158685.83	1.76	4	158685.8	5.06	0	0	0.00	509	283.63	0.01
BOTOX INJ	14	131374.73	1.46	30	28935.71	0.92	12	47331.29	1.54	11	55107.73	1.97
CAMPTO 5ML 20MG/ML INJ	5	271609.98	3.02	1	197430.2	6.30	11	52918.28	1.72	29	21261.53	0.76
DUOVISC 0.4ML/0.35ML	2	316444.49	3.52	7	81958.41	2.62	5	116303.5	3.78	3	118182.6	4.23
ECHOSEED CONV PACK IODINE	10	194119.2	2.16	9	64706.4	2.06	3	129412.8	4.20	0	0	0.00
GEMZAR 1000MG INJ	7	257227.48	2.86	6	110077.2	3.51	15	34022.07	1.11	4	113128.2	4.05
HERCEPTIN	8	250111.79	2.78	2	186055.2	5.94	28	25968.24	0.84	16	38088.34	1.36
NON PROP HOMEOPATH LIQ DR	11	188395.36	2.09	10	54895.99	1.75	17	32460.28	1.05	26	23637.15	0.85
NON PROP HOMEOPATH TAB&CA	19	93824.71	1.04	10	54895.99	1.75	17	32460.28	1.05	12	49397.62	1.77
RAPID STRAND W/ACTIVITY 2	16	119200.18	1.32	0	0	0.00	0	0	0.00	2	119200.2	4.27
SOD CHLOR 50ML .9% INJ	20	90624.85	1.01	24	31298.57	1.00	16	33227.3	1.08	21	26098.98	0.94
SYNAGIS 100MG	6	266871.74	2.96	0	0	0.00	1	179442	5.83	8	87429.74	3.13
TAXOL 100MG/VIAL INJ	18	103964.62	1.15	21	35157.2	1.12	51	12520.4	0.41	10	56287.02	2.02
TAXOTERE 20MG/1.5ML INJ	4	292365.81	3.25	8	72439.79	2.31	4	12566.8	0.41	7	94259.21	3.38
TAXOTERE 80MG INJ	1	393782.67	4.37	5	113729	3.63	2	134705.7	4.38	1	145348.1	5.21
TEMODAL 100MG	15	128107.31	1.42	157	1870.18	0.06	42	14961.44	0.49	5	111275.7	3.99
VISCOAT 0.75ML	9	241453.9	2.68	12	49580.4	1.58	7	91266.12	2.97	6	100607.4	3.60
ZOLADEX-DEPOT 10.8MG INJ	17	105468.61	1.17	11	54278.74	1.73	20	31305.57	1.02	30	19884.3	0.71
ZOMETA INF (POWDER) 4MG	3	296375.02	3.29	3	164693.5	5.26	10	63155.46	2.05	9	68526.05	2.46
		9002585.31	44.85		6267282.42	46.61		3077781.47	36.98		2791162.63	46.27

Table B.58: The top twenty trade name products according to prevalence provided by other medical providers in 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=78612)	Average cost per item (R)	Total cost (R) (n=R14786584.36)	Trade name product	Rank	Freq	% of total prevalence (n=56923)	Average cost per item (R)	Total cost (R) (n=R8002585.31)
BUSCOPAN 20MG/ML INJ	17	496	0.63	11.86	5880.80	BUSCOPAN 20MG/ML INJ	15	736	1.29	12.24	9011.38
CELESTONE 5ML 4MG/ML INJ	20	481	0.61	324.33	156002.03	CELESTONE SOLUSPAN 1ML IN	10	1030	1.81	60.51	62329.01
CELESTONE SOLUSPAN 1ML IN	7	955	1.21	68.07	65003.07	COTTON WOOL BALLS 1G(5) SUR	13	930	1.63	4.53	4216.72
COTTON WOOL BALLS 1G(5) SUR	5	1083	1.38	4.43	4798.86	DECASONE 4MG/ML INJ	18	644	1.13	103.79	66840.28
DIPROSONE 5MG/ML 1ML INJ	19	488	0.62	80.10	39090.91	DIPROSONE 5MG/ML 1ML INJ	17	648	1.14	72.45	46945.05
DORMICUM 5MG/5ML	12	695	0.88	25.31	17587.34	DORMICUM 5MG/5ML	11	956	1.68	26.33	25169.67
DUOVISC 0.4ML/0.35ML	14	555	0.71	818.36	454190.48	KY JELLY 2.5ML SACHETS	12	932	1.64	6.63	6177.15
KY JELLY 2.5ML SACHETS	8	896	1.14	7.42	6650.61	KY JELLY STERILE 100ML	4	2015	3.54	2.94	5932.53
KY JELLY STERILE 100ML	4	1370	1.74	3.43	4701.31	MACAINE 10ML 5MG/ML INJ	20	516	0.91	36.31	18736.73
KYTRIL 1MG/ML 3ML INJ	10	832	1.06	156.10	129876.96	NON PROP HOMEOPATH GRAN	5	1239	2.18	70.13	86887.84
NON PROP HOMEOPATH GRAN	13	666	0.85	67.39	44882.79	NON PROP HOMEOPATH LIQ DR	3	2113	3.71	89.16	188395.36
NON PROP HOMEOPATH LIQ DR	6	1077	1.37	74.41	80143.64	NON PROP HOMEOPATH TAB&CA	7	1192	2.09	78.71	93824.71
NON PROP HOMEOPATH TAB&CA	15	545	0.69	56.42	30751.32	REMICAINE 5ML 20MG/ML INJ	6	1203	2.11	11.89	14299.84
REMICAINE 5ML 20MG/ML INJ	9	848	1.08	14.01	11876.58	SOD CHLOR 0.9% INJ 100ML	8	1102	1.94	20.37	22451.24
SOD CHLOR 0.9% INJ 1L	3	1399	1.78	19.29	26984.05	SOD CHLOR 0.9% INJ 1L	9	1089	1.91	18.82	20497.57
SOD CHLOR 0.9% INJ 200ML	2	2030	2.58	36.81	74715.64	SOD CHLOR 0.9% INJ 200ML	2	2858	5.02	32.83	93816.03
SOD CHLOR 10ML .9% INJ	18	489	0.62	5.69	2783.77	SOD CHLOR 10ML .9% INJ	16	650	1.14	3.91	2544.14
SOD CHLOR 50ML .9% INJ	1	2517	3.20	44.66	112414.23	SOD CHLOR 50ML .9% INJ	1	2956	5.19	42.86	126691.37
XYLOTOX E 1.8ML 2% INJ	11	705	0.90	8.23	5803.01	XYLOTOX E 1.8ML 2% INJ	14	869	1.53	7.38	6415.01
XYLOTOX SE1.8ML 20MG/ML INJ	16	505	0.64	6.96	3513.10	ZAMANON 100MG/5ML INJ	19	549	0.96	126.77	69595.75
			23.70						42.56		

Table B.59 The top twenty trade name products according to prevalence provided by other medical providers for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=12460)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=32294)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=33858)	Average cost per item (R)	Total cost (R)
BUSCOPAN 20MG/ML INJ	14	139	1.12	10.77	1497.48	16	179	0.55	11.84	2119.72	24	178	0.53	1271.69	2263.60
CELESTONE 5ML 4MG/ML INJ	18	90	0.72	266.42	23977.44	20	167	0.52	346.00	57782.22	17	224	0.66	33143.92	74242.37
CELESTONE SOLUSPAN 1ML IN	4	304	2.44	71.60	21765.83	6	357	1.11	64.18	22911.54	11	294	0.87	6913.50	20325.70
COTTON WOOL BALLS 1G(5) SUR	3	339	2.72	4.32	1464.75	3	379	1.17	4.75	1799.08	9	365	1.08	420.56	1535.03
DIPROSONE 5MG/ML 1ML INJ	13	161	1.29	85.60	13781.74	24	146	0.45	82.64	12065.66	22	181	0.53	7316.86	13243.51
DORMICUM 5MG/5ML	9	190	1.52	20.19	3836.29	14	226	0.70	26.41	5968.96	13	279	0.82	2789.28	7782.09
DUOVISC 0.4ML/0.35ML	12	164	1.32	838.48	137510.82	13	226	0.70	832.46	188136.15	25	165	0.49	77905.16	128543.51
KY JELLY 2.5ML SACHETS	6	280	2.25	6.14	1719.81	7	333	1.03	6.21	2067.75	12	283	0.84	1011.68	2863.05
KY JELLY STERILE 100ML	1	549	4.41	3.60	1978.30	4	375	1.16	3.68	1380.80	4	446	1.32	300.94	1342.21
KYTRIL 1MG/ML 3ML INJ	10	187	1.50	136.67	25557.05	10	265	0.82	169.43	44899.56	7	380	1.12	15636.93	59420.35
NON PROP HOMEOPATH GRAN	0	0	0.00	0.00	0.00	11	249	0.77	70.41	17532.77	5	417	1.23	6558.76	27350.02
NON PROP HOMEOPATH LIQ DR	0	0	0.00	0.00	0.00	8	303	0.94	87.23	26430.90	3	774	2.29	6939.63	53712.74
NON PROP HOMEOPATH TAB&CA	0	0	0.00	0.00	0.00	21	156	0.48	56.17	8761.94	6	389	1.15	5652.80	21989.38
REMICAINE 5ML 20MG/ML INJ	8	224	1.80	12.73	2852.05	9	297	0.92	16.15	4795.41	10	327	0.97	1293.31	4229.12
SOD CHLOR 0.9% INJ 1L	15	137	1.10	19.38	2655.30	5	370	1.15	21.33	7893.60	8	375	1.11	1893.01	7098.78
SOD CHLOR 0.9% INJ 200ML	5	294	2.36	31.52	9267.56	2	825	2.55	40.40	33328.69	2	911	2.69	3525.73	32119.39
SOD CHLOR 10ML .9% INJ	22	83	0.67	4.18	347.13	19	169	0.52	6.85	1156.97	16	237	0.70	539.95	1279.67
SOD CHLOR 50ML .9% INJ	2	432	3.47	40.09	17320.23	1	942	2.92	47.96	45179.14	1	1143	3.38	4367.00	49914.86
XYLOTOX E 1.8ML 2% INJ	11	181	1.45	6.05	1094.38	12	240	0.74	7.48	1796.32	18	222	0.66	1041.05	2311.13
XYLOTOX SE1.8ML 20MG/ML INJ	7	243	1.95	6.98	1695.56	18	178	0.55	7.25	1291.25	28	146	0.43	772.24	1127.47
			32.08					19.76					22.85		

Table B.60: The top twenty trade name products according to prevalence provided by other medical providers for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=17512)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=21423)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (N=17988)	Average cost per item (R)	Total cost (R)
BUSCOPAN 20MG/ML INJ	15	232	1.60	13.01	3017.71	16	262	1.22	12.36	3237.70	14	242	1.35	11.39	2755.97
CELESTONE SOLUSPAN 1ML IN	9	348	2.40	62.21	21647.79	10	371	1.73	62.23	23085.66	9	311	1.73	56.58	17595.56
COTTON WOOL BALLS 1G(5) SUR	10	344	2.37	4.43	1523.91	11	356	1.66	4.65	1655.07	15	230	1.28	4.51	1037.74
DECASONE 4MG/ML INJ	18	190	1.31	107.29	20385.58	18	246	1.15	100.74	24781.91	17	208	1.16	104.20	21672.79
DIPROSONE 5MG/ML 1ML INJ	17	200	1.38	79.98	15995.66	17	256	1.19	69.68	17838.09	19	192	1.07	68.29	13111.30
DORMICUM 5MG/5ML	11	333	2.29	28.83	9599.95	12	341	1.59	26.62	9075.87	11	282	1.57	23.03	6493.85
KY JELLY 2.5ML SACHETS	12	329	2.27	7.07	2325.20	13	340	1.59	6.46	2194.91	12	263	1.46	6.30	1657.04
KY JELLY STERILE 100ML	13	315	2.17	3.69	1162.14	2	1018	4.75	3.01	3059.12	3	682	3.79	2.51	1711.27
MACAINE 10ML 5MG/ML INJ	23	136	0.94	39.11	5318.99	21	207	0.97	36.05	7461.53	21	173	0.96	34.43	5956.21
NON PROP HOMEOPATH GRAN	5	401	2.76	87.82	35215.42	5	490	2.29	66.25	32460.28	6	348	1.93	55.21	19212.14
NON PROP HOMEOPATH LIQ DR	3	556	3.83	98.78	54895.99	4	915	4.27	91.91	84101.75	4	642	3.57	76.94	49397.62
NON PROP HOMEOPATH TAB&CA	7	363	2.50	72.93	26471.97	6	471	2.20	92.81	43715.59	5	358	1.99	66.03	23637.15
REMICAINE 5ML 20MG/ML INJ	4	415	2.86	14.30	5934.46	7	456	2.13	11.06	5041.16	8	332	1.85	10.01	3324.22
SOD CHLOR 0.9% INJ 100ML	6	365	2.52	18.07	6596.57	9	385	1.80	20.97	8073.97	10	307	1.71	22.95	7045.42
SOD CHLOR 0.9% INJ 1L	8	360	2.48	17.96	6464.24	8	387	1.81	18.31	7085.07	7	342	1.90	20.32	6948.26
SOD CHLOR 0.9% INJ 200ML	2	902	6.22	31.87	28751.17	3	947	4.42	30.18	28580.30	2	941	5.23	40.81	38399.11
SOD CHLOR 10ML .9% INJ	19	176	1.21	4.24	746.13	15	267	1.25	4.10	1095.28	10	307	1.71	22.95	7045.42
SOD CHLOR 50ML .9% INJ	1	963	6.64	45.46	43773.69	1	1052	4.91	42.32	44518.57	1	1009	5.61	36.16	36484.56
XYLOTOX E 1.8ML 2% INJ	14	301	2.07	7.74	2331.14	14	316	1.48	8.07	2549.21	13	252	1.40	6.09	1534.66
ZAMANON 100MG/5ML INJ	25	123	0.85	140.56	17289.05	20	209	0.98	122.63	25630.37	16	217	1.21	122.93	26676.33
			50.66					43.37					42.46		

Table B.61: The top trade name products according to total cost prescribed by pharmacies for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name/ product	Rank	Total cost (R)	% of total expenditure (n=R78739814.7)	Rank	Total cost (R)	% of total expenditure (n=R21233363.4)	Rank	Total cost (R)	% of total expenditure (n=R30360195.64)	Rank	Total cost (R)	% of total expenditure (n=R27146255.66)
ADCO-DOL TAB	16	766167.91	0.97	15	206790.70	0.97	17	275131.84	0.91	11	284245.37	1.05
BACTROBAN TOPICAL OINT	17	749364.84	0.95	11	244557.64	1.15	19	259512.83	0.85	18	245294.37	0.90
BENYLIN & CODEINE SYR	5	1396792.70	1.77	4	367099.66	1.73	4	628099.26	2.07	4	401593.78	1.48
BENYLIN COUGH SYR	18	717330.24	0.91	20	179545.84	0.85	12	335434.20	1.10	24	202350.20	0.75
BENYLIN FOUR FLU SYR	4	1406514.09	1.79	6	315722.41	1.49	2	724933.77	2.39	6	365857.91	1.35
BETAPYN TAB	12	797669.76	1.01	13	215662.94	1.02	16	287368.99	0.95	10	294637.83	1.09
CELLFOOD LIQUID	9	929758.40	1.18	49	76135.28	0.36	10	363697.02	1.20	3	489926.10	1.80
CORENZA C EFF TAB	3	1442303.41	1.83	5	365893.71	1.72	1	745076.23	2.45	8	331333.47	1.22
DEMAZIN NS TAB	13	795634.83	1.01	14	207964.48	0.98	13	323849.77	1.07	14	263820.58	0.97
DESELEX 5MG TAB	20	648449.34	0.82	21	176816.38	0.83	25	210166.50	0.69	15	261466.46	0.96
DILINCT SYR	11	812693.76	1.03	16	196978.83	0.93	9	381593.72	1.26	20	234121.21	0.86
GAVISCON ANISEED	6	1281022.38	1.63	9	287803.81	1.36	7	447261.07	1.47	2	545957.50	2.01
LAMISIL CREAM	1	2075385.82	2.64	1	677375.92	3.19	3	682100.19	2.25	1	715909.71	2.64
LOCABIOTAL PUMP	19	712104.61	0.90	18	191369.78	0.90	15	290470.76	0.96	21	230264.07	0.85
MYPAID CAP	2	1530085.71	1.94	2	549667.88	2.59	5	595940.63	1.96	5	384477.20	1.42
MYPRODOL CAP	8	946668.71	1.20	7	310464.89	1.46	8	390465.40	1.29	17	245738.42	0.91
NITEPAX 25MG/5ML SYR	10	842739.87	1.07	17	193292.86	0.91	11	353488.43	1.16	9	295958.58	1.09
SOLPHYLLEX SYR	7	1183344.03	1.50	8	308008.41	1.45	6	524864.24	1.73	7	350471.38	1.29
SOLPHYLLIN SYR	14	785738.88	1.00	12	223068.14	1.05	14	305269.73	1.01	16	257401.01	0.95
TELFAST 120 MG TAB	15	782855.34	0.99	10	248000.20	1.17	18	261598.05	0.86	12	273257.09	1.01
		78739814.70	26.17		21233363.40	26.10		30360195.64	27.62		27146255.66	24.59

Table B.62 The top trade name products according to total cost prescribed by pharmacies for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R92097572.14)	Rank	Total cost (R)	% of total expenditure (n=R31113765.72)	Rank	Total cost (R)	% of total expenditure (n=R35177966.66)	Rank	Total cost (R)	% of total expenditure (n=R25805839.76)
ADCO-DOL TAB	11	994946.74	1.08	9	368991.94	1.19	12	350734.84	1.00	13	275219.96	1.07
BENYLIN & CODEINE SYR	4	1496061.40	1.62	6	486196.97	1.56	4	673230.83	1.91	6	336633.60	1.30
BENYLIN FOUR FLU SYR	2	1752010.50	1.90	4	492270.97	1.58	1	884720.74	2.51	3	375018.79	1.45
BETAPYN TAB	10	1004340.32	1.09	8	369226.51	1.19	13	350494.00	1.00	11	284619.81	1.10
CELLFOOD LIQUID	7	1118328.31	1.21	12	319168.62	1.03	6	507541.86	1.44	10	291617.83	1.13
CORENZA C EFF TAB	3	1644425.06	1.79	5	491898.44	1.58	2	828257.44	2.35	8	324269.18	1.26
DAKTARIN ORAL GEL	18	829548.70	0.90	17	284623.29	0.91	23	267164.91	0.76	12	277760.50	1.08
DEMAZIN NS TAB	9	1015004.89	1.10	10	324486.12	1.04	8	419355.27	1.19	14	271163.50	1.05
DESELEX 5MG TAB	14	953882.22	1.04	15	295092.64	0.95	17	311329.13	0.89	5	347460.45	1.35
DILINCT SYR	16	903101.29	0.98	20	273213.15	0.88	7	419635.23	1.19	21	210252.91	0.81
GAVISCON ADVANCE	15	912902.44	0.99	2	617310.03	1.98	19	304822.73	0.87	7	332272.23	1.29
GAVISCON ANISEED	1	1932494.98	2.10	2	617310.03	1.98	3	693457.47	1.97	2	621727.48	2.41
IMMUNADUE CAP	8	1032669.42	1.12	253	24779.25	0.08	20	304176.31	0.86	1	703713.86	2.73
LAMISIL CREAM	6	1336941.23	1.45	1	723507.67	2.33	9	401957.48	1.14	20	211476.08	0.82
LOCABIOTAL PUMP	17	857359.83	0.93	21	269033.16	0.86	15	344043.97	0.98	17	244282.70	0.95
NITEPAX 25MG/5ML SYR	12	966837.98	1.05	11	322985.64	1.04	11	376392.75	1.07	15	267459.59	1.04
PROCYDIN ANTIOXIDANT	20	770075.73	0.84	18	276540.48	0.89	22	280705.68	0.80	19	212829.57	0.82
SOLPHYLLEX SYR	5	1444041.41	1.57	7	440727.87	1.42	5	646665.65	1.84	4	356647.89	1.38
SOLPHYLLIN SYR	13	961216.21	1.04	14	307422.82	0.99	10	393412.92	1.12	16	260380.47	1.01
ULSANIC 1GM/5ML SUSP	19	773348.38	0.84	24	227939.66	0.73	27	238468.98	0.68	9	306939.74	1.19
		92097572.14	24.65		31113765.72	24.21		35177966.66	25.57		25805839.76	25.23

Table B.63: The top twenty trade name products prescribed by pharmacies according to prevalence for 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=1704808)	Average cost per item (R)	Total cost (R)	Pharmaceutical product	Rank	Freq	% of total prevalence (n=2020781)	Average cost per item (R)	Total cost (R)
CORENZA C EFF TAB	1	35795	2.10	40.29	1442303.41	CORENZA C EFF TAB	1	42645	2.11	38.56	1644425.06
BENYLIN FOUR FLU SYR	2	32152	1.89	43.75	1406514.09	BENYLIN FOUR FLU SYR	2	40998	2.03	42.73	1752010.50
MYPAID CAP	3	31507	1.85	48.56	1530085.71	ADCO-DOL TAB	3	36336	1.80	27.38	994946.74
ADCO-DOL TAB	4	28279	1.66	27.09	766167.91	SOLPHYLLEX SYR	4	30093	1.49	47.99	1444041.41
BENYLIN & CODEINE SYR	5	26222	1.54	53.27	1396792.70	BENYLIN & CODEINE SYR	5	28100	1.39	53.24	1496061.40
SOLPHYLLEX SYR	6	24062	1.41	49.18	1183344.03	GAVISCON ANISEED	6	27843	1.38	69.41	1932494.98
ALCOPHYLLEX SYR	7	23137	1.36	11.72	271250.75	BETAPYN TAB	7	26260	1.30	38.25	1004340.32
BETAPYN TAB	8	22409	1.31	35.60	797669.76	ALCOPHYLLEX SYR	8	24831	1.23	11.37	282392.96
LAMISIL CREAM	9	21999	1.29	94.34	2075385.82	DILINCT SYR	9	20905	1.03	43.20	903101.29
GAVISCON ANISEED	10	20055	1.18	63.88	1281022.38	DEMAZIN NS TAB	10	17623	0.87	57.60	1015004.89
DILINCT SYR	11	18494	1.08	43.94	812693.76	ADVIL CS TAB	11	16866	0.83	35.60	600491.23
MYPRODOL CAP	12	18296	1.07	51.74	946668.71	BENYLIN COUGH SYR	12	15797	0.78	44.89	709165.89
BENYLIN COUGH SYR	13	16365	0.96	43.83	717330.24	ANDOLEX SPRAY 30ML	13	15549	0.77	48.65	756469.49
MEDI-KEEL A LOZ	14	14968	0.88	23.06	345182.71	MYPAID CAP	14	14869	0.74	47.78	710375.74
BACTROBAN TOPICAL OINT	15	14456	0.85	51.84	749364.84	MEDI-KEEL A LOZ	15	14855	0.74	22.13	328805.23
DEMAZIN NS TAB	16	13582	0.80	58.58	795634.83	CORYX EFF TAB	16	14808	0.73	31.56	467378.71
ADVIL CS TAB	17	13503	0.79	37.22	502534.42	LAMISIL CREAM	17	14444	0.71	92.56	1336941.23
ANDOLEX SPRAY 30ML	18	11535	0.68	51.41	593002.39	MYPRODOL CAP	18	14098	0.70	49.00	690777.79
DEMAZIN SYR ALCOHOL FREE	19	11083	0.65	44.81	496668.79	ALLERGEX 4MG TAB	19	13849	0.69	11.10	153752.13
SOLPHYLLIN SYR	20	10893	0.64	72.13	785738.88	SOLPHYLLIN SYR	20	13677	0.68	70.28	961216.21
		1704808	23.98					2020781	21.99		

Table B.64: The top twenty trade name products prescribed by pharmacies according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name products	Rank	Freq	% of total prevalence (n=462219)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=675517)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=567072)	Average cost per item (R)	Total cost (R)
ADCO-DOL TAB	4	7399	1.60	27.95	206790.70	6	10685	1.58	25.75	275131.84	1	10195	1.80	27.88	284245.37
ADVIL CS TAB	19	3277	0.71	37.26	122088.64	15	6543	0.97	37.16	243110.85	19	3683	0.65	37.29	137334.93
ALCOPHYLLEX SYR	11	5507	1.19	11.54	63562.96	5	11336	1.68	11.74	133129.23	10	6294	1.11	11.85	74558.56
ANDOLEX SPRAY 30ML	23	2833	0.61	50.24	142323.85	20	4897	0.72	52.14	255320.21	18	3805	0.67	51.34	195358.33
BACTROBAN TOPICAL OINT	12	4739	1.03	51.61	244557.64	18	5028	0.74	51.61	259512.83	12	4689	0.83	52.31	245294.37
BENYLIN & CODEINE SYR	7	6956	1.50	52.77	367099.66	4	11819	1.75	53.14	628099.26	8	7447	1.31	53.93	401593.78
BENYLIN COUGH SYR	15	4129	0.89	43.48	179545.84	10	7659	1.13	43.80	335434.20	14	4577	0.81	44.21	202350.20
BENYLIN FOUR FLU SYR	6	7222	1.56	43.72	315722.41	2	16534	2.45	43.85	724933.77	2	8396	1.48	43.58	365857.91
BETAPYN TAB	9	6183	1.34	34.88	215662.94	9	8353	1.24	34.40	287368.99	5	7873	1.39	37.42	294637.83
CORENZA C EFF TAB	3	9103	1.97	40.19	365893.71	1	18514	2.74	40.24	745076.23	4	8178	1.44	40.52	331333.47
DEMAZIN NS TAB	17	3564	0.77	58.35	207964.48	16	5597	0.83	57.86	323849.77	15	4421	0.78	59.67	263820.58
DEMAZIN SYR ALCOHOL FREE	17	3564	0.77	58.35	207964.48	16	5597	0.83	57.86	323849.77	30	2963	0.52	43.25	128161.48
DILINCT SYR	14	4522	0.98	43.56	196978.83	8	8631	1.28	44.21	381593.72	11	5341	0.94	43.83	234121.21
GAVISCON ANISEED	13	4709	1.02	61.12	287803.81	13	7080	1.05	63.17	447261.07	3	8266	1.46	66.05	545957.50
LAMISIL CREAM	5	7288	1.58	92.94	677375.92	12	7207	1.07	94.64	682100.19	7	7504	1.32	95.40	715909.71
MEDI-KEEL A LOZ	16	3874	0.84	23.02	89198.14	14	6907	1.02	23.17	160005.08	17	4187	0.74	22.92	95979.49
MYPAID CAP	1	11272	2.44	48.76	549667.88	4	12404	1.84	48.04	595940.63	6	7831	1.38	49.10	384477.20
MYPRODOL CAP	10	6157	1.33	50.42	310464.89	11	7487	1.11	52.15	390465.40	13	4652	0.82	52.82	245738.42
SOLPHYLLEX SYR	8	6333	1.37	48.64	308008.41	7	10629	1.57	49.38	524864.24	9	7100	1.25	49.36	350471.38
SOLPHYLLIN SYR	21	3086	0.67	72.28	223068.14	24	4227	0.63	72.22	305269.73	20	3580	0.63	71.90	257401.01
		462219	24.17				675517	26.22				567072	21.33		

Table B.65: The top twenty trade name products prescribed by pharmacies according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=670343)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=791460)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=567072)	Average cost per item (R)	Total cost (R)
ADCO-DOL TAB	1	12728	1.90	28.99	368991.94	3	13449	1.70	26.08	350734.84	1	10159	1.82	27.09	275219.96
ADVIL CS TAB	16	4927	0.73	35.96	177163.35	10	8080	1.02	35.65	288014.27	16	3859	0.69	35.06	135313.61
ALCOPHYLLEX SYR	10	7602	1.13	11.49	87367.31	6	11695	1.48	11.47	134088.07	9	5534	0.99	11.01	60937.58
ALLERGEX 4MG TAB	18	4752	0.71	11.45	54405.2	31	4418	0.56	11.20	49482.36	13	4679	0.84	10.66	49864.57
ANDOLEX SPRAY 30ML	19	4625	0.69	49.26	227825.64	15	6514	0.82	49.23	320674.37	14	4410	0.79	47.16	207969.48
BENYLIN & CODEINE SYR	7	9059	1.35	53.67	486196.97	5	12591	1.59	53.47	673230.83	7	6450	1.15	52.19	336633.60
BENYLIN COUGH SYR	14	5385	0.80	44.54	239821.01	12	7587	0.96	45.44	344791.19	35	2825	0.51	44.09	124553.69
BENYLIN FOUR FLU SYR	3	11444	1.71	43.02	492270.97	2	20622	2.61	42.90	884720.74	2	8932	1.60	41.99	375018.79
BETAPYN TAB	5	9406	1.40	39.25	369226.51	9	9590	1.21	36.55	350494.00	6	7264	1.30	39.18	284619.81
CORENZA C EFF TAB	2	12536	1.87	39.24	491898.44	1	21446	2.71	38.62	828257.44	4	8663	1.55	37.43	324269.18
CORYX EFF TAB	21	4146	0.62	31.86	132094.96	11	7938	1.00	31.69	251580.02	40	2724	0.49	30.73	83703.73
DEMAZIN NS TAB	13	5478	0.82	59.23	324486.12	13	7422	0.94	56.50	419355.27	12	4723	0.84	57.41	271163.50
DILINCT SYR	12	6251	0.93	43.71	273213.15	8	9713	1.23	43.20	419635.23	11	4941	0.88	42.55	210252.91
GAVISCON ANISEED	8	9014	1.34	68.48	617310.03	7	9976	1.26	69.51	693457.47	3	8853	1.58	70.23	621727.48
LAMISIL CREAM	9	7766	1.16	93.16	723507.67	33	4321	0.55	93.02	401957.48	43	2357	0.42	89.72	211476.08
MEDI-KEEL A LOZ	17	4759	0.71	22.36	106434	14	6866	0.87	22.37	153622.06	26	3230	0.58	21.28	68749.17
MYPAID CAP	11	6362	0.95	49.70	316217.51	21	5017	0.63	46.65	234041.04	20	3490	0.62	45.88	160117.19
MYPRODOL CAP	15	5068	0.76	50.58	256317.07	22	4953	0.63	49.65	245901.46	15	4077	0.73	46.25	188559.26
SOLPHYLLEX SYR	6	9083	1.35	48.52	440727.87	4	13380	1.69	48.33	646665.65	5	7630	1.36	46.74	356647.89
SOLPHYLLIN SYR	20	4321	0.64	71.15	307422.82	16	5611	0.71	70.11	393412.92	17	3745	0.67	69.53	260380.47
		670343	21.59				791460	24.16				558978	19.42		

Table B.66: The top twenty trade name products according to total cost prescribed by pharmacotherapist for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name/ product	Rank	Total cost (R)	% of total expenditure (n=R1990479.22)	Rank	Total cost (R)	% of total expenditure (n=R600514.23)	Rank	Total cost (R)	% of total expenditure (n=R752072.59)	Rank	Total cost (R)	% of total expenditure (n=R637892.4)
BENYLIN & CODEINE SYR	7	31561.05	1.59	7	9605.8	1.60	8	11704.94	1.56	5	10250.31	1.61
BENYLIN COUGH SYR	17	20015.77	1.01	19	5389.77	0.90	11	9948.02	1.32	26	4677.98	0.73
BENYLIN FOUR FLU SYR	10	26705.93	1.34	13	7013.7	1.17	6	13213.84	1.76	16	6478.39	1.02
BETAPYN TAB	19	19329.60	0.97	27	4917.76	0.82	18	7059.12	0.94	14	7352.72	1.15
CATAFLAM D 50MG DISP TAB	16	20604.98	1.04	11	7956.65	1.32	15	8526.77	1.13	32	4121.56	0.65
CORENZA C EFF TAB	4	35672.91	1.79	4	11335.87	1.89	3	16106.46	2.14	8	8230.58	1.29
DAKTARIN ORAL GEL	9	27105.69	1.36	26	4935.88	0.82	12	9737.75	1.29	3	12432.06	1.95
DESELEX 5MG TAB	6	31697.40	1.59	3	11905.03	1.98	9	10755.74	1.43	6	9036.63	1.42
DILINCT SYR	8	31447.37	1.58	12	7137.8	1.19	2	16794.83	2.23	13	7514.74	1.18
GAVISCON ADVANCE	18	19585.56	0.98	28	4910.75	0.82	40	3974.9	0.53	4	10699.91	1.68
GAVISCON ANISEED	3	42381.55	2.13	5	11332.06	1.89	7	11920.7	1.59	1	19128.79	3.00
LAMISIL CREAM	1	48908.72	2.46	2	18646.88	3.11	4	15797.35	2.10	2	14464.49	2.27
MYBULEN TAB	14	21160.96	1.06	14	6657.61	1.11	13	9134.47	1.21	22	5368.88	0.84
MYPAID CAP	5	32093.55	1.61	8	9402.67	1.57	5	14752.6	1.96	10	7938.28	1.24
MYPRODOL CAP	2	45921.84	2.31	1	20413.71	3.40	1	17934	2.38	12	7574.13	1.19
PEVARYL 1GM/100GM CREAM	11	21860.08	1.10	10	8256.16	1.37	25	5386.86	0.72	9	8217.06	1.29
SOLPHYLLEX SYR	15	20715.45	1.04	18	5740.68	0.96	10	10582.16	1.41	28	4392.61	0.69
TELFAST 120 MG TAB	12	21618.15	1.09	6	9873.7	1.64	34	4534.18	0.60	15	7210.27	1.13
ULSANIC 1000MG TAB	13	21567.38	1.08	21	5372.87	0.89	14	8601.2	1.14	11	7593.31	1.19
ULSANIC 1GM/5ML SUSP	20	18826.64	0.95	20	5384.62	0.90	29	5117.2	0.68	7	8324.82	1.31
		1990479.22	28.07		600514.23	29.34		752072.59	28.13		637892.4	26.81

Table B.67: The top twenty trade name products according to total cost prescribed by pharmacotherapist for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R2007303.26)	Rank	Total cost (R)	% of total expenditure (n=R659307.84)	Rank	Total cost (R)	% of total expenditure (n=R791232.9)	Rank	Total cost (R)	% of total expenditure (n=R556762.52)
BENYLIN & CODEINE SYR	11	25071.65	1.25	12	8507.84	1.29	11	10426.47	1.32	14	6137.34	1.10
BENYLIN FOUR FLU SYR	15	22981.31	1.14	20	6361.96	0.96	6	11720.55	1.48	22	4898.80	0.88
CLARITYNE D OD	14	23877.72	1.19	19	6399.15	0.97	12	10200.69	1.29	9	7277.88	1.31
CORENZA C EFF TAB	3	38555.06	1.92	4	11447.70	1.74	1	19219.58	2.43	8	7887.78	1.42
DAKTARIN ORAL GEL	7	29336.38	1.46	3	11552.32	1.75	17	8402.02	1.06	6	9382.04	1.69
DEMAZIN NS TAB	10	26607.59	1.33	26	5492.75	0.83	9	11128.11	1.41	5	9986.73	1.79
DESELEX 5MG TAB	2	38759.16	1.93	6	10095.12	1.53	7	11706.76	1.48	1	16957.28	3.05
DILINCT SYR	8	27865.95	1.39	10	8784.31	1.33	3	14497.16	1.83	25	4584.48	0.82
GAVISCON ADVANCE	13	24163.30	1.20	7	9732.46	1.48	22	7350.28	0.93	10	7080.56	1.27
GAVISCON ANISEED	1	42271.40	2.11	1	13255.66	2.01	4	13764.89	1.74	2	15250.85	2.74
LAMISIL 1% 30ML SPRAY	18	20937.03	1.04	15	8035.05	1.22	21	7739.89	0.98	19	5162.09	0.93
LAMISIL CREAM	9	26959.66	1.34	2	13204.48	2.00	5	11744.29	1.48	62	2010.89	0.36
LOCABIOTAL PUMP	16	21396.64	1.07	21	6356.31	0.96	16	8424.37	1.06	12	6615.96	1.19
MYBULEN TAB	6	30959.75	1.54	13	8352.43	1.27	2	14617.82	1.85	7	7989.50	1.43
PEVARYL 1GM/100GM CREAM	5	32735.35	1.63	9	9079.02	1.38	10	10766.63	1.36	4	12889.70	2.32
SOLPHYLLEX SYR	12	24418.79	1.22	24	6028.38	0.91	8	11360.28	1.44	11	7030.13	1.26
TELFAST 120 MG TAB	20	19189.67	0.96	8	9490.73	1.44	36	5369.40	0.68	27	4329.54	0.78
ULSANIC 1GM/5ML SUSP	4	34335.94	1.71	5	10179.34	1.54	13	9873.61	1.25	3	14282.99	2.57
VOMIDON TAB	17	21157.34	1.05	18	6736.67	1.02	18	8166.54	1.03	13	6254.13	1.12
XYZAL 5MG TAB	19	20397.62	1.02	11	8732.23	1.32	30	5809.05	0.73	15	5856.34	1.05
		2007303.26	27.50		659307.84	26.97		791232.90	26.83		556762.52	29.07

Table B.68: The top twenty trade name products according to prevalence prescribed by pharmacotherapist in 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=39358)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (n=38956)	Average cost per item (R)	Total cost (R)
MYPRODOL CAP	1	808	2.05	56.83	45921.84	MYBULEN TAB	1	812	2.08	38.13	30959.75
CORENZA C EFF TAB	2	715	1.82	49.89	35672.91	CORENZA C EFF TAB	2	751	1.93	51.34	38555.06
DILINCT SYR	3	673	1.71	46.73	31447.37	DILINCT SYR	3	611	1.57	45.61	27865.95
MYPAID CAP	4	670	1.70	47.90	32093.55	GAVISCON ANISEED	4	538	1.38	78.57	42271.40
GAVISCON ANISEED	5	604	1.53	70.17	42381.55	BENYLIN FOUR FLU SYR	5	509	1.31	45.15	22981.31
BENYLIN FOUR FLU SYR	6	567	1.44	47.10	26705.93	SOLPHYLLEX SYR	6	475	1.22	51.41	24418.79
BENYLIN & CODEINE SYR	7	520	1.32	60.69	31561.05	DEMAZIN NS TAB	7	437	1.12	60.89	26607.59
MYBULEN TAB	8	520	1.32	40.69	21160.96	BENYLIN & CODEINE SYR	8	429	1.10	58.44	25071.65
ALCOPHYLLEX SYR	9	489	1.24	12.00	5866.84	ACTOPHLEM SYR	9	409	1.05	44.03	18008.21
LAMISIL CREAM	10	461	1.17	106.09	48908.72	IBUPAIN FORTE CAP	10	358	0.92	34.72	12430.88
MEDI-KEEL A LOZ	11	448	1.14	24.09	10793.59	BRONCHOPED P SYR	11	351	0.90	45.69	16036.53
BENYLIN COUGH SYR	12	401	1.02	49.91	20015.77	ALCOPHYLLEX SYR	12	351	0.90	11.89	4174.42
ADCO-DOL TAB	13	387	0.98	35.06	13566.92	GEN-PAYNE CAP	13	349	0.90	35.07	12240.09
SOLPHYLLEX SYR	14	382	0.97	54.23	20715.45	ADCO-DOL TAB	14	340	0.87	30.61	10406.76
SINUCLEAR CAP	15	312	0.79	33.28	10383.64	MYPRODOL CAP	15	310	0.80	52.23	16190.08
ADVIL CS TAB	16	302	0.77	40.77	12313.60	CORYX EFF TAB	16	309	0.79	34.45	10646.23
BETAPYN TAB	17	290	0.74	66.65	19329.60	ADVIL CS TAB	17	306	0.79	37.53	11483.21
BACTROBAN TOPICAL OINT	18	289	0.73	53.94	15589.78	DICLOFLAM BLACKCURRANT	18	295	0.76	43.74	12903.90
ANDOLEX SPRAY 30ML	19	285	0.72	53.51	15250.94	BECLATE AQUANASE 50MCG 150D	19	294	0.75	49.93	14680.52
CATAFLAM D 50MG DISP TAB	20	283	0.72	72.81	20604.98	DEGORAN PLUS TAB	20	284	0.73	45.64	12961.59
		39358	23.90					38956	21.87		

Table B.69: The top twenty trade name products according to prevalence prescribed by pharmacotherapist for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=11594)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=15576)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=12188)	Average cost per item (R)	Total cost (R)
ADCO-DOL TAB	13	126	1.09	37.28	4696.70	13	169	1.09	34.44	5820.05	15	92	0.75	33.15	3050.17
ADVIL OS TAB	19	95	0.82	40.36	3833.98	18	126	0.81	41.86	5274.03	21	81	0.66	39.58	3205.59
ALCOPHYLLEX SYR	12	127	1.10	12.10	1536.69	6	241	1.55	11.86	2857.26	11	121	0.99	12.17	1472.89
ANDOLEX SPRAY 30ML	28	67	0.58	53.62	3592.22	17	127	0.82	54.07	6866.41	17	91	0.75	52.66	4792.31
BACTROBAN TOPICAL OINT	15	113	0.97	54.73	6184.61	29	93	0.60	54.54	5072.22	20	83	0.68	52.20	4332.95
BENYLIN & CODEINE SYR	8	160	1.38	60.04	9605.80	9	195	1.25	60.03	11704.94	2	165	1.35	62.12	10250.31
BENYLIN COUGH SYR	14	116	1.00	46.46	5389.77	10	193	1.24	51.54	9948.02	16	92	0.75	50.85	4677.98
BENYLIN FOUR FLU SYR	10	149	1.29	47.07	7013.70	5	284	1.82	46.53	13213.84	7	134	1.10	48.35	6478.39
BETAPYN TAB	20	84	0.72	58.54	4917.76	23	101	0.65	69.89	7059.12	12	105	0.86	70.03	7352.72
CATAFLAM D 50MG DISP TAB	18	102	0.88	78.01	7956.65	20	112	0.72	76.13	8526.77	27	69	0.57	59.78	4121.56
CORENZA C EFF TAB	2	208	1.79	54.50	11335.87	2	345	2.21	46.69	16106.46	5	162	1.33	50.81	8230.58
DILINCT SYR	9	154	1.33	46.35	7137.80	1	356	2.29	47.18	16794.83	3	163	1.34	46.10	7514.74
GAVISCON ANISEED	5	172	1.48	65.88	11332.06	4	569	3.65	65.72	37391.84	1	250	2.05	76.52	19128.79
LAMISIL CREAM	6	169	1.46	110.34	18646.88	14	150	0.96	105.32	15797.35	6	142	1.17	101.86	14464.49
MEDI-KEEL A LOZ	11	138	1.19	24.35	3360.95	8	216	1.39	24.06	5197.24	14	94	0.77	23.78	2235.40
MYBULEN TAB	7	165	1.42	40.35	6657.61	7	223	1.43	40.96	9134.47	9	132	1.08	40.67	5368.88
MYPAID CAP	3	192	1.66	48.97	9402.67	3	315	2.02	46.83	14752.60	4	163	1.34	48.70	7938.28
MYPRODOL CAP	1	365	3.15	55.93	20413.71	4	309	1.98	58.04	17934.00	8	134	1.10	56.52	7574.13
SINUCLEAR CAP	16	110	0.95	33.35	3668.51	16	134	0.86	33.33	4465.88	28	68	0.56	33.08	2249.25
SOLPHYLLEX SYR	17	105	0.91	54.67	5740.68	11	192	1.23	55.12	10582.16	19	85	0.70	51.68	4392.61
		11594	25.16				15576	28.57				12188	19.90		

Table B.70: The top twenty trade name products according to prevalence prescribed by pharmacotherapist for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=12486)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=15747)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=10723)	Average cost per item (R)	Total cost (R)
ACTOPHLEM SYR	15	98	0.78	45.32	4441.29	5	227	1.44	43.46	9865.16	14	84	0.78	44.07	3701.76
ADCO-DOL TAB	12	116	0.93	33.32	3865.69	21	124	0.79	28.95	3589.48	12	100	0.93	29.52	2951.59
ADVIL CS TAB	25	84	0.67	38.14	3203.43	14	139	0.88	39.09	5434.12	16	83	0.77	34.29	2845.66
ALCOPHYLLEX SYR	20	89	0.71	12.11	1078.14	8	190	1.21	11.75	2233.32	25	72	0.67	11.99	862.96
BECLATE AQUANASE 50MCG 150D	26	82	0.66	50.37	4130.30	27	109	0.69	50.04	5454.07	11	103	0.96	49.48	5096.15
BENYLIN & CODEINE SYR	6	141	1.13	60.34	8507.84	10	175	1.11	59.58	10426.47	6	113	1.05	54.31	6137.34
BENYLIN FOUR FLU SYR	7	139	1.11	45.77	6361.96	4	259	1.64	45.25	11720.55	8	111	1.04	44.13	4898.80
BRONCHOPED P SYR	17	95	0.76	46.22	4391.17	12	172	1.09	45.35	7800.13	15	84	0.78	45.78	3845.23
CORENZA C EFF TAB	1	217	1.74	52.75	11447.70	1	395	2.51	48.66	19219.58	5	139	1.30	56.75	7887.78
CORYX EFF TAB	34	70	0.56	32.68	2287.45	7	194	1.23	34.92	6774.71	50	45	0.42	35.20	1584.07
DEGORAN PLUS TAB	23	86	0.69	47.57	4091.08	18	133	0.84	46.57	6193.53	30	65	0.61	41.18	2676.98
DEMAZIN NS TAB	18	95	0.76	57.82	5492.75	9	181	1.15	61.48	11128.11	3	161	1.50	62.03	9986.73
DICLOFLAM BLACKCURRANT	42	64	0.51	43.63	2792.38	20	125	0.79	43.70	5461.97	9	106	0.99	43.86	4649.55
DILINCT SYR	3	190	1.52	46.23	8784.31	3	316	2.01	45.88	14497.16	10	105	0.98	43.66	4584.48
GAVISCON ANISEED	4	177	1.42	74.89	13255.66	11	173	1.10	79.57	13764.89	2	188	1.75	81.12	15250.85
GEN-PAYNE CAP	5	146	1.17	37.19	5429.51	19	127	0.81	35.30	4483.14	20	76	0.71	30.62	2327.44
IBUPAIN FORTE CAP	9	123	0.99	35.36	4349.13	13	160	1.02	35.00	5600.09	22	75	0.70	33.09	2481.66
MYBULEN TAB	2	214	1.71	39.08	8352.43	2	383	2.43	38.17	14617.82	1	215	2.01	37.16	7989.50
MYPRODOL CAP	11	120	0.96	51.56	6186.94	25	111	0.70	54.38	6036.16	17	79	0.74	50.21	3966.98
SOLPHYLLEX SYR	13	116	0.93	51.97	6028.38	6	219	1.39	51.87	11360.28	4	140	1.31	50.22	7030.13
		12486	19.72				15747	24.84				10723	19.99		

Table B.71: The top twenty trade name products according to total cost prescribed by general medical practitioner for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R1236028621.9)	Rank	Total cost (R)	% of total expenditure (n=R388515407.14)	Rank	Total cost (R)	% of total expenditure (n=R442020709.28)	Rank	Total cost (R)	% of total expenditure (n=R405492282)
ADCO-SIMVASTATIN 20MG	5	9598415.00	0.78	7	2941496.07	0.76	8	3256904.10	0.74	6	3400014.83	0.84
AROPAX 20MG TAB	15	7616120.17	0.62	6	2957714.39	0.76	11	2843227.52	0.64	20	1815178.26	0.45
AVELON 400MG TAB	13	7670494.10	0.62	22	1825690.64	0.47	6	3575309.26	0.81	15	2269494.20	0.56
CELEBREX 200MG CAP	4	11523372.72	0.93	4	3907214.59	1.01	5	3904887.73	0.88	4	3711270.40	0.92
CILIFT 20MG TAB	18	6929740.99	0.56	9	2803594.2	0.72	19	2319013.53	0.52	21	1807133.26	0.45
CIPRALEX 10MG	14	7652049.12	0.62	19	2028340.23	0.52	15	2667580.00	0.60	9	2956128.89	0.73
COVERSYL PLUS TAB	7	9113387.82	0.74	10	2777930.45	0.72	10	3071873.64	0.69	7	3263583.73	0.80
ELTROXIN 100MCG TAB	12	7979721.58	0.65	13	2561490.11	0.66	14	2707917.71	0.61	12	2710313.76	0.67
FLIXONASE AQ NASAL SPRAY	20	5736265.99	0.46	14	2419594.24	0.62	26	1932122.50	0.44	33	1384549.25	0.34
FOSAMAX 70MG TAB	3	12185119.52	0.99	3	4091156.85	1.05	4	4161367.07	0.94	3	3932595.60	0.97
KLACID XL 500MG TAB	8	8776556.55	0.71	16	2268254.9	0.58	8	4249668.95	0.96	16	2258632.70	0.56
LIPITOR 10MG TAB	1	23511150.01	1.90	1	7659174.77	1.97	1	7908626.36	1.79	1	7943348.88	1.96
LIPITOR 20MG TAB	2	13465381.45	1.09	2	4282623.76	1.10	2	4498211.42	1.02	2	4684546.27	1.16
MYPRODOL CAP	11	8007323.40	0.65	5	2984120.81	0.77	7	3383511.99	0.77	28	1639690.60	0.40
NEXIAM 40MG	10	8328535.89	0.67	11	2623633.55	0.68	13	2797922.23	0.63	10	2906980.11	0.72
PREMARIN 0.625MG TAB	9	8466377.75	0.68	8	2929679.35	0.75	12	2809532.53	0.64	11	2727165.87	0.67
PREXUM 4MG TAB	6	9128522.47	0.74	12	2611737.25	0.67	9	3073707.49	0.70	5	3443077.73	0.85
SERETIDE 50/250 ACCUHALER	16	7390969.21	0.60	15	2284609.93	0.59	16	2557010.91	0.58	13	2549348.37	0.63
STOCRIN 600MG TAB	17	6948374.96	0.56	28	1589816.22	0.41	20	2294970.20	0.52	8	3069588.54	0.76
SYNAP FORTE	19	6437231.38	0.52	18	2078215.18	0.53	22	2210876.28	0.50	17	2153139.92	0.53
		1236028621.90	15.09		388515407.1	15.35		442020709.28	14.98		405492282.00	14.95

Table B.72: The top twenty trade name products according to total cost prescribed by general medical practitioner for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R1292764897.5)	Rank	Total cost (R)	% of total expenditure (n=R423727041.97)	Rank	Total cost (R)	% of total expenditure (n=R468634712)	Rank	Total cost (R)	% of total expenditure (n=R400403143.54)
ADCO-SIMVASTATIN 20MG	4	10925034.92	0.85	7	3537424.77	0.83	6	3842008.44	0.82	7	3545601.71	0.89
ASPEN LAMZID TAB	10	9648086.58	0.75	11	2743394.97	0.65	12	3314853.11	0.71	6	3589838.50	0.90
AVELON 400MG TAB	11	9136800.17	0.71	16	2327803.22	0.55	3	4294754.57	0.92	13	2514242.38	0.63
CELEBREX 200MG CAP	8	10644329.96	0.82	3	3800226.01	0.90	7	3755731.13	0.80	9	3088372.82	0.77
CIPRALEX 10MG	5	10745719.58	0.83	8	3428311.61	0.81	8	3692218.43	0.79	5	3625189.54	0.91
COVERSYL PLUS TAB	20	5631772.65	0.44	15	2468700.72	0.58	28	1720245.92	0.37	35	1442826.01	0.36
ELTROXIN 100MCG TAB	13	8245968.92	0.64	12	2703434.50	0.64	15	2839047.95	0.61	12	2703486.47	0.68
FOSAMAX 70MG TAB	7	10662102.75	0.82	5	3674521.12	0.87	9	3670901.4	0.78	8	3316680.23	0.83
KETEK 400MG TAB	19	5989563.26	0.46	32	1479367.49	0.35	14	3129994.78	0.67	37	1380200.99	0.34
KLACID XL 500MG TAB	12	8736219.12	0.68	14	2475851.25	0.58	5	4174942.54	0.89	19	2085425.33	0.52
LIPITOR 10MG TAB	1	22729968.76	1.76	1	7721845.39	1.82	1	7865884.31	1.68	1	7142239.06	1.78
LIPITOR 20MG TAB	2	14166103.67	1.10	2	4650467.12	1.10	2	4944341.38	1.06	2	4571295.17	1.14
NEXIAM 40MG	9	10029634.40	0.78	6	3589230.44	0.85	11	3367950.62	0.72	10	3072453.34	0.77
PREMARIN 0.625MG TAB	15	7646308.89	0.59	13	2688932.73	0.63	17	2597791.19	0.55	14	2359584.97	0.59
PREXUM 4MG TAB	3	12294278.49	0.95	4	3779839.34	0.89	4	4284524.52	0.91	3	4229914.63	1.06
PREXUM PLUS TAB	18	6103707.32	0.47	71	939372.75	0.22	19	2321564.08	0.50	11	2842770.49	0.71
SERETIDE 50/250 ACCUHALER	17	7010215.37	0.54	18	2279923.11	0.54	18	2462213.54	0.53	16	2268078.72	0.57
STOCRIN 600MG TAB	6	10739527.48	0.83	9	3126195.86	0.74	10	3546306.43	0.76	4	4067025.19	1.02
SYNAP FORTE	14	7892193.52	0.61	10	2798304.91	0.66	16	2792510.72	0.60	15	2301377.89	0.57
TAVANIC 500MG	16	7295053.85	0.56	19	1994172.78	0.47	13	3213478.34	0.69	18	2087402.73	0.52
		1292764897.50	15.18		423727041.97	14.68		468634712	15.33		400403143.54	15.54

Table B.73: The top twenty trade name products according to prevalence prescribed by a general medical practitioner for 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=14538227)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (N=15521292)	Average cost per item (R)	Total cost (R)
ELTROXIN 100MCG TAB	1	195899	1.35	40.73	7979721.58	ELTROXIN 100MCG TAB	1	207607	1.34	39.72	8245968.92
MYPRODOL CAP	2	131184	0.90	61.04	8007323.40	ALCOPHYLLEX SYR	2	125414	0.81	9.57	1199593.91
LIPITOR 10MG TAB	3	124728	0.86	188.50	23511150.01	LIPITOR 10MG TAB	3	119878	0.77	189.61	22729968.76
ALCOPHYLLEX SYR	4	122518	0.84	10.11	1239039.69	MYBULEN TAB	4	115030	0.74	38.94	4478957.65
MYBULEN TAB	5	116547	0.80	39.28	4578006.96	ECOTRIN 81MG TAB	5	114598	0.74	20.59	2359305.35
STILPANE TAB	6	107769	0.74	13.09	1410843.27	STILPANE TAB	6	100045	0.64	12.02	1202681.31
ECOTRIN 81MG TAB	7	103334	0.71	19.58	2023048.25	ADCO-SIMVASTATIN 20MG	7	98884	0.64	110.48	10925034.92
PREMARIN 0.625MG TAB	8	86715	0.60	97.63	8466377.75	PREXUM 4MG TAB	8	95236	0.61	129.09	12294278.49
ADCO-SIMVASTATIN 20MG	9	85664	0.59	112.05	9598415.00	BE-TABS PREDNISONE 5MG TA	9	95163	0.61	3.45	328066.18
ELTROXIN 50MCG TAB	10	74677	0.51	27.63	2063093.55	ELTROXIN 50MCG TAB	10	84508	0.54	26.64	2251266.08
DISPRIN CV 100MG DISP	11	72277	0.50	23.32	1685264.21	PREMARIN 0.625MG TAB	11	78941	0.51	96.86	7646308.89
BE-TABS PREDNISONE 5MG TA	12	71134	0.49	4.07	289762.10	MYPRODOL CAP	12	74932	0.48	57.37	4298784.43
PREXUM 4MG TAB	13	70826	0.49	128.89	9128522.47	DISPRIN CV 100MG DISP	13	70673	0.46	24.21	1710726.76
TREPILINE 25MG TAB	14	61030	0.42	34.03	2076705.47	SYNAP FORTE	14	70584	0.45	111.81	7892193.52
CILIFT 20MG TAB	15	57556	0.40	120.40	6929740.99	ADCO-ZOLPIDEM 10MG	15	67489	0.43	70.80	4778536.64
SYNAP FORTE	16	57107	0.39	112.72	6437231.38	TREPILINE 25MG TAB	16	64295	0.41	32.85	2112181.61
COXFLAM 15MG	17	56243	0.39	73.03	4107379.28	FLUSTAT CAP	17	63141	0.41	13.51	853268.54
KLACID XL 500MG TAB	18	54460	0.37	161.16	8776556.55	COXFLAM 15MG	18	61764	0.40	77.32	4775487.37
ADCO-ZOLPIDEM 10MG	19	54420	0.37	72.15	3926582.95	CILIFT 20MG TAB	19	61633	0.40	67.55	4163303.17
FLUSTAT CAP	20	54081	0.37	14.60	789686.96	SOLPHYLLEX SYR	20	58801	0.38	49.44	2907095.25
		14538227	12.09					15521292	11.78		

Table B.74: The top twenty trade name products according to prevalence prescribed by a general medical practitioner for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=4401638)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=5391907)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=4744681)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	9	26232	0.60	112.13	2941496.07	8	29023	0.54	112.22	3256904.10	6	30409	0.64	111.81	3400014.83
ADCO-ZOLPIDEM 10MG	20	16322	0.37	73.37	1197557.34	23	19668	0.36	71.23	1400951.18	19	18430	0.39	72.06	1328074.43
ALCOPHYLLEX SYR	8	28729	0.65	9.92	285126.41	2	60703	1.13	10.28	624203.12	4	33086	0.70	9.97	329710.16
BE-TABS PREDNISONE 5MG TA	13	19480	0.44	4.05	78809.46	10	28248	0.52	4.18	118022.48	13	23406	0.49	3.97	92930.16
CILIFT 20MG TAB	15	18860	0.43	148.65	2803594.20	24	19404	0.36	119.51	2319013.53	16	19292	0.41	93.67	1807133.26
COXFLAM 15MG	17	17673	0.40	72.00	1272499.02	22	19784	0.37	72.34	1431260.89	18	18786	0.40	74.72	1403619.37
DISPRIN CV 100MG DISP	11	22430	0.51	20.17	452312.58	15	24661	0.46	24.59	606361.41	12	25186	0.53	24.88	626590.22
ECOTRIN 81MG TAB	6	31429	0.71	17.94	563743.08	7	35589	0.66	20.76	738850.32	3	36316	0.77	19.84	720454.85
ELTROXIN 100MCG TAB	1	63042	1.43	40.63	2561490.11	1	66043	1.22	41.00	2707917.71	1	66814	1.41	40.57	2710318.76
ELTROXIN 50MCG TAB	10	23698	0.54	27.58	653559.05	13	24938	0.46	27.81	693539.83	11	26041	0.55	27.49	715994.67
FLUSTAT CAP	52	10579	0.24	14.59	154310.07	11	26589	0.49	14.73	391671.91	23	16913	0.36	14.41	243704.98
KLACID XL 500MG TAB	27	14052	0.32	161.42	2268254.90	12	26582	0.49	159.87	4249668.95	34	13826	0.29	163.36	2258632.70
LIPITOR 10MG TAB	3	41103	0.93	186.34	7659174.77	6	41748	0.77	189.44	7908626.36	2	41877	0.88	189.68	7943348.88
MYBULEN TAB	4	38903	0.88	39.27	1527621.62	4	48301	0.90	39.20	1893558.22	7	29343	0.62	39.42	1156827.12
MYPRODOL CAP	2	48294	1.10	61.79	2984120.81	3	55921	1.04	60.51	3383511.99	9	26969	0.57	60.80	1639690.60
PREMARIN 0.625MG TAB	7	29996	0.68	97.67	2929679.35	9	28755	0.53	97.71	2809532.53	8	27964	0.59	97.52	2727165.87
PREXUM 4MG TAB	12	20254	0.46	128.95	2611737.25	16	23823	0.44	129.02	3073707.49	10	26749	0.56	128.72	3443077.73
STILPANE TAB	5	33570	0.76	13.90	466704.61	5	42736	0.79	12.65	540634.52	5	31463	0.66	12.82	403504.14
SYNAP FORTE	16	18147	0.41	114.25	2073215.18	21	19813	0.37	111.59	2210876.28	17	19147	0.40	112.45	2153139.92
TREPILINE 25MG TAB	14	19362	0.44	34.93	676245.44	17	21187	0.39	33.84	717064.59	15	20481	0.43	33.37	683395.44
		4401638	12.32				5391907	12.31				4744681	11.64		

Table B.75: The top twenty trade name products according to prevalence prescribed by a general medical practitioner for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=5016194)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=5870636)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=4634462)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	6	31612	0.63	111.90	3537424.77	8	34242	0.58	112.20	3842008.44	4	33030	0.71	107.34	3545601.71
ADCO-ZOLPIDEM 10MG	15	22484	0.45	71.31	1603313.22	17	24205	0.41	70.95	1717335.91	14	20800	0.45	70.09	1457887.51
ALCOPHYLLEX SYR	5	34567	0.69	9.16	316692.77	2	62831	1.07	9.84	618251.33	9	28016	0.60	9.45	264649.81
BE-TABS PREDNISONE 5MG TA	9	27524	0.55	3.55	97674.47	6	39429	0.67	3.36	132541.04	8	28210	0.61	3.47	97850.67
CILIFT 20MG TAB	18	20230	0.40	68.77	1391198.17	23	21215	0.36	67.72	1436727.18	15	20188	0.44	66.15	1335377.82
COXFLAM 15MG	17	21417	0.43	76.77	1644168.19	22	21750	0.37	76.90	1672567.77	18	18597	0.40	78.44	1458751.41
DISPRIN CV 100MG DISP	14	24019	0.48	24.96	599442.89	18	23882	0.41	24.20	577963.34	12	22772	0.49	23.42	533320.55
ECOTRIN 81MG TAB	4	35651	0.71	19.88	708781.26	7	39421	0.67	21.05	829988.00	2	39526	0.85	20.76	820536.09
ELTROXIN 100MCG TAB	1	67469	1.35	40.07	2703434.50	1	71047	1.21	39.96	2839047.95	1	69091	1.49	39.13	2703486.47
ELTROXIN 50MCG TAB	11	27226	0.54	26.95	733681.23	12	28835	0.49	26.93	776495.32	7	28447	0.61	26.05	741089.53
FLUSTAT CAP	23	17019	0.34	14.49	246686.72	10	31752	0.54	13.52	429313.89	31	14370	0.31	12.34	177267.93
LIPITOR 10MG TAB	2	40629	0.81	190.06	7721845.39	5	41351	0.70	190.22	7865884.31	3	37898	0.82	188.46	7142239.06
MYBULEN TAB	3	37561	0.75	39.36	1478291.41	3	49529	0.84	39.03	1933332.76	10	27940	0.60	38.20	1067333.48
MYPRODOL CAP	10	27501	0.55	59.27	1629969.92	11	29967	0.51	57.13	1711887.78	20	17464	0.38	54.79	956926.73
PREMARIN 0,625MG TAB	8	27615	0.55	97.37	2688932.73	14	26677	0.45	97.38	2597791.19	11	24649	0.53	95.73	2359584.97
PREXUM 4MG TAB	7	29165	0.58	129.60	3779839.34	9	33113	0.56	129.39	4284524.52	5	32958	0.71	128.34	4229914.63
SOLPHYLLEX SYR	24	15981	0.32	50.09	800522.17	13	28367	0.48	49.57	1406148.78	29	14453	0.31	48.46	700424.30
STILPANE TAB	12	25337	0.51	12.79	324169.94	4	44365	0.76	11.56	512916.49	6	30343	0.65	12.05	365594.88
SYNAP FORTE	13	24425	0.49	114.57	2798304.91	16	24982	0.43	111.78	2792510.72	13	21177	0.46	108.67	2301377.89
TREPILINE 25MG TAB	16	21866	0.44	33.17	725321.75	19	22403	0.38	32.89	736945.56	16	20026	0.43	32.45	649914.30
		5016194	11.55				5870636	11.91				4634462	11.87		

Table B.76: The top twenty trade name products according to total cost prescribed by other practitioners for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Trade name product	Rank	Total cost (R)	% of total expenditure (n=R576460723.08)	Rank	Total cost (R)	% of total expenditure (n=R176946787.14)	Rank	Total cost (R)	% of total expenditure (n=R202385440.65)	Rank	Total cost (R)	% of total expenditure (n=R197126210.37)
CELEBREX 200MG CAP	12	3652010.62	0.63	9	1198125.79	0.68	14	1279929.26	0.63	19	1173955.57	0.60
CIPRALEX 10MG	6	4578250.29	0.79	7	1278353.74	0.72	9	1625217.26	0.80	7	1674679.29	0.85
COVERSYL PLUS TAB	16	3240305.59	0.56	15	952455.38	0.54	17	1090383.99	0.54	16	1197466.22	0.61
EFEXOR XR 150MG CAP	11	3977485.69	0.69	6	1311454.73	0.74	11	1370266.13	0.68	12	1295764.83	0.66
ENBREL 25MG	17	3207336.59	0.56	16	936383.09	0.53	18	1083602.83	0.54	18	1187350.67	0.60
EPREX PREFILL 4000U INJ	19	3153578.72	0.55	26	845045.45	0.48	20	1060161.17	0.52	15	1248372.10	0.63
FOSAMAX 70MG TAB	5	5238280.27	0.91	3	1729020.72	0.98	5	1789712.41	0.88	6	1719547.14	0.87
GEMZAR 1000MG INJ	7	4233224.30	0.73	10	1143292.43	0.65	8	1663018.91	0.82	8	1426912.96	0.72
GLEEVEC 100MG CAP	2	5727701.07	0.99	4	1672853.80	0.95	2	2072452.11	1.02	4	1982395.16	1.01
HERCEPTIN	8	4100135.31	0.71	94	386979.79	0.22	7	1704340.34	0.84	3	2008815.18	1.02
IN NOVOMIX 30 FLEXPEN 3ML PF D	20	3049884.06	0.53	29	828703.58	0.47	26	934817.07	0.46	14	1286363.41	0.65
LIPITOR 10MG TAB	1	7928041.55	1.38	1	2580813.87	1.46	1	2673920.92	1.32	1	2673306.76	1.36
LIPITOR 20MG TAB	3	5653545.17	0.98	2	1750001.23	0.99	3	1944464.33	0.96	5	1959079.61	0.99
MABTHERA 500MG VIAL	13	3615611.07	0.63	45	628939.89	0.36	4	1878982.99	0.93	17	1197303.61	0.61
NEXIAM 40MG	10	3981668.89	0.69	8	1244368.51	0.70	12	1348278.31	0.67	10	1389022.07	0.70
PLAVIX 75MG FILMCOAT TAB	4	5368389.78	0.93	5	1567894.28	0.89	6	1786084.41	0.88	2	2014411.09	1.02
PREXUM 4MG TAB	14	3519938.45	0.61	14	988867.8	0.56	15	1204529.68	0.60	11	1326540.97	0.67
TAXOTERE 20MG/1.5ML INJ	9	4001103.45	0.69	11	1129084.46	0.64	10	1452718.18	0.72	9	1419350.81	0.72
TAXOTERE 80MG INJ	15	3410842.42	0.59	31	779360.27	0.44	13	1339700.32	0.66	9	1419350.81	0.72
XELODA 500	18	3191682.63	0.55	13	989503.86	0.56	16	1191525.11	0.59	22	1010653.66	0.51
		576460723.08	14.72		176946787.14	13.53		202385440.65	15.07		197126210.37	15.53

Table B.77: The top twenty trade name products according to total cost prescribed by other practitioners for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Trade name products	Rank	Total cost (R)	% of total expenditure (n=R659728893.7)	Rank	Total cost (R)	% of total expenditure (n=R212705792.23)	Rank	Total cost (R)	% of total expenditure (n=R229599322.7)	Rank	Total cost (R)	% of total expenditure (n=R217423778.76)
ARIMIDEX 1MG TAB	17	3702973.85	0.56	22	1105157.25	0.52	16	1333148.73	0.58	20	1264667.87	0.58
CELEBREX 200MG CAP	20	3531719.00	0.54	17	1233008.18	0.58	23	1212605.39	0.53	24	1086105.43	0.50
CIPRALEX 10MG	6	5885560.04	0.89	5	1881653.08	0.88	7	2056622.91	0.90	7	1947284.05	0.90
CYMBALTA 60MG CAP	16	3739743.50	0.57	20	1167576.11	0.55	17	1306231.40	0.57	19	1265935.99	0.58
EPREX PREFILL 4000U INJ	14	4454819.02	0.68	13	1399277.50	0.66	14	1476681.84	0.64	12	1578859.68	0.73
FOSAMAX 70MG TAB	12	4687599.03	0.71	8	1653044.57	0.78	13	1584892.12	0.69	16	1449662.34	0.67
GEMZAR 1000MG INJ	8	5354989.12	0.81	7	1691254.68	0.80	8	2022559.48	0.88	10	1641174.96	0.75
GLEEVEC 400MG TAB	7	5577252.35	0.85	18	1196707.98	0.56	5	2177220.42	0.95	4	2340161.13	1.08
HERCEPTIN	1	11326081.86	1.72	2	2430612.00	1.14	1	4051132.20	1.76	1	4844337.66	2.23
IN NOVOMIX 30 FLEXPEN 3ML PF D	11	4730412.54	0.72	14	1358696.72	0.64	11	1614856.33	0.70	8	1756859.49	0.81
LIPITOR 10MG TAB	3	7693538.39	1.17	1	2635215.60	1.24	3	2654463.07	1.16	3	2403859.72	1.11
LIPITOR 20MG TAB	5	6262973.68	0.95	4	2107535.90	0.99	6	2171078.78	0.95	6	1984359.00	0.91
MABTHERA 100MG VIAL	18	3643246.51	0.55	40	820839.05	0.39	18	1296246.13	0.56	14	1526161.33	0.70
MABTHERA 500MG VIAL	2	7778859.80	1.18	11	1439858.98	0.68	2	2825182.06	1.23	2	3513818.76	1.62
NEXIAM 40MG	10	5047040.42	0.77	6	1720853.06	0.81	10	1730019.62	0.75	11	1596167.74	0.73
PLAVIX 75MG FILMCOAT TAB	4	6843326.87	1.04	3	2204375.98	1.04	4	2395257.47	1.04	5	2243693.42	1.03
PREXUM 4MG TAB	13	4573597.00	0.69	12	1421898.50	0.67	12	1593505.95	0.69	13	1558192.55	0.72
TAXOTERE 20MG/1.5ML INJ	15	3910110.30	0.59	9	1563638.59	0.74	21	1233461.66	0.54	17	1326774.68	0.61
TAXOTERE 80MG INJ	9	5131059.15	0.78	9	1563638.59	0.74	9	1884830.50	0.82	9	1682590.06	0.77
TEMODAL 100MG	19	3550421.66	0.54	36	854975.61	0.40	15	1415789.67	0.62	18	1279656.38	0.59
		659728893.70	16.28		212705792.23	14.79		229599322.70	16.57		217423778.76	17.61

Table B.78: The top twenty trade name products according to prevalence prescribed my other medical prescribers for 2005 and 2006

2005						2006					
Trade name product	Rank	Freq	% of total prevalence (n=3576876)	Average cost per item (R)	Total cost (R)	Trade name product	Rank	Freq	% of total prevalence (n=3889002)	Average cost per item (R)	Total cost (R)
ECOTRIN 81MG TAB	1	52861	1.48	19.38	1024501.14	ECOTRIN 81MG TAB	1	60479	1.56	20.47	1237869.58
ELTROXIN 100MCG TAB	2	51924	1.45	39.97	2075475.26	ELTROXIN 100MCG TAB	2	56789	1.46	38.62	2193081.04
LIPITOR 10MG TAB	3	41743	1.17	189.93	7928041.55	LIPITOR 10MG TAB	3	40529	1.04	189.83	7693538.39
DISPRIN CV 100MG DISP	4	37549	1.05	23.19	870704.95	DISPRIN CV 100MG DISP	4	39004	1.00	24.15	941915.60
MYPRODOL CAP	5	33007	0.92	62.46	2061637.88	PREXUM 4MG TAB	5	35842	0.92	127.60	4573597.00
WARFARIN 5MG TAB	6	28862	0.81	48.43	1397781.98	ADCO-SIMVASTATIN 20MG	6	31097	0.80	111.03	3452805.01
PREXUM 4MG TAB	7	27306	0.76	128.91	3519938.45	WARFARIN 5MG TAB	7	30508	0.78	47.65	1453722.51
ADCO-SIMVASTATIN 20MG	8	26545	0.74	112.76	2993165.88	ELTROXIN 50MCG TAB	8	28464	0.73	25.52	726458.03
ELTROXIN 50MCG TAB	9	24697	0.69	26.62	657368.22	SYNAP FORTE	9	28019	0.72	126.03	3531119.17
SYNAP FORTE	10	22907	0.64	124.33	2847928.01	LIPITOR 20MG TAB	10	22926	0.59	273.18	6262973.68
LIPITOR 20MG TAB	11	20632	0.58	274.02	5653545.17	CIPRALEX 10MG	11	21905	0.56	268.69	5885560.04
PREMARIN 0.625MG TAB	12	20297	0.57	98.64	2002155.08	MYPRODOL CAP	12	18474	0.48	59.44	1098115.86
CONCOR 5MG TAB	13	18852	0.53	72.02	1357686.80	PREMARIN 0.625MG TAB	13	18326	0.47	97.00	1777649.18
COVERSYL PLUS TAB	14	17878	0.50	181.25	3240305.59	TREPILINE 25MG TAB	14	18015	0.46	35.52	639923.37
CIPRALEX 10MG	15	17267	0.48	265.14	4578250.29	PLAVIX 75MG FILMCOAT TAB	15	17396	0.45	393.39	6843326.87
TREPILINE 25MG TAB	16	16928	0.47	37.81	640119.35	GLUCOPHAGE F 850MG TAB	16	17134	0.44	56.56	969040.08
CILIFT 20MG TAB	17	16409	0.46	129.06	2117758.50	CILIFT 20MG TAB	17	17031	0.44	72.50	1234668.49
FOSAMAX 70MG TAB	18	15515	0.43	337.63	5238280.27	BE-TABS PREDNISONE 5MG TA	18	16983	0.44	5.81	98618.15
CELEBREX 200MG CAP	19	15466	0.43	236.13	3652010.62	ADCO-ZOLPIDEM 10MG	19	16403	0.42	70.14	1150528.29
GLUCOPHAGE F 850MG TAB	20	14231	0.40	58.57	833556.33	SPIRACTIN 25MG TAB	20	16046	0.41	40.54	650519.16
		3576876	14.56					3889002	14.18		

Table B.79: The top twenty trade name products according to prevalence prescribed my other medical prescribers for the individual periods of 2005

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=1129796)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1249017)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=4744681)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	7	7986	0.71	112.05	894870.23	8	8922	0.71	113.15	1009526.47	6	30409	0.64	111.81	3400014.83
CELEBREX 200MG CAP	18	5081	0.45	238.15	1198125.79	18	5454	0.44	234.68	1279929.26	22	17040	0.36	217.80	3711270.40
CILIFT 20MG TAB	14	5491	0.49	159.54	876017.77	17	5604	0.45	126.99	711633.97	16	19292	0.41	93.67	1807133.26
CIPRALEX 10MG	19	4929	0.44	259.35	1278353.74	14	6108	0.49	266.08	1625217.26	43	11960	0.25	247.17	2956128.89
CONCOR 5MG TAB	12	6898	0.61	73.41	506380.10	13	6192	0.50	71.21	440938.05	63	9937	0.21	73.30	728370.06
COVERSYL PLUS TAB	16	5297	0.47	179.81	952455.38	15	5993	0.48	181.94	1090383.99	20	18013	0.38	181.18	3263583.73
DISPRIN CV 100MG DISP	5	11351	1.00	20.39	231490.48	4	12784	1.02	24.20	309352.95	12	25186	0.53	24.88	626590.22
ECOTRIN 81MG TAB	2	16125	1.43	18.07	291315.24	1	17948	1.44	20.28	363973.33	3	36316	0.77	19.84	720454.85
ELTROXIN 100MCG TAB	1	16641	1.47	39.99	665529.18	2	17529	1.40	40.11	703155.62	1	66814	1.41	40.57	2710313.76
ELTROXIN 50MCG TAB	8	7802	0.69	26.80	209113.48	9	8375	0.67	26.66	223241.42	11	26041	0.55	27.49	715994.67
FOSAMAX 70MG TAB	17	5126	0.45	337.30	1729020.72	19	5288	0.42	338.45	1789712.41	46	11704	0.25	336.00	3932595.60
GLUCOPHAGE F 850MG TAB	24	4341	0.38	58.72	254924.15	22	4722	0.38	58.96	278403.16	31	14419	0.30	56.74	818160.31
LIPITOR 10MG TAB	3	13782	1.22	187.26	2580813.87	3	13990	1.12	191.13	2673920.92	2	41877	0.88	189.68	7943348.88
LIPITOR 20MG TAB	13	6494	0.57	269.48	1750001.23	11	7088	0.57	274.33	1944464.33	21	17299	0.36	270.80	4684546.27
MYPRODOL CAP	4	13374	1.18	62.89	841037.46	5	12414	0.99	62.25	772724.63	9	26969	0.57	60.80	1639690.60
PREMARIN 0.625MG TAB	11	6903	0.61	98.78	681911.42	12	6778	0.54	98.68	668858.90	8	27964	0.59	97.52	2727165.87
PREXUM 4MG TAB	9	7697	0.68	128.47	988867.80	7	9342	0.75	128.94	1204529.68	10	26749	0.56	128.72	3443077.73
SYNAP FORTE	10	7404	0.66	125.29	927642.42	10	7905	0.63	123.38	975286.21	17	19147	0.40	112.45	2153139.92
TREPILINE 25MG TAB	15	5475	0.48	38.54	211031.71	16	5794	0.46	38.08	220619.35	14	20481	0.43	33.37	683395.44
WARFARIN 5MG TAB	6	9325	0.83	48.37	451025.56	6	9758	0.78	48.23	470625.09	33	14127	0.30	48.61	686739.94
		1129796	14.82				1249017	14.25				4744681	10.15		

Table B.80: The top twenty trade name products according to prevalence prescribed my other medical prescribers for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Trade name product	Rank	Freq	% of total prevalence (n=1284495)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1369741)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=1234766)	Average cost per item (R)	Total cost (R)
ADCO-SIMVASTATIN 20MG	6	9975	0.78	112.49	1122089.24	6	10823	0.79	112.73	1220085.92	6	10299	0.83	107.84	1110629.85
ADCO-ZOLPIDEM 10MG	18	5441	0.42	70.57	383948.69	17	5962	0.44	70.14	418165.08	24	5000	0.40	69.68	348414.52
BE-TABS PREDNISONE 5MG TA	21	5298	0.41	6.21	32881.48	13	6318	0.46	5.71	36051.54	19	5367	0.43	5.53	29685.13
CILIFT 20MG TAB	15	5658	0.44	72.91	412496.83	19	5808	0.42	72.58	421517.73	18	5565	0.45	72.00	400653.93
CIPRALEX 10MG	11	7098	0.55	265.10	1881653.08	11	7639	0.56	269.23	2056622.91	11	7168	0.58	271.66	1947284.05
DISPRIN CV 100MG DISP	4	13239	1.03	24.87	329306.01	4	13158	0.96	24.10	317069.35	4	12607	1.02	23.44	295540.24
ECOTRIN 81MG TAB	1	18884	1.47	19.88	375453.97	1	20711	1.51	20.93	433479.59	1	20884	1.69	20.54	428936.02
ELTROXIN 100MCG TAB	2	18527	1.44	38.88	720323.16	2	19342	1.41	38.77	749893.93	2	18920	1.53	38.21	722863.95
ELTROXIN 50MCG TAB	9	9201	0.72	25.71	236515.30	9	9544	0.70	25.76	245830.20	8	9719	0.79	25.12	244112.53
GLUCOPHAGE F 850MG TAB	17	5483	0.43	56.92	312074.82	18	5829	0.43	56.72	330607.23	13	5822	0.47	56.06	326358.03
LIPITOR 10MG TAB	3	13670	1.06	189.99	2635215.60	3	13979	1.02	189.89	2654468.07	3	12680	1.03	189.58	2403859.72
LIPITOR 20MG TAB	10	7684	0.60	274.28	2107535.90	10	7924	0.58	273.99	2171078.78	10	7318	0.59	271.16	1984359.00
MYPRODOL CAP	12	6826	0.53	60.74	414635.06	12	6554	0.48	60.38	395722.17	21	5094	0.41	56.49	287758.63
PLAVIX 75MG FILMCOAT TAB	16	5578	0.43	395.19	2204375.98	16	6064	0.44	395.00	2395257.47	14	5754	0.47	389.94	2243693.42
PREMARIN 0.625MG TAB	13	6567	0.51	97.76	641994.46	15	6154	0.45	97.10	597530.05	16	5605	0.45	96.01	538124.67
PREXUM 4MG TAB	5	11107	0.86	128.02	1421898.50	5	12515	0.91	127.33	1593505.95	5	12220	0.99	127.51	1558192.55
SPIRACTIN 25MG TAB	25	4991	0.39	42.25	210888.51	21	5380	0.39	40.25	216524.87	15	5675	0.46	39.31	223105.78
SYNAP FORTE	8	9670	0.75	128.08	1238581.65	8	9869	0.72	126.26	1246064.31	9	8480	0.69	123.40	1046473.21
TREPILINE 25MG TAB	14	6140	0.48	35.51	218054.36	14	6278	0.46	35.26	221157.51	17	5602	0.45	35.83	200711.50
WARFARIN 5MG TAB	7	9899	0.77	47.75	472664.66	7	10401	0.76	47.57	494737.37	7	10208	0.83	47.64	486320.48
		1284495	14.10				1369741	13.89				1234766	14.58		

Table B.81: The top twenty main pharmacological groups according to total cost for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Main pharmcological group	Rank	Total cost (R)	% of total expenditure (n=R1893376920.7)	Rank	Total cost (R)	% of total expenditure (n=R587060677.89)	Rank	Total cost (R)	% of total expenditure (n=R675343763.24)	Rank	Total cost (R)	% of total expenditure (n=R630267378.24)
7	1	365056222.79	19.28	1	116711260.33	19.88	1	122854628.43	18.19	1	124787741.10	19.80
1	2	240615075.29	12.71	2	78639265.21	13.40	3	82867725.53	12.27	2	79108084.55	12.55
18	3	211903054.26	11.19	3	62965359.92	10.73	2	83556280.94	12.37	3	67974998.64	10.79
19	4	198418443.99	10.48	4	60371774.68	10.28	4	68355628.44	10.12	4	67097455.63	10.65
10	5	144383959.07	7.63	5	41713344.78	7.11	5	59793345.77	8.85	5	44122415.27	7.00
12	6	126154782.09	6.66	6	40468198.03	6.89	6	42786341.86	6.34	6	41655095.45	6.61
4	7	107184191.07	5.66	7	36286279.01	6.18	7	36615777.00	5.42	7	34282135.06	5.44
14	8	72449546.01	3.83	8	23794878.91	4.05	8	24294814.64	3.60	8	24359852.46	3.87
3	9	61148151.51	3.23	10	16986562.31	2.89	9	22152674.31	3.28	10	20172893.69	3.20
23	10	57061374.50	3.01	9	18822583.51	3.21	10	21954894.15	3.25	9	21767646.89	3.45
11	11	55778073.10	2.95	11	13338833.46	2.27	11	21019950.23	3.11	11	17771560.56	2.82
40	12	39565374.59	2.09	13	11674954.04	1.99	12	15435350.56	2.29	13	13144504.03	2.09
8	13	39314046.99	2.08	12	11862838.62	2.02	13	13544191.18	2.01	12	14094901.77	2.24
16	14	37186101.68	1.96	14	10983011.64	1.87	14	12541294.13	1.86	14	12781968.93	2.03
6	15	32902304.88	1.74	15	9881387.37	1.68	15	11260040.47	1.67	15	11760877.04	1.87
15	16	31634289.75	1.67	16	9833366.71	1.68	16	10890472.00	1.61	16	10910451.04	1.73
24	17	18356366.62	0.97	17	5747147.03	0.98	17	6187954.31	0.92	17	6706944.73	1.06
20	18	17716862.44	0.94	18	5461467.58	0.93	18	6029607.66	0.89	18	5940107.75	0.94
17	19	17193617.39	0.91	19	5406003.33	0.92	19	5877561.97	0.87	19	5910052.09	0.94
5	20	8190060.88	0.43	20	2584023.45	0.44	20	2899236.64	0.43	20	2706800.79	0.43
		1893376920.70	99.41		587060677.89	99.40		675343763.24	99.34		630267378.24	99.49

Table B.82: The top twenty main pharmacological groups according to total cost for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Main pharmacological group	Rank	Total cost (R)	% of total expenditure (n=R2046944382.5)	Rank	Total cost (R)	% of total expenditure (n=R668075996.41)	Rank	Total cost (R)	% of total expenditure (n=R734116457.25)	Rank	Total cost (R)	% of total expenditure (n=R644159186.92)
7	1	389890466.01	19.05	1	125052535.40	18.72	1	133697522.76	18.21	1	130547665.93	20.27
1	2	251266044.96	12.28	2	84552277.65	12.66	3	87048530.79	11.86	2	79665236.52	12.37
18	3	231387923.36	11.30	3	72398872.93	10.84	2	92104032.87	12.55	4	66885017.56	10.38
19	4	213278998.89	10.42	4	69292878.96	10.37	4	74475666.83	10.14	3	69510453.10	10.79
10	5	152866052.91	7.47	5	46261198.70	6.92	5	64450717.29	8.78	5	42154136.92	6.54
12	6	130560671.06	6.38	6	45936224.11	6.88	6	44557540.95	6.07	6	40066906.00	6.22
4	7	108048264.41	5.28	7	36133800.79	5.41	7	37153728.66	5.06	7	34760734.96	5.40
23	8	87522544.92	4.28	8	25602461.10	3.83	8	30458692.17	4.15	8	31461391.65	4.88
14	9	70120389.17	3.43	9	25592353.39	3.83	10	23474267.86	3.20	9	21053767.92	3.27
3	10	69197253.75	3.38	10	24278952.38	3.63	9	25931529.66	3.53	10	18986771.71	2.95
11	11	59378899.57	2.90	11	19131577.16	2.86	11	22941579.34	3.13	11	17305743.07	2.69
40	12	47946804.22	2.34	13	14310095.75	2.14	12	17458124.26	2.38	12	16178584.21	2.51
8	13	46892761.46	2.29	12	15360541.62	2.30	13	15868218.86	2.16	13	15664000.98	2.43
16	14	38242785.77	1.87	14	14310095.75	2.14	14	13030562.95	1.77	14	12424325.21	1.93
6	15	37426683.27	1.83	15	12787897.61	1.91	15	12943688.76	1.76	15	12014739.49	1.87
15	16	32948873.12	1.61	16	12468255.02	1.87	16	11094963.84	1.51	16	10637559.63	1.65
24	17	23547176.19	1.15	17	11216349.65	1.68	17	8109881.86	1.10	17	7903744.28	1.23
17	18	17651433.57	0.86	18	7533550.05	1.13	18	6092131.28	0.83	19	5097887.86	0.79
20	19	16989258.68	0.83	19	6461414.43	0.97	19	5769484.92	0.79	18	5118967.27	0.79
5	20	9334307.53	0.46	20	6100806.49	0.91	20	3278761.33	0.45	20	3000491.55	0.47
		2046944382.50	99.99		668075996.41	101.00		734116457.25	99.43		644159186.92	99.42

Table B.83: The top twenty main pharmacological groups according to prevalence for 2005 and 2006

2005						2006					
Main pharmacological group	Rank	Freq	% of total prevalence (n=19860679)	Average cost per item (R)	Total cost (R)	Main pharmacological group	Rank	Freq	% of total prevalence (n=21473074)	Average cost per item (R)	Total cost (R)
7	1	2705492	13.62	134.93	365056222.79	7	1	2983099	13.89	130.70	389890466.01
10	2	2495347	12.56	57.86	144383959.07	10	2	2748488	12.80	55.62	152866052.91
18	3	2355856	11.86	89.95	211903054.26	18	3	2549936	11.88	90.74	231387923.36
1	4	1909643	9.62	126.00	240615075.29	1	4	2041082	9.51	123.10	251266044.96
19	5	1807283	9.10	109.79	198418443.99	19	5	1930711	8.99	110.47	213278998.89
3	6	1590742	8.01	38.44	61148151.51	3	6	1822902	8.49	37.96	69197253.75
4	7	1185443	5.97	90.42	107184191.07	12	7	1268910	5.91	102.89	130560671.06
12	8	1176734	5.92	107.21	126154782.09	4	8	1228005	5.72	87.99	108048264.41
11	9	753062	3.79	74.07	55778073.10	11	9	832206	3.88	71.35	59378899.57
16	10	698012	3.51	53.27	37186101.68	16	10	730078	3.40	52.38	38242785.77
14	11	694430	3.50	104.33	72449546.01	14	11	695414	3.24	100.83	70120389.17
40	12	575356	2.90	68.77	39565374.59	40	12	580133	2.70	82.65	47946804.22
8	13	479730	2.42	81.95	39314046.99	8	13	516256	2.40	90.83	46892761.46
6	14	447400	2.25	73.54	32902304.88	6	14	506310	2.36	73.92	37426683.27
15	15	323887	1.63	97.67	31634289.75	15	15	338267	1.58	97.40	32948878.12
20	16	254519	1.28	69.61	17716862.44	20	16	260069	1.21	65.33	16989258.68
17	17	180182	0.91	95.42	17193617.39	17	17	191652	0.89	92.10	17651433.57
13	18	47373	0.24	32.44	1536985.50	23	18	56994	0.27	1535.64	87522544.92
23	19	46776	0.24	1219.89	57061374.50	26	19	50390	0.23	144.56	7284429.39
5	20	43992	0.22	186.17	8190060.88	5	20	48380	0.23	192.94	9334307.53
		19860679	99.55					21473074	99.56		

Table B.84: The top twenty main pharmacological groups according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Main pharmacological group	Rank	Freq	% of total prevalence (n=6003950)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=14662716)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6521441)	Average cost per item (R)	Total cost (R)
7	1	856704	14.27	136.23	116711260.33	1	911287	6.21	134.81	122854628.43	1	933581	14.32	133.67	124787741.10
10	3	638136	10.63	63.42	40468198.03	5	1145217	7.81	52.21	59793345.77	5	711994	10.92	61.97	44122415.27
18	2	671289	11.18	89.93	60371774.68	2	929284	6.34	89.91	83556280.94	3	755283	11.58	90.00	67974998.64
1	4	613882	10.22	128.10	78639265.21	3	658333	4.49	125.88	82867725.53	2	637428	9.77	124.11	79108084.55
19	5	567584	9.45	110.94	62965359.92	4	634447	4.33	107.74	68355628.44	4	605252	9.28	110.86	67097455.63
3	6	461014	7.68	40.83	18822583.51	9	600583	4.10	36.89	22152674.31	10	529145	8.11	38.12	20172893.69
4	7	379430	6.32	95.63	36286279.01	7	416992	2.84	87.81	36615777.00	7	389021	5.97	88.12	34282135.06
12	8	374726	6.24	111.32	41713344.78	6	394579	2.69	108.44	42786341.86	6	407429	6.25	102.24	41655095.45
11	11	216855	3.61	78.33	16986562.31	11	297186	2.03	70.73	21019950.23	11	239021	3.67	74.35	17771560.56
16	10	223477	3.72	53.08	11862838.62	14	233693	1.59	53.67	12541294.13	14	240842	3.69	53.07	12781968.93
14	9	225852	3.76	105.36	23794878.91	8	231238	1.58	105.06	24294814.64	8	237340	3.64	102.64	24359852.46
40	12	171315	2.85	64.11	10983011.64	12	226315	1.54	68.20	15435350.56	13	177716	2.73	73.96	13144504.03
8	13	148825	2.48	78.45	11674954.04	13	163162	1.11	83.01	13544191.18	12	167743	2.57	84.03	14094901.77
6	14	135094	2.25	73.14	9881387.97	15	153410	1.05	73.40	11260040.47	15	158896	2.44	74.02	11760877.04
15	15	103025	1.72	95.45	9833366.71	16	108599	0.74	100.28	10890472.00	16	112263	1.72	97.19	10910451.04
20	16	81692	1.36	70.35	5747147.03	18	85962	0.59	70.14	6029607.66	18	86865	1.33	68.38	5940107.75
17	17	56795	0.95	95.18	5406003.33	19	61874	0.42	94.99	5877561.97	19	61513	0.94	96.08	5910052.09
23	21	13746	0.23	970.38	13338833.46	10	16297	0.11	1347.17	21954894.15	9	16733	0.26	1300.88	21767646.89
5	20	13874	0.23	186.25	2584023.45	20	15763	0.11	183.93	2899236.64	20	14355	0.22	188.56	2706800.79
13	19	14898	0.25	32.22	479998.98	24	16502	0.11	32.25	532178.17	23	15973	0.24	32.86	524808.35
		6003950	99.16				14662716	49.68				6521441	99.40		

Table B.85: The top twenty main pharmacological groups according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Main pharmacological group	Rank	Freq	% of total prevalence (n=6983107)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=8047319)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6439236)	Average cost per item (R)	Total cost (R)
7	1	948770	13.59	131.80	125052535.40	2	1022409	12.70	130.77	133697522.76	1	1008508	15.66	129.45	130547665.93
10	3	792776	11.35	58.35	46261198.70	1	1277933	15.88	50.43	64450717.29	3	677779	10.53	62.19	42154136.92
18	2	809027	11.59	89.49	72398872.93	3	1020376	12.68	90.26	92104032.87	2	720533	11.19	92.83	66885017.56
1	4	688441	9.86	122.82	84552277.65	5	712347	8.85	122.20	87048530.79	4	640294	9.94	124.42	79665236.52
19	5	628885	8.93	111.07	69292878.96	6	687309	8.54	108.36	74475666.83	5	619517	9.62	112.20	69510453.10
3	6	607058	8.69	39.99	24278952.38	4	714272	8.88	36.30	25931529.66	6	501572	7.79	37.85	18986771.71
12	7	446394	6.39	102.91	45936224.11	8	433051	5.38	102.89	44557540.95	7	389465	6.05	102.88	40066906.00
4	8	415514	5.95	86.96	36133800.79	7	440799	5.48	84.29	37153728.66	8	371692	5.77	93.52	34760734.96
11	9	262643	3.76	72.84	19131577.16	9	336065	4.18	68.27	22941579.34	10	233498	3.63	74.12	17305743.07
16	11	243379	3.49	52.54	12787897.61	10	247497	3.08	52.65	13030562.95	9	239202	3.71	51.94	12424325.21
14	10	251928	3.61	101.59	25592353.39	11	229915	2.86	102.10	23474267.86	11	213571	3.32	98.58	21053767.92
40	12	189604	2.72	75.47	14310095.75	12	219446	2.73	79.56	17458124.26	13	171083	2.66	94.57	16178584.21
8	13	168763	2.42	91.02	15360541.62	14	175754	2.18	90.29	15868218.86	12	171739	2.67	91.21	15664000.98
6	14	168122	2.41	74.16	12468255.02	13	178032	2.21	72.70	12943688.76	14	160156	2.49	75.02	12014739.49
15	15	115892	1.66	96.78	11216349.65	15	112784	1.40	98.37	11094963.84	15	109591	1.70	97.07	10637559.63
20	16	90009	1.29	67.78	6100806.49	16	88819	1.10	64.96	5769484.92	16	81241	1.26	63.01	5118967.27
17	17	68254	0.98	94.67	6461414.43	17	65819	0.82	92.56	6092131.28	17	57579	0.89	88.54	5097887.86
23	19	17949	0.26	1426.40	25602461.10	18	19384	0.24	1571.33	30458692.17	18	19661	0.31	1600.19	31461391.65
26	18	25582	0.37	105.23	2692105.22	20	15767	0.20	166.59	2626653.99	21	9041	0.14	217.42	1965670.18
5	21	15941	0.23	191.65	3055054.65	19	17185	0.21	190.79	3278761.33	19	15254	0.24	196.70	3000491.55
		6983107	99.52				8047319	99.60				6439236	99.56		

Table B.86: The top twenty pharmacological groups according to total cost for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Sub pharmcological group	Rank	Total cost (R)	% of total expenditure (n=R1893376920.7)	Rank	Total cost (R)	% of total expenditure (n=R587060677.89)	Rank	Total cost (R)	% of total expenditure (n=R675343763.24)	Rank	Total cost (R)	% of total expenditure (n=R630267378.24)
7.3	1	212789695.96	11.24	1	68069826.87	11.60	1	71770328.23	10.63	1	72949540.86	11.57
7.7	2	106943348.53	5.65	2	33663002.90	5.73	2	35790566.79	5.30	2	36787185.91	5.84
1.4	3	93005544.60	4.91	3	30709433.15	5.23	5	31988575.86	4.74	3	30307535.59	4.81
12.4	4	78288192.69	4.13	4	26149331.89	4.45	6	26622752.94	3.94	4	25516107.86	4.05
18.1	5	77185121.40	4.08	6	21353489.56	3.64	4	32901540.94	4.87	6	22930090.9	3.64
19.6	6	69644339.17	3.68	5	23738611.97	4.04	7	23337411.18	3.46	7	22568316.02	3.58
19.1	7	68468345.04	3.62	7	20980755.12	3.57	8	23036540.37	3.41	5	24451049.55	3.88
4.1	8	58290412.55	3.08	8	20179291.69	3.44	11	19896752.38	2.95	10	18214368.48	2.89
23.1	9	57061374.50	3.01	12	13338833.46	2.27	9	21954894.15	3.25	8	21767646.89	3.45
10.2	10	56830237.48	3.00	9	17192263.74	2.93	10	21020945.31	3.11	9	18617028.43	2.95
10.1	11	55494578.04	2.93	11	13960653.40	2.38	6	26103218.68	3.87	12	15430705.96	2.45
3.3	12	49368589.21	2.61	10	15203229.73	2.59	12	17807502.89	2.64	11	16357856.59	2.60
11.1	13	40019867.82	2.11	14	12317822.95	2.10	14	15170419.16	2.25	16	12531625.71	1.99
1.6	14	39791828.37	2.10	13	12770944.92	2.18	16	13539352.93	2.00	14	13481530.52	2.14
40.1	15	39565374.59	2.09	15	10983011.64	1.87	13	15435350.56	2.29	15	13144504.03	2.09
18.12	16	34395345.09	1.82	19	9706961.05	1.65	18	11123404.80	1.65	13	13564979.24	2.15
7.4	17	31998943.86	1.69	16	8778559.24	1.50	19	10848324.28	1.61	18	10675486.77	1.69
14.4	18	31428695.52	1.66	17	8350782.20	1.42	21	10431950.15	1.54	17	10808168.12	1.71
4.7	19	30912645.38	1.63	18	8026315.52	1.37	20	10530651.97	1.56	19	10256977.93	1.63
18.2	20	30436850.09	1.61	22	8026315.52	1.37	15	14135885.73	2.09	24	8274648.84	1.31
		1893376920.70	66.65		587060677.89	65.33		675343763.24	67.14		630267378.2	66.42

Table B.87: The top twenty pharmacological groups according to total cost for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Sub pharmcological group	Rank	Total cost (R)	% of total expenditure (n=R2046944382.5)	Rank	Total cost (R)	% of total expenditure (n=R668075996.41)	Rank	Total cost (R)	% of total expenditure (n=R734116457.3)	Rank	Total cost (R)	% of total expenditure (n=R644159186.9)
7.3	1	226731711	11.08	1	72688501.46	10.88	1	77634245.77	10.58	1	76408963.77	11.86
7.7	2	117862631.9	5.76	2	37386432.64	5.60	2	40474188.24	5.51	2	39409269.07	6.12
1.4	3	93888457.61	4.59	3	31800822.19	4.76	4	32424714.13	4.42	4	29662921.29	4.60
23.1	4	87522544.92	4.28	5	25602461.1	3.83	5	30458692.17	4.15	3	31464391.65	4.88
12.4	5	82340687.68	4.02	4	28940237.37	4.33	7	27946254.92	3.81	6	25454195.39	3.95
19.1	6	81403656.04	3.98	6	25210996.15	3.77	8	27821476.9	3.79	5	28371182.99	4.40
18.1	7	78834713.74	3.85	7	24342951.35	3.64	3	34035336.12	4.64	7	20456426.27	3.18
19.6	8	65294453.9	3.19	8	22788584.13	3.41	9	22138413.01	3.02	8	20367456.76	3.16
10.1	9	59775215.58	2.92	12	17481335.67	2.62	6	28468457.33	3.88	14	13825422.58	2.15
4.1	10	57752267.02	2.82	10	19395803.95	2.90	12	19827697.63	2.70	9	18528765.44	2.88
10.2	11	57558268.89	2.81	11	18203404.1	2.72	10	21694558.8	2.96	10	17663306.09	2.74
3.3	12	56723290.94	2.77	9	20026028.57	3.00	11	21401604.56	2.92	13	15295657.81	2.37
18.12	13	48698528.36	2.38	13	14540309.86	2.18	14	16774339.57	2.28	11	17383878.93	2.70
40.1	14	47946804.22	2.34	14	14310095.75	2.14	13	17458124.26	2.38	12	16178584.21	2.51
11.1	15	41840192	2.04	16	13258816.31	1.98	15	16237124.72	2.21	16	12344250.97	1.92
1.6	16	41382042.28	2.02	15	13600975.86	2.04	17	14126296.69	1.92	15	13654769.73	2.12
4.7	17	32748604.9	1.60	17	10889570.24	1.63	19	11220515.64	1.53	17	10638519.02	1.65
18.7	18	32335606.46	1.58	21	9898052.1	1.48	18	13576095.81	1.85	22	8861458.55	1.38
7.4	19	32036539.66	1.57	20	10552335.74	1.58	21	11013800.5	1.50	18	10470903.42	1.63
6.1	20	31734417.78	1.55	19	10686301.85	1.60	20	11041227.57	1.50	19	10006888.36	1.55
		2046944382.50	67.14		668075996.41	66.10		734116457.30	67.53		644159186.9	67.75

Table B.88: The top twenty pharmacological groups according to prevalence for 2005 and 2006

2005						2006					
Pharmacological group	Rank	Freq	% of total prevalence (N=19860679)	Average cost per item (R)	Total cost (R)	Pharmacological group	Rank	Freq	% of total prevalence (N=21473074)	Average cost per item (R)	Total cost (R)
10.1	1	1716426	8.64	32.33	55494578.04	10.1	1	1895412	8.83	31.54	59775215.58
7.3	2	1565133	7.88	135.96	212789695.96	7.3	2	1754535	8.17	129.23	226731710.99
3.3	3	1217623	6.13	40.55	49368589.21	3.3	3	1410230	6.57	40.22	56723290.94
18.1	4	1117462	5.63	69.07	77185121.40	18.1	4	1159260	5.40	68.00	78834713.74
4.1	5	921863	4.64	63.23	58290412.55	4.1	5	954241	4.44	60.52	57752267.02
1.4	6	628215	3.16	148.05	93005544.60	7.7	6	705424	3.29	167.08	117862631.87
7.7	7	626759	3.16	170.63	106943348.53	1.4	7	683066	3.18	137.45	93888457.61
40.1	8	575356	2.90	68.77	39565974.59	12.4	8	631718	2.94	130.34	82340687.68
12.4	9	566393	2.85	138.22	78288192.69	16.1	9	593269	2.76	42.48	25201581.27
16.1	10	564828	2.84	44.01	24858283.64	40.1	10	580133	2.70	82.65	47946804.22
19.6	11	546726	2.75	127.38	69644339.17	10.2	11	553761	2.58	103.94	57558268.89
10.2	12	510296	2.57	111.37	56830237.48	19.1	12	524212	2.44	155.29	81403656.04
19.1	13	445356	2.24	153.74	68468345.04	19.6	13	520626	2.42	125.42	65294453.90
6.1	14	436193	2.20	65.63	28625602.44	6.1	14	490953	2.29	64.64	31734417.78
19.5	15	417516	2.10	55.81	23301062.75	19.5	15	454134	2.11	53.90	24476898.43
7.4	16	409271	2.06	78.19	31998943.86	11.1	16	441267	2.05	94.82	41840192.00
11.1	17	408804	2.06	97.90	40019867.82	7.4	17	419599	1.95	76.35	32036539.66
1.3	18	390073	1.96	48.56	18943155.52	1.3	18	402542	1.87	47.63	19173321.97
1.2	19	324181	1.63	77.98	25278414.69	19.3	19	397143	1.85	36.79	14612317.04
18.7	20	305261	1.54	97.73	29834001.29	3.2	20	366031	1.70	15.37	5626439.93
		19860679	68.95					21473074	69.56		

Table B.89: The top twenty pharmacological groups according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Pharmacological group	Rank	Freq	% of total prevalence (n=6003950)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=7331358)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6521441)	Average cost per item (R)	Total cost (R)
7.3	1	492517	8.20	138.21	68069826.87	2	527947	7.20	135.94	71770328.23	1	544669	8.35	133.93	72949540.86
10.1	2	422441	7.04	33.05	13960653.40	1	815072	11.12	32.03	26103218.68	2	478913	7.34	32.22	15430705.96
3.3	3	355065	5.91	42.82	15203229.73	4	454885	6.20	39.15	17807502.89	3	407673	6.25	40.12	16357856.59
18.1	4	307913	5.13	69.35	21353489.56	3	469690	6.41	70.05	32901540.94	4	339859	5.21	67.47	22930090.90
4.1	5	293202	4.88	68.82	20179291.69	5	327063	4.46	60.83	19896752.38	5	301598	4.62	60.39	18214368.48
1.4	6	201695	3.36	152.26	30709433.15	7	215282	2.94	148.59	31988575.86	7	211238	3.24	143.48	30307535.59
7.7	7	196697	3.28	171.14	33663002.90	9	209622	2.86	170.74	35790566.79	6	216520	3.32	169.90	36787185.91
19.6	8	185659	3.09	127.86	23738611.97	12	182572	2.49	127.83	23337411.18	10	178495	2.74	126.44	22568316.02
16.1	15	181291	3.02	43.71	7924800.28	11	188982	2.58	44.26	8363671.48	9	194555	2.98	44.05	8569811.88
12.4	10	178373	2.97	146.60	26149331.89	10	192526	2.63	138.28	26622752.94	8	195494	3.00	130.52	25516107.86
40.1	11	171315	2.85	64.11	10983011.64	6	226315	3.09	68.20	15435350.56	11	177716	2.73	73.96	13144504.03
10.2	12	144294	2.40	119.15	17192263.74	8	211496	2.88	99.39	21020945.31	14	154506	2.37	120.49	18617028.43
19.1	13	136979	2.28	153.17	20980755.12	15	149614	2.04	153.97	23036540.37	12	158763	2.43	154.01	24451049.55
7.4	14	132575	2.21	79.01	10475132.81	17	139042	1.90	78.02	10848324.28	15	137654	2.11	77.55	10675486.77
6.1	15	132076	2.20	66.47	8778559.24	16	149522	2.04	64.98	9715808.54	13	154595	2.37	65.53	10131234.66
1.3	16	127093	2.12	49.71	6317270.10	18	135190	1.84	48.71	6585327.49	17	127790	1.96	47.27	6040557.93
11.1	17	119459	1.99	103.11	12317822.95	14	162587	2.22	93.31	15170419.16	18	126758	1.94	98.86	12531625.71
19.5	18	118122	1.97	56.75	6703467.20	13	168118	2.29	55.73	9368466.36	16	131276	2.01	55.07	7229129.19
1.2	20	105457	1.76	79.19	8350782.20	23	114229	1.56	78.03	8912995.79	22	104495	1.60	76.70	8014636.70
18.7	23	88370	1.47	87.94	7771247.54	22	116100	1.58	108.51	12597936.02	24	100791	1.55	93.91	9464817.79
		6003950	68.13				7331358	52.01				6521441	52.44		

Table B.90: The top twenty pharmacological groups according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Pharmacological group	Rank	Freq	% of total prevalence (n=6983107)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=8047319)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6439236)	Average cost per item (R)	Total cost (R)
10.1	2	541145	7.75	32.3048467	17481336	1	912240	11.34	31.21	28468457.33	2	442027	6.86	31.28	13825422.58
7.3	1	554727	7.94	131.034728	72688501	2	601696	7.48	129.03	77634245.77	1	598112	9.29	127.75	76408963.77
3.3	3	475155	6.80	42.1468071	20026029	3	553576	6.88	38.66	21401604.56	3	381499	5.92	40.09	15295657.81
18.1	4	360261	5.16	67.5703208	24342951	4	493578	6.13	68.96	34035336.12	4	305421	4.74	66.98	20456426.27
4.1	5	322857	4.62	60.0755255	19395804	5	346050	4.30	57.30	19827697.63	5	285334	4.43	64.94	18528765.44
7.7	7	221717	3.18	168.62231	37386433	6	240868	2.99	168.03	40474188.24	6	239427	3.72	164.60	39409269.07
1.4	6	229061	3.28	138.831238	31800822	7	236087	2.93	137.34	32424714.13	7	217918	3.38	136.12	29662921.29
12.4	8	218920	3.13	132.195493	28940237	10	217367	2.70	128.57	27946254.92	9	195431	3.04	130.25	25454195.39
16.1	9	194671	2.79	42.6186305	8296611.4	11	201470	2.50	42.28	8517455.71	8	197128	3.06	42.55	8387514.15
40.1	10	189604	2.72	75.4735963	14310096	9	219446	2.73	79.56	17458124.26	11	171083	2.66	94.57	16178584.21
10.2	12	166246	2.38	109.496795	18203404	8	234286	2.91	92.59	21691558.70	14	153229	2.38	115.27	17663306.09
19.1	13	164385	2.35	153.365551	25210996	13	179904	2.24	154.65	27821476.90	10	179923	2.79	157.69	28371182.99
19.6	11	180161	2.58	126.490107	22788584	15	175721	2.18	125.99	22138413.01	12	164744	2.56	123.63	20367456.76
6.1	14	163806	2.34	65.4372886	10686302	16	172986	2.15	63.83	11041227.57	13	154661	2.40	64.70	10006888.36
19.5	15	138977	1.99	55.8523123	7762186.8	12	184211	2.29	53.41	9837879.18	17	130946	2.03	52.52	6876832.44
11.1	17	137655	1.97	96.319177	13258816	14	178152	2.21	91.14	16237124.72	18	125460	1.95	98.39	12344250.97
7.4	16	137704	1.97	76.630568	10552336	17	144571	1.80	76.18	11013300.50	15	137324	2.13	76.25	10470903.42
1.3	18	137523	1.97	48.2497919	6635456.1	20	141038	1.75	47.35	6678651.88	19	123981	1.93	47.26	5859213.96
19.3	19	128874	1.85	37.146632	4787235.1	21	135488	1.68	37.10	5026700.01	16	132781	2.06	36.14	4798381.98
3.2	21	115513	1.65	15.4903695	1789339	18	143982	1.79	15.06	2168279.79	21	106536	1.65	15.66	1668827.09
		6983107	68.43				8047319	70.99				6439236	69.00		

Table B.91: The top twenty therapeutic groups according to total cost for the individual periods of 2005

2005				Period 1			Period 2			Period 3		
Specified pharmcological group	Rank	Total cost (R)	% of total expenditure (N=1893376920.7)	Rank	Total cost (R)	% of total expenditure (N=587305502.88)	Rank	Total cost (R)	% of total expenditure (N=675586131.02)	Rank	Total cost (R)	% of total expenditure (N=630482778.4)
7.7.2	1	101462054.8	5.36	1	32434049.82	5.52	1	34135997.64	5.05	1	34892007.31	5.53
7.3.8	2	80389840.12	4.25	2	25783264.27	4.39	2	27306222.58	4.04	2	27300353.27	4.33
12.4.4	3	62614742.12	3.31	3	21397941.87	3.64	4	21337389.39	3.16	5	19879410.86	3.15
7.3.9	4	58177254.58	3.07	4	18461910.38	3.14	5	19556357.35	2.89	4	20158986.85	3.20
23.1.1	5	57061374.5	3.01	8	13338833.46	2.27	3	21954894.15	3.25	3	21767646.89	3.45
1.4.4	6	50692465.28	2.68	5	17448676.05	2.97	8	17376485.74	2.57	8	15867303.49	2.52
3.3.1	7	49368589.21	2.61	6	15203229.73	2.59	7	17807502.89	2.64	6	16357856.59	2.59
18.1.1	8	44595287.84	2.36	11	12205841.40	2.08	6	18661727.93	2.76	9	13727718.51	2.18
19.1.1	9	43817473.69	2.31	9	13234662.55	2.25	10	14712766.84	2.18	7	15870044.30	2.52
19.6.2	10	40727154.82	2.15	7	13852173.19	2.36	14	13610254.09	2.01	12	13264727.54	2.10
1.6.1	11	39791828.37	2.10	10	12770944.92	2.17	15	13539352.93	2.00	11	13481530.52	2.14
40.1.1	12	39565374.59	2.09	12	10983011.64	1.87	9	15435350.56	2.28	13	13144504.03	2.08
10.2.4	13	36850696.97	1.95	13	10932235.65	1.86	13	13624377.49	2.02	14	12294083.83	1.95
18.12.1	14	34395345.09	1.82	15	9706961.05	1.65	18	11123404.80	1.65	10	13564979.24	2.15
18.1.2	15	31509573.03	1.66	18	8848780.22	1.51	12	13738192.11	2.03	20	8922600.70	1.42
18.2.1	16	30436850.09	1.61	22	8026315.52	1.37	11	14135885.73	2.09	25	8274648.84	1.31
4.1.1	17	30123320.59	1.59	14	9846170.29	1.68	19	10796172.26	1.60	17	9480978.04	1.50
18.7.1	18	29834001.29	1.58	24	7771247.54	1.32	17	12597936.02	1.86	18	9464817.73	1.50
7.3.7	19	29175047.39	1.54	17	9233885.02	1.57	22	9674590.78	1.43	15	10266571.59	1.63
11.1.2	20	28648557.43	1.51	16	9237774.95	1.57	20	10082472.79	1.49	19	9328309.69	1.48
		1893376920.70	29.55		587305502.88	47.80		675586131.02	49.03		630482778.40	48.74

Table B.92: The top twenty therapeutic groups according to total cost for the individual periods of 2006

2006				Period 1			Period 2			Period 3		
Specified pharmcological group	Rank	Total cost (R)	% of total expenditure (N=2046944382.5)	Rank	Total cost (R)	% of total expenditure (N=668291741.8)	Rank	Total cost (R)	% of total expenditure (N=734323606.1)	Rank	Total cost (R)	% of total expenditure (N=644329034.58)
7.7.2	1	109602183.74	5.35	1	35144753.65	5.26	1	37735307.49	5.14	1	36722122.60	5.70
23.1.1	2	87522544.92	4.28	3	25602461.10	3.83	2	30458692.17	4.15	2	31461391.65	4.88
7.3.8	3	85188952.62	4.16	2	27446866.52	4.11	3	29109733.52	3.96	3	28632352.58	4.44
12.4.4	4	64117771.82	3.13	4	22803838.55	3.41	4	21809814.33	2.97	5	19504118.94	3.03
7.3.9	5	61233797.23	2.99	6	19661876.88	2.94	6	21027328.95	2.86	4	20544591.40	3.19
3.3.1	6	56723290.94	2.77	5	20026028.57	3.00	5	21401604.56	2.91	9	15295657.81	2.37
19.1.1	7	53761226.68	2.63	7	16452124.75	2.46	8	18298248.70	2.49	6	19010853.23	2.95
18.12.1	8	48698528.36	2.38	9	14540309.86	2.18	10	16774339.57	2.28	7	17383878.93	2.70
40.1.1	9	47946804.22	2.34	11	14310095.75	2.14	9	17458124.26	2.38	8	16178584.21	2.51
1.4.4	10	47152462.38	2.30	8	15920902.59	2.38	11	16155032.06	2.20	10	15076527.73	2.34
18.1.1	11	46624608.25	2.28	10	14443310.08	2.16	7	19949980.70	2.72	12	12231317.47	1.90
1.6.1	12	41382042.28	2.02	12	13600975.86	2.04	15	14126296.69	1.92	11	13654769.73	2.12
10.2.4	13	38333730.33	1.87	14	11945307.13	1.79	13	14366323.81	1.96	13	12022099.39	1.87
19.6.2	14	38097633.64	1.86	13	13332874.77	2.00	18	12895402.54	1.76	14	11869356.33	1.84
7.3.7	15	33784129.21	1.65	16	10476668.18	1.57	19	11641154.34	1.59	15	11666306.69	1.81
18.7.1	16	32335606.46	1.58	18	9898052.10	1.48	17	13576095.81	1.85	20	8861458.55	1.38
6.1.1	17	31734417.78	1.55	15	10686301.85	1.60	20	11041227.57	1.50	16	10006888.36	1.55
18.2.1	18	31394134.01	1.53	22	8851560.69	1.32	12	14629471.71	1.99	15	7913101.61	1.23
18.1.2	19	31338910.39	1.53	20	9613197.47	1.44	16	13716877.47	1.87	23	8008835.45	1.24
11.1.2	20	30070416.98	1.47	19	9708550.53	1.45	21	10945042.51	1.49	17	9416823.94	1.46
		2046944382.50	49.69		668291741.80	48.55		734323606.10	49.99		644329034.58	50.51

Table B.93: The top twenty therapeutic subgroups according to prevalence for 2005 and 2006

2005						2006					
Specified pharmacological group	Rank	Freq	% of total prevalence (N=19860679)	Average cost per item (R)	Total cost (R)	Specified pharmacological group	Rank	Freq	% of total prevalence (n=21473074)	Average cost per item (R)	Total cost (R)
3.3.1	1	1217623	6.13	49368589.21	40.55	3.3.1	1	1410230	6.57	40.22	56723290.94
18.1.1	2	330052	4.18	44595287.84	53.73	10.1.1	2	894534	4.17	33.26	29752739.46
10.1.1	3	820036	4.13	27367058.25	33.37	18.1.1	3	873724	4.07	53.36	46624608.25
7.3.8	4	701650	3.53	80389840.12	114.57	7.3.8	4	795742	3.71	107.06	85188952.62
4.1.1	5	667556	3.36	30123320.59	45.12	10.1.2	5	730078	3.40	26.86	19612393.74
10.1.2	6	645986	3.25	18050364.82	27.94	4.1.1	6	676292	3.15	40.79	27589298.48
7.7.2	7	601851	3.03	101462054.77	168.58	7.7.2	7	669936	3.12	163.60	109602183.74
40.1.1	8	575356	2.90	39565374.59	68.77	16.1.1	8	593269	2.76	42.48	25201581.27
16.1.1	9	564828	2.84	24858283.64	44.01	40.1.1	9	580133	2.70	82.65	47946804.22
6.1.1	10	436193	2.20	28625602.44	65.63	6.1.1	10	490953	2.29	64.64	31734417.78
19.5.1	11	417516	2.10	23301062.75	55.81	19.5.1	11	454134	2.11	53.90	24476898.43
19.6.2	12	370985	1.87	40727154.82	109.78	19.1.2	12	421746	1.96	65.54	27642429.36
19.3.1	13	364021	1.83	13894259.19	38.17	19.3.1	13	397143	1.85	36.79	14612317.04
19.1.2	14	360303	1.81	24650871.35	68.42	3.2.1	14	366031	1.70	15.37	5626438.93
1.3.1	15	340850	1.72	14854896.09	43.58	19.6.2	15	354578	1.65	107.45	38097633.64
3.2.1	16	330399	1.66	5260742.45	15.92	1.3.1	16	349140	1.63	42.31	14773479.91
1.4.4	17	321490	1.62	50692465.28	157.68	1.4.4	17	348861	1.62	135.16	47152462.38
8.4.1	18	314138	1.58	16210171.91	51.60	11.3.1	18	343214	1.60	42.26	14504424.28
18.7.1	19	305261	1.54	29834001.29	97.73	8.4.1	19	342286	1.59	55.73	19076599.21
11.3.1	20	299847	1.51	12791724.22	42.66	12.4.4	20	328772	1.53	195.02	64117771.82
		19860679	52.80					21473074	53.19		

Table B.94: The top twenty therapeutic subgroups according to prevalence for the individual periods of 2005

2005	Period 1					Period 2					Period 3				
Specified pharmacological group	Rank	Freq	% of total prevalence (n= 6003950)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=7332708)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6522640)	Average cost per item (R)	Total cost (R)
3.3.1	1	355065	5.91	42.82	15203229.73	1	454885	6.20	39.15	17807502.89	1	407673	6.25	40.12	16357856.59
18.1.1	2	229366	3.82	53.22	12205841.40	3	345626	4.71	53.99	18661727.93	2	255060	3.91	53.82	13727718.51
10.1.1	5	199307	3.32	34.08	6791650.07	2	386551	5.27	33.05	12776451.62	4	234178	3.59	33.30	7798956.56
7.3.8	3	220489	3.67	116.94	25783264.27	6	237005	3.23	115.21	27306222.58	3	244156	3.74	111.82	27300353.27
4.1.1	4	202141	3.37	48.71	9846170.29	5	243688	3.32	44.30	10796172.26	5	221727	3.40	42.76	9480978.04
10.1.2	9	158919	2.65	28.41	4515430.32	4	313305	4.27	28.07	8793299.61	9	173762	2.66	27.29	4741684.89
7.7.2	6	190946	3.18	169.86	32434049.82	8	202463	2.76	168.60	34135997.64	6	208442	3.20	167.39	34892007.31
40.1.1	8	171315	2.85	64.11	10983011.64	7	226315	3.09	68.20	15435350.56	8	177716	2.72	73.96	13144504.03
16.1.1	7	181291	3.02	43.71	7924800.28	9	188982	2.58	44.26	8363671.48	7	194555	2.98	44.05	8569811.88
6.1.1	10	132076	2.20	66.47	8778559.24	11	149522	2.04	64.98	9715808.54	10	154595	2.37	65.53	10131234.66
19.5.1	12	118122	1.97	56.75	6703467.20	10	168118	2.29	55.73	9368466.36	11	131276	2.01	55.07	7229129.19
19.6.2	11	125760	2.09	110.15	13852173.19	13	123648	1.69	110.07	13610254.09	14	121577	1.86	109.11	13264727.54
19.3.1	13	116152	1.93	38.12	4427905.00	14	122590	1.67	38.39	4706484.20	13	125279	1.92	37.99	4759869.99
19.1.2	15	110937	1.85	69.82	7746092.57	15	121048	1.65	68.76	8323773.53	12	128318	1.97	66.87	8581005.25
1.3.1	14	111619	1.86	44.94	5016499.50	18	118246	1.61	43.65	5161713.10	15	110985	1.70	42.14	4676683.49
3.2.1	18	92508	1.54	15.66	1448648.60	12	130591	1.78	16.11	2103364.27	18	107300	1.65	15.92	1708729.58
1.4.4	16	103844	1.73	168.03	17448676.05	21	109462	1.49	158.74	17376485.74	17	108184	1.66	146.67	15867303.49
8.4.1	17	96201	1.60	49.57	4768845.96	22	107248	1.46	52.10	5587684.43	16	110689	1.70	52.88	5853641.52
18.7.1	21	88370	1.47	87.94	7771247.54	19	116100	1.58	108.51	12597936.02	19	100791	1.55	93.91	9464817.73
11.3.1	22	82505	1.37	43.70	3605339.17	17	119601	1.63	40.96	4899211.62	20	97741	1.50	43.86	4287173.43
			51.42					54.35					52.34		

Table B.95: The top twenty therapeutic subgroups according to prevalence for the individual periods of 2006

2006	Period 1					Period 2					Period 3				
Specified pharmacological group	Rank	Freq	% of total prevalence (n= 6984380)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=8048504)	Average cost per item (R)	Total cost (R)	Rank	Freq	% of total prevalence (n=6440190)	Average cost per item (R)	Total cost (R)
3.3.1	1	475155	6.80	42.15	20026028.57	1	553576	6.88	38.66	21401604.56	1	381499	5.92	40.09	15295657.81
10.1.1	3	252228	3.61	33.98	8571287.77	2	430470	5.35	32.91	14166380.66	5	211836	3.29	33.12	7015071.03
18.1.1	2	271612	3.89	53.18	14443310.08	3	370434	4.60	53.86	19949980.70	3	231678	3.60	52.79	12231317.47
7.3.8	4	251813	3.61	109.00	27446866.52	5	272991	3.39	106.63	29109733.52	2	270938	4.21	105.68	28632352.58
10.1.2	7	208312	2.98	27.44	5716935.17	4	357583	4.44	26.94	9634663.44	9	164183	2.55	25.95	4260795.13
4.1.1	5	235266	3.37	42.62	10027006.16	6	253146	3.15	39.23	9929885.41	7	187880	2.92	40.62	7632406.91
7.7.2	6	212361	3.04	165.50	35144753.65	7	229360	2.85	164.52	37735307.49	4	228215	3.54	160.91	36722122.60
16.1.1	7	208312	2.98	27.44	5716935.17	9	201470	2.50	42.28	8517455.71	6	197128	3.06	42.55	8387514.15
40.1.1	8	194671	2.79	42.62	8296611.41	8	219446	2.73	79.56	17458124.26	8	171083	2.66	94.57	16178584.21
6.1.1	9	189604	2.71	75.47	14310095.75	11	172986	2.15	63.83	11041227.57	10	154661	2.40	64.70	10006888.36
19.5.1	10	163306	2.34	65.44	10686301.85	10	184211	2.29	53.41	9837879.18	13	130946	2.03	52.52	6876832.44
19.1.2	11	138977	1.99	55.85	7762186.81	12	145063	1.80	65.65	9523228.20	11	143886	2.23	65.05	9360329.76
19.3.1	12	132797	1.90	65.96	8758871.40	15	135488	1.68	37.10	5026700.01	12	132781	2.06	36.14	4798381.98
3.2.1	17	115513	1.65	15.49	1789339.05	13	143982	1.79	15.06	2168273.79	18	106536	1.65	15.66	1668827.09
19.6.2	14	122463	1.75	108.87	13332874.77	21	119774	1.49	107.66	12895402.54	16	112341	1.74	105.65	11869356.33
1.3.1	15	119669	1.71	43.21	5170677.07	18	122713	1.52	42.22	5180789.79	17	106758	1.66	41.42	4422013.05
1.4.4	16	116651	1.67	136.48	15920902.59	22	119748	1.49	134.91	16155032.06	14	112462	1.75	134.06	15076527.73
11.3.1	20	107485	1.54	43.69	4696402.04	14	141729	1.76	40.42	5729117.91	23	94000	1.46	43.39	4078904.33
8.4.1	19	109981	1.57	55.91	6149100.54	23	117215	1.46	56.45	6617237.35	14	115090	1.79	54.83	6310261.32
12.4.4	18	112914	1.62	201.96	22803838.55	24	112722	1.40	193.48	21809814.33	19	103136	1.60	189.11	19504118.94
18.7.1	21	106782	1.53	92.69	9898052.10	16	127282	1.58	106.66	13576095.81	21	94700	1.47	93.57	8861458.55
		6984380	55.06				8048504	56.30				6440190	53.60		

Appendix C

C 1.1: Terminology

- Capitation: A fixed payment. Per patient covered, to healthcare provider to deliver medical services to a particular group of patients. The payment is the same no matter how many services or what type of service each patient actually gets. Under Capitation the provider is financially responsible (PBS- Healthcare Crisis, 2007).
- Gatekeepers: The person in a managed care organisation often a primary care provider, who controls a patient's access to health care services and whose approval is required for referrals to other services or other specialists (PBS- Healthcare Crisis, 2007).
- Fee for service: Provider reimbursement in which the provider is paid according to the number and type of the services performed. This is the reimbursement system used by conventional indemnity insurers. In this system the provider's income is directly related to the volume and intensity of the service rendered. The insurer may pay a percentage of charges or utilise a predetermined fee schedule. (Tufts Health Care Institute, 2007).
- Narrow panels/Selected provider panel: Contract with selected health care providers in a community to provide health services for covered members. Providers are selected through a certain criteria on the basis of cost efficiency, community reputation, and scope of services (Wagner, 1997:39).
- Open panels: A right included in an HMO, which allows the covered person to get non-emergency covered services from a specialist without getting referral from the primary physician or gatekeeper (PBS- Healthcare Crisis, 2007).
- Utilisation review: A program designed to help reduce unnecessary medical expenses by studying the appropriateness of when certain services are used and how many patients use them (PBS- Healthcare Crisis, 2007).

C.1.2: Chronic disease list of PMB

- Addison's disease
- Asthma
- Bipolar mood disorder
- Bronchiectasis
- Cardiac failure
- Cardiomyopathy disease
- Chronic renal failure
- Coronary artery disease
- Chronic obstructive pulmorary disorder
- Crohn's disease
- Diabetes insipidus
- Diabetes mellitus type 1 & 2
- Dysrhytmias
- Epilepsy
- Glaucoma
- Haemophilia
- Hiv / aids
- Hyperlipideamia
- Hypertension
- Hypothyroidism
- Multiple sclerosis
- Parkinson's disease
- Rheumatoid arthritis
- Schizophrenia
- Systemic lupus erythematosus
- Ulcerative colitis

C.1.3: A complete list of the non-substitution medicines

- Carbamazepine tablets
- Chlorpromazine tablets
- Dexamethasone tablets
- Diethylstilboestrol tablets
- Digoxin tablets
- Disulfiram tablets
- Ethinyl oestradiol tablets
- Fluoxymesterone tablets
- Furosemide tablets
- Glibenclamide tablets
- Hydralazine and hydrochlorothiazide combination tablets
- Hydrocortisone tablets
- Hydrocortisone acetate injection
- Isoproterenol metered dose inhaler
- Isosorbide dinitrate sustained release tablets and capsules
- Levodopa tablets and capsules
- Nifedipine: all extended/delayed release formulations
- Oestrogens, conjugated tablets
- Oestrogens, esterified tablets
- Penicillin g benzathine injection
- Phenytoin tablets or capsules
- Phytomenadione injection
- Prazosin hydrochloride tablets 5mg
- Prednisolone tablets
- Prednisolone acetate injection
- Prednisolone tebutate injection
- Prednisone tablets
- Promethazine tablets
- Prophylthioracil tablets
- Reserpine tablets
- Reserpine and chlorothiazide combination tablets

- Reserpine and trichloromethiazide combination tablets
- Theophylline controlled release tablets and capsules
- Triamcinolone tablets
- Trichloromethiazide tablets
- Warfarin sodium tablets

C.1.4: The complete list of the pharmacological classification (Snyman, 2007:11a).

1. CENTRAL NERVOUS SYSTEM
    - 1.1 Central nervous system stimulants
        - 1.1.1 Central analeptics
        - 1.1.2 Respiratory stimulants
        - 1.1.3 Others
    - 1.2 Sedative hypnotics
        - 1.2.1 Benzodiazepines
        - 1.2.2 Barbiturates
        - 1.2.3 Others
    - 1.3 Anxiolytics
        - 1.3.1 Benzodiazepines (1.2.1)
        - 1.3.2 Others
    - 1.4 Anti-depressants
        - 1.4.1 Tricyclic
        - 1.4.2 Non-Tricyclic
        - 1.4.3 Mono-Amine Oxidase inhibitors
        - 1.4.4 Selective serotonin re-uptake inhibitors
        - 1.4.5 Serotonin and noradrenaline re-uptake inhibitors
        - 1.4.6 Lithium
        - 1.4.7 Others
    - 1.5 Anti-psychotics
        - 1.5.1 Phenothiazines
        - 1.5.2 Butyrophenones
        - 1.5.3 Others
    - 1.6 Anti-epileptics
    - 1.7 Anti-Parkinson agents
        - 1.7.1 Dopaminergics
        - 1.7.2 Anticholinergics
        - 1.7.3 Others
    - 1.8 Anti-vertigo and anti-emetic agents
    - 1.9 Anti-migraine agents
    - 1.10 Alzheimer's disease
2. ANAESTHETICS
    - 2.1 General anaesthetics
        - 2.1.1 Inhalation anaesthetics
        - 2.1.2 Parenteral anaesthetics
    - 2.2 Local anaesthetics
        - 2.2.1 Surface anaesthetics
    - 2.3 Muscle relaxants
3. ANALGESICS
    - 3.1 Narcotic analgesics
    - 3.2 Analgesics and antipyretics
    - 3.3 Combinations
    - 3.4 Others
4. MUSCULO-SKELETAL AGENTS
    - 4.1 Non-steroidal anti-inflammatory agents (3.2 and 4.3)
        - 4.1.1 COX inhibitors
        - 4.1.2 Selective COX2 inhibitors
        - 4.1.3 Specific cyclo-oxygenase-2 inhibitor (COXIB)
    - 4.2 Anti-gout
    - 4.3 Topical agents
    - 4.4 Gold
    - 4.5 Centrally acting muscle relaxants
    - 4.6 Others
    - 4.7 Osteoporosis (and other metabolic bone disorders)
        - 4.7.1 Bisphosponates
        - 4.7.2 Selective oestrogen receptor modulators
        - 4.7.3 Calcitonin
        - 4.7.4 Minerals and vitamin D
        - 4.7.5 Dual action bone agents
5. AUTONOMIC
    - 5.1 Sympathomimetics (7.6, 10.1.2)
    - 5.2 Sympatholytics (7.2, 7.3, 7.4)
    - 5.3 Cholinergics
    - 5.4 Anti-cholinergics (1.7.2, 12.3)
    - 5.5 Others

6. AUTACOIDS
    - 6.1 Anti-histamines (10.1.1, 10.1.3, 14.9)
    - 6.2 Serotonin antagonists
    - 6.3 NK1 Antagonists
7. CARDIO-VASCULAR AGENTS
    - 7.1 Positive inotropic agents
        - 7.1.1 Cardiac glycosides
        - 7.1.2 Others (5.1)
    - 7.2 Anti-arrhytmics
    - 7.3 Anti-hypertensives (Single agents and combinations including diuretic combinations)
        - 7.3.1 Central acting sympathetic system inhibitors
        - 7.3.2 Alpha-receptor blockers
        - 7.3.3 Beta-receptor blockers
        - 7.3.4 Alpha- and Beta-receptor blockers
        - 7.3.5 Sympathetic nervous blockers
        - 7.3.6 Direct acting vasodilators
        - 7.3.7 Calcium channel blockers
        - 7.3.8 ACE inhibitors
        - 7.3.9 Angiotension receptor antagonists
        - 7.3.10 Others
    - 7.4 Anti-anginal agents
        - 7.4.1 Calcium channel blockers
        - 7.4.2 Beta-receptor blockers
        - 7.4.3 Organic nitrates
    - 7.5 Other vasodilators
        - 7.5.1 After-load reducers
        - 7.5.2 Peripheral vasodilators
    - 7.6 Vasoconstrictors
    - 7.7 Hipolipidaemic agents
        - 7.7.1 Fibrates
        - 7.7.2 HMG-CoA reductase inhibitors (Statins)
        - 7.7.3 Cholesterol absorption inhibitors
        - 7.7.4 Others
    - 7.8 Plasma expanders
8. BLOOD AND HAEMOPOEITIC
    - 8.1 Haemostatics
    - 8.2 Antocoagulants
    - 8.3 Fibrinolytics
    - 8.4 Platelet aggregation inhibitors
    - 8.5 Sclerosing agents
    - 8.6 Haematinics (20.3)
    - 8.7 Others
9. ALCOHOLISM
10. RESPIRATORY SYSTEM
    - 10.1 Coughs and colds
        - 10.1.1 Antitussives and expectorants
        - 10.1.2 Decongestant, analgesic combinations
        - 10.1.3 Decongestants (6.1)
    - 10.2 Broncodilators
        - 10.2.1 Sympathomimetics
        - 10.2.2 Methylxanthines
        - 10.2.3 Anticholinergics
        - 10.2.4 Combinations
    - 10.3 Mucolytics
    - 10.4 Anti-asthmatics
        - 10.4.1 Glucocorticoids
        - 10.4.2 Leukotriene receptor antagonist
        - 10.4.3 Chromones
        - 10.4.4 Other anti-asthmatics
    - 10.5 Surfactants
    - 10.6 Others
11. EAR, NOSE AND THROAT
    - 11.1 Topical and nasal preparations
        - 11.1.1 Antimicrobial and combinations
        - 11.1.2 Glucocorticosteroids
        - 11.1.3 Chromones
        - 11.1.4 Decongestants
        - 11.1.5 Antihistamines
        - 11.1.6 Mucolytics
        - 11.1.7 Others

- 11.2 Ear drops and ointments
- 11.3 Mouth and throat reparations

12. GASTRO-INTESTINAL TRACT
- 12.1 Digestants
- 12.2 Appetite suppressants
- 12.3 Anti-spasmodics (1.8, 5.4, 12.4.2)
- 12.4 Acid reducers
  - 12.4.1 Antacids
  - 12.4.2 Antacids and combinations
  - 12.4.3 Histamine-2 receptor antagonist
  - 12.4.4 Proton pump inhibitors
  - 12.4.5 Cytoprotective agents
  - 12.4.6 Other acid reducers
- 12.5 Motility enhancers
- 12.6 Laxatives
- 12.7 Abtidiarrhoeals
- 12.8 Liver, gall bladder and bile
- 12.9 Suppositories and anal ointments
- 12.10 Others

13. ANTHELMINTICS

14. DERMATOLOGIGALS
- 14.1 Anti-bacterial antiseptic agents
- 14.2 Anti-parasitics
- 14.3 Fungicides
- 14.4 Cortico-steroids
  - 14.4.1 Cortico-steroids with anti-infective agents
- 14.5 Psoriasis (14.4 , 23)
- 14.6 Acne (18.4)
- 14.7 Melanin inhibitors and stimulants
- 14.8 Emollients and protectives
- 14.9 Others

15. OPHTHALMICS
- 15.1 Anti-infectives
  - 15.1.1 Antivirals
- 15.2 Corticosteroids
- 15.3 Combinations (anti infectives with corticosteroids)
- 15.4 Decongestants
- 15.5 Mydriatics
- 15.6 Glaucoma
- 15.7 Others

16. URINARY SYSTEM
- 16.1 Diuretics
- 16.2 Anti-diuretics
- 16.3 Urinary alkanizers
- 16.4 Urinary antiseptics
- 16.5 Others (5.3, 5.4)

17. GENITAL SYSTEM
- 17.1 Contraceptives
  - 17.1.1 Hormonal (including oral)
  - 17.1.2 Locally acting
  - 17.1.3 Contraceptive devices
- 17.2 Vaginal preparations (19.6.2)
- 17.3 Oxytocics
- 17.4 Uterine antispasmodics
- 17.5 Sexual dysfunction
  - 17.5.1 Others
  - 17.5.2 Erectile dysfunction

18. ANTI-MICROBIALS
- 18.1 Beta-lactams
  - 18.1.1 Penicillins
  - 18.1.2 Cephalosporins
  - 18.1.3 Others
- 18.2 Erythromycin and other macrolides
- 18.3 Aminoglycosides
- 18.4 Tetracyclines
- 18.5 Chloramphenicols
- 18.6 Sulphonamides and combinations
- 18.7 Quinolones
- 18.8 Mycobacteria
  - 18.8.1 Tuberculostatics (18.7)

- 18.8.2 Anti-leprotics
- 18.9 Other anti-bacterial agents
- 18.10 Anti-fungal agents
- 18.11 Anti-protozoal agents
- 18.12 Anti-viral agents

19. ENDOCRINE SYSTEM
    - 19.1 Anti-diabetic agents
        - 19.1.1 Insulins
        - 19.1.2 Oral agents
    - 19.2 Anti-hypoglycaemic agents
    - 19.3 Thyroid
    - 19.4 Parathyroid and calcitonin
    - 19.5 Corticosteroids (12.9, 14.4, 14.4.1, 15.2)
    - 19.6 Sex hormones
        - 19.6.1 Androgens and anabolic steroids
        - 19.6.2 Oestrogens (19.6.4)
        - 19.6.3 Progestogens (19.6.4)
        - 19.6.4 Combinations (17.1.1, 19.6.2, 19.6.3)
        - 19.6.5 Others
    - 19.7 Tropic hormones
    - 19.8 Hormone inhibitors
20. VITAMINS, TONIS, MINERALS AND ELECTROLYTES
    - 20.1 Vitamins
        - 20.1.1 Vitamin combinations
    - 20.2 Vitamins with minerals
    - 20.3 Tonics (8.6)
    - 20.4 Minerals and electrolytes
21. AMINO-ACIDS
22. SPECIAL FOODS
23. CYTOSTATICS (19.6.3, 19.8)
24. IMMUNOLOGICAL
    - 24.1 Immunosuppressants
    - 24.2 Immunostimulants
25. CHELATING AGENTS, ION EXCHANGE PREPARATIONS
26. BIOLOGICALS
27. ENZYMES (8.3, 12.1, 12.6)
28. POISON ANTIDOTES
29. OTHERS
30. MEDICAL

Table C.1.5: Some of the DUR studies of South Africa

Author:	Title:	Type:	Subject:	Measuring instrument:
Stiglingh, A. Poster presented at the 13th Annual conference of the South African Association of Hospital and Institutional Pharmacists. 25-28 March 1999. Alpine Heath, South Africa	The occurrence of drug related problems in a primary health care setting: a pharmaceutical approach.	Retrospective, quantitative DUR	Drug therapy problems	Significance levels of interactions
Blignaut, A.S. 2002 M.Pharm	Analysis of drug-drug interactions per prescription by using a medicine claims database .	Retrospective DUR with quantitative and qualitative aspects.	Drug interactions	Drug interaction tables with significance levels.
Badenhorst, C. 2002 M.Pharm	Management of sexually transmitted diseases in the private primary health care setting: A pharmacoeconomic approach.	Retrospective, non-experimental and quantitative DUR.	Sexually transmitted diseases	Cost and prevalence of the disease.
Scholtz, D.J. 2007 *SA Health/Gesondheid, 11(4).*	Prescribing patterns of antiretroviral drugs in the private health care sector in South Africa: A drug utilisation review.	Retrospective DUR	Antiretroviral medication use.	Prevalence and cost associated with antiretroviral drugs.
Janse van Rensburg, H.N. 2007 Oral presentation at the 28th Annual Conference of the Academy of Pharmaceutical Sciences of South Africa, September 2007 Club Mykonos, South Africa	A longitudinal analysis of the prescribing patterns of acid reducing medicine in a section of the South African private sector.	Longitudinal retrospective DUR	Acid reducing agents.	Prescribing patterns and cost of acid reducing agents.
Joubert, J.M. 2004 M.Pharm	A cost-minimisation analysis of the usage of central nervous system medicines by using a managed care medicine list.	Retrospective, non-experimental quantitative DUR.	Central nervous system agents.	Usage patterns and cost associated with central nervous system agents.
Plaath, J. Oral presentation at the 3rd International Conference on Pharmaceutical and Pharmacological Sciences. Johannesburg. September 2002.	A retrospective analysis of the usage patterns of cephalosporins: A pharmacoeconomic approach.	Retrospective, non-experimental quantitative DUR.	Antibiotics.	Usage patterns and cost of antibiotic use.

Table C.1.5: Some of the DUR studies of South Africa (continue)

Ledwaba, L. Poster presented at the 25th Annual congress of the Academy of Pharmaceutical Sciences of South Africa. 12-15 September 2004.	Aspects of drug use in a private primary health care setting: A pharmacoeconomic approach.	Quantitative, retrospective DUR.	Drug usage patterns.	The cost associated with inappropriate prescribing patterns.
Rothmann, L. Oral presentation at the 28th Annual Conference of the Academy of Pharmaceutical Sciences of South Africa, September 2007 Club Mykonos, South Africa.	Prescribing patterns of angiotension-converting enzyme inhibitors for the periods 2001 until 2006.	Longitudial retrospective DUR.	ACE-inhibitors	Cost and prevalence of ACE-inhibitors.
Moore, M. Poster presentation at the 25th Annual congress of the Academy of Pharmaceutical Sciences of South Africa. 12-15 September 2005.	Usage analysis of dermatological products according to medicine claims database.	Quantitative retrospective DUR	Dermatological products.	Usage patterns and cost of dermatological products.

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