



# **Development of an implementation framework for task shifting and task sharing in Africa**

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Thesis accepted for the degree Doctor of Philosophy in Health Sciences with Health Professions Education at the North-West University

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## PREFACE

This PhD thesis is presented in an article format according to the North-West University 2016 guidelines. The PhD student, Sunny C Okoroafor, conducted the research and wrote the manuscript under the guidance and supervision of Professor Christmal Dela Christmals. The student wrote and submitted four manuscripts which are under review for possible publication in four different journals. The thesis is presented in seven chapters, with an introduction and conclusion for each chapter.

Permission was obtained from Dr Christmals to submit the dissertation for examination purposes. Consequently, the thesis meets the requirements for the North-West University's Doctor of Philosophy in Health Sciences with Health Professions Education degree at the Potchefstroom campus.

## DECLARATION AND STUDENT CONTRIBUTION TO ARTICLES

I, Sunny C Okoroafor, student number 44725973, hereby declare that this thesis is my own work and that I contributed adequately towards the published articles by conducting the research and writing the manuscripts under the guidance and supervision of my promoter.

The study was undertaken under the guidance and supervision of Prof Christmal Dela Christmals (promoter) of the Centre for Health Professions Education (CHPE), Faculty of Health Sciences of the North-West University, Potchefstroom campus. This work has not been partly or fully submitted for any other degree, neither has it been submitted concurrently in candidature for any other degree.

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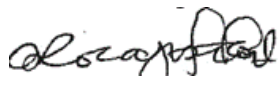
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## AGREEMENT OF CO-AUTHORS

The co-author of the four articles presented in this thesis, Dr Christmal Dela Christmals (promoter), hereby give the candidate, Sunny C Okoroafor (student number 44725973), permission to include the four articles as part of his doctoral thesis. The student is the main author of all four articles and was responsible for the conceptualisation, data collection, and writing of the articles. All the research was conducted by the student. The contribution (advisory and supportive) of the co-authors was kept within reasonable limits, thereby enabling the candidate to submit this thesis for examination purposes.

Prof Christmal Dela Christmals  
(Promoter)

Signature:  .. Date: 22/03/2023

## DEDICATION

*This work is dedicated to my beloved late father, Sir. S.N. Okoroafor, and mother, Barr. (Mrs) Kate .O. Okoroafor. You have always believed in me and I owe you both a great debt for what I am and what I will be.*

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## TABLE OF CONTENTS

PREFACE .....	I
AGREEMENT OF CO-AUTHORS .....	III
DEDICATION .....	I
ACKNOWLEDGEMENTS .....	II
TABLE OF CONTENTS .....	I
GLOSSARY OF TERMS .....	VIII
LIST OF TABLES .....	I
LIST OF FIGURES.....	II
LIST OF ABBREVIATIONS .....	III
SUMMARY .....	1
CHAPTER 1: OVERVIEW AND INTRODUCTION.....	3
1.1 INTRODUCTION .....	3
1.2. BACKGROUND .....	3
1.2.1 State of the Health Workforce in Africa .....	3
1.2.2 Health Workforce and Task Shifting and Task Sharing .....	4
1.2.3 Primary Healthcare Workforce in Nigeria and Their Health Professions’ Education .....	6
1.3 PROBLEM STATEMENT.....	9
1.4 PURPOSE OF THE STUDY.....	10
1.5 RESEARCH AIM AND OBJECTIVES .....	11
1.5.1 Research Aim and Objectives .....	11
1.5.2 Research Questions.....	11
1.6 RESEARCH PARADIGM.....	12
1.7 RESEARCH DESIGN AND METHODOLOGY .....	12
1.8 ETHICAL CONSIDERATIONS .....	2
1.9 STRUCTURE OF THE THESIS .....	2
1.10 REFERENCES .....	4
CHAPTER 2: RESEARCH DESIGN AND METHODOLOGY .....	9
2.1 INTRODUCTION .....	9
2.2. RESEARCH PARADIGM.....	9
2.3 RESEARCH DESIGN.....	10
2.3.1 Phase 1: Scoping Review .....	12
2.3.1.1 Review questions .....	12

2.3.1.2	Identification of relevant studies .....	13
2.3.1.3	Selection of studies .....	13
2.3.1.4	Eligibility criteria for review .....	13
2.3.1.5	Data charting .....	14
2.3.1.6	Synthesis and reporting of results .....	14
<b>2.3.2</b>	<b>Phase 2: Qualitative Explorative Descriptive Study .....</b>	<b>14</b>
2.3.2.1	Study context.....	15
2.3.2.2	Population and sample .....	16
2.3.2.3	Inclusion and exclusion criteria.....	16
2.3.2.4	Sampling process.....	17
2.3.2.5	Recruitment and written informed consent .....	17
2.3.2.5.1	Advocating the intended research .....	17
2.3.2.5.2	Mediator facilitated information session and obtaining informed consent 17	
2.3.2.6	Research methods .....	18
2.3.2.6.1	Data collection instrument .....	18
2.3.2.6.2	Data collection .....	18
2.3.2.6.3	Data analysis .....	19
2.3.2.6.4	Reimbursement for time .....	20
<b>2.3.3</b>	<b>Phases 3 and 4: Develop and Evaluate an Implementation Framework for Task Shifting and Task Sharing .....</b>	<b>20</b>
2.3.3.1	Approach.....	20
2.3.3.2	Expert evaluation of the framework .....	21
2.3.3.2.1	Population and sample .....	21
2.3.3.2.2	Inclusion and exclusion criteria.....	21
2.3.3.2.3	Sampling process .....	22
2.3.3.2.4	Recruitment and written informed consent .....	22
2.3.3.2.5	Research methods.....	23
<b>2.4</b>	<b>QUALITY AND RIGOR OF THE RESEARCH .....</b>	<b>23</b>
<b>2.4.1</b>	<b>Qualitative Explorative Descriptive Study.....</b>	<b>23</b>
<b>2.4.2</b>	<b>Evaluation of Framework.....</b>	<b>25</b>
<b>2.5</b>	<b>ETHICAL CONSIDERATIONS .....</b>	<b>25</b>
<b>2.5.1</b>	<b>Ethical Approval .....</b>	<b>25</b>
<b>2.5.2</b>	<b>Risks, Precautions, And Benefits .....</b>	<b>26</b>
2.5.2.1	Risks and precautions .....	26

2.5.2.2	Benefits .....	27
2.5.2.3	Risk/benefit ratio analysis .....	27
<b>2.5.3</b>	<b>Data Management, Storage, and Destruction .....</b>	<b>27</b>
2.5.3.1	Hard copy data .....	27
2.5.3.2	Electronic data.....	27
<b>2.5.4</b>	<b>Data Monitoring .....</b>	<b>28</b>
<b>2.6</b>	<b>REFERENCES .....</b>	<b>28</b>
<b>CHAPTER 3: ARTICLE 1: TASK SHIFTING AND TASK SHARING</b>		
<b>IMPLEMENTATION IN AFRICA: A SCOPING REVIEW ON RATIONALE AND</b>		
<b>SCOPE.....</b>		
		<b>33</b>
<b>3.1</b>	<b>ABSTRACT.....</b>	<b>34</b>
<b>3.2</b>	<b>INTRODUCTION .....</b>	<b>34</b>
<b>3.3</b>	<b>MATERIALS AND METHODS.....</b>	<b>36</b>
<b>3.4</b>	<b>RESULTS.....</b>	<b>37</b>
<b>3.4.1</b>	<b>Description of Studies .....</b>	<b>37</b>
<b>3.4.2</b>	<b>Characteristics of Studies .....</b>	<b>41</b>
<b>3.4.3</b>	<b>Main Themes from The Included Studies.....</b>	<b>43</b>
3.4.3.1	Rationale for task shifting and task sharing.....	43
3.4.3.1.1	Health worker shortages.....	43
3.4.3.1.2	Optimally utilize existing health workers .....	43
3.4.3.1.3	Expand access to health services.....	56
3.4.3.2	Scope of shifted and shared tasks .....	57
3.4.3.2.1	HIV/AIDS care .....	57
3.4.3.2.2	Hypertension management.....	64
3.4.3.2.3	Diabetes management.....	64
3.4.3.2.4	Mental health .....	64
3.4.3.2.5	Maternal and child health care.....	65
3.4.3.2.6	Sexual and Reproductive health services.....	65
3.4.3.2.7	Eye care .....	66
3.4.3.2.8	Tuberculosis care .....	66
3.4.3.2.9	Surgical care and procedures.....	66
3.4.3.2.10	Medicines management.....	66
3.4.3.2.11	Emergency care.....	66
<b>3.5</b>	<b>DISCUSSION .....</b>	<b>67</b>
<b>3.5.1</b>	<b>Implications for Policy and Practice.....</b>	<b>68</b>

3.5.2	Limitations .....	69
3.6	CONCLUSION .....	69
3.7	REFERENCES .....	69
<b>CHAPTER 4: ARTICLE 2: HEALTH PROFESSIONS' EDUCATION STRATEGIES FOR ENHANCING CAPACITY FOR TASK SHIFTING AND TASK SHARING IMPLEMENTATION IN AFRICA: A SCOPING REVIEW..... 80</b>		
4.1	ABSTRACT.....	81
4.2	BACKGROUND .....	82
4.3	METHODS .....	83
4.3.1	Study Design .....	83
4.3.2	Search Strategy .....	84
4.3.3	Article Selection .....	84
4.3.4	Data Extraction and Synthesis .....	84
4.3.5	Ethics Approval .....	85
4.4	RESULTS.....	85
4.4.1	Description of Studies .....	85
4.4.2	Characteristics of Studies .....	86
4.4.3	Health Professions' Education Strategies for Enhancing TSTS Implementation.....	88
4.4.3.1	In-service training .....	91
4.4.3.2	Onsite clinical supervision and mentoring .....	95
4.4.3.3	Periodic Supportive Supervision .....	102
4.4.3.4	Provision of job aids .....	103
4.4.3.5	Pre-service education .....	104
4.5	DISCUSSION .....	104
4.5.1	Limitations .....	107
4.6	CONCLUSION .....	107
4.7	REFERENCES.....	107
<b>CHAPTER 5: ARTICLE 3: BARRIERS, PROMOTERS, AND STRATEGIES FOR IMPROVING TASK SHIFTING AND TASK SHARING IMPLEMENTATION IN NIGERIA: QUALITATIVE PERSPECTIVES OF POLICYMAKERS ..... 118</b>		
5.1	ABSTRACT.....	119
5.2	BACKGROUND .....	120
5.3	METHODS .....	121
5.3.1	Study Design and Setting .....	121

5.3.2	<b>Sampling Process .....</b>	<b>122</b>
5.3.3	<b>Data Collection .....</b>	<b>122</b>
5.3.4	<b>Data Analysis .....</b>	<b>123</b>
5.3.5	<b>Trustworthiness.....</b>	<b>123</b>
5.3.6	<b>Ethics Approval .....</b>	<b>123</b>
5.4	<b>RESULTS.....</b>	<b>124</b>
5.4.1	<b>Understanding of Task Shifting and Task Sharing and Its Rationale .....</b>	<b>124</b>
5.4.2	<b>Barriers to Effective Implementation of Task Shifting and Task Sharing .....</b>	<b>125</b>
5.4.2.1	Persistent shortage of health workers .....	125
5.4.2.2	Inter-cadre rivalry.....	126
5.4.2.3	Perception on capacity of providers.....	127
5.4.2.4	Lack of adequate equipment .....	127
5.4.3	<b>Factors Promoting the Implementation of Task Shifting and Task Sharing .....</b>	<b>127</b>
5.4.3.1	Availability of policy .....	127
5.4.3.2	Political will .....	128
5.4.3.3	Acceptance of task shifting and task sharing implementation .....	129
5.4.3.4	Improvement in knowledge and skills.....	130
5.4.4	<b>Strategies for improving task shifting and task sharing practice ...</b>	<b>130</b>
5.4.4.1	Improve staffing levels.....	130
5.4.4.2	Scale up training of health workers to improve knowledge.....	131
5.4.4.3	Improve skills through mentoring and supervision.....	132
5.4.4.4	Improve evidence generation and dissemination .....	133
5.5	<b>DISCUSSION .....</b>	<b>133</b>
5.5.1	<b>Implications for Practice.....</b>	<b>135</b>
5.5.2	<b>Limitations .....</b>	<b>136</b>
5.6	<b>CONCLUSION .....</b>	<b>136</b>
5.7	<b>REFERENCES .....</b>	<b>138</b>
	<b>CHAPTER 6: ARTICLE 4: OPTIMIZING THE ROLES OF HEALTH WORKERS TO IMPROVE ACCESS TO HEALTH SERVICES IN AFRICA: AN IMPLEMENTATION FRAMEWORK FOR TASK SHIFTING AND SHARING FOR POLICY AND PRACTICE .....</b>	<b>142</b>
6.1	<b>ABSTRACT.....</b>	<b>143</b>

<b>6.2</b>	<b>INTRODUCTION</b> .....	<b>144</b>
<b>6.3</b>	<b>METHODS</b> .....	<b>145</b>
<b>6.3.1</b>	<b>Study Design</b> .....	<b>145</b>
<b>6.3.2</b>	<b>Data Collection and Analysis</b> .....	<b>145</b>
6.3.2.1	Scoping reviews .....	145
6.3.2.2	Qualitative study .....	146
6.3.2.3	Develop and evaluate the implementation framework.....	146
<b>6.4</b>	<b>RESULTS</b> .....	<b>147</b>
<b>6.4.1</b>	<b>Scoping Review On Rationale and Scope Of Task Shifting And Task Sharing Implementation In Africa</b> .....	<b>147</b>
<b>6.4.2</b>	<b>Scoping Review On Health Professions’ Education Strategies for Enhancing Capacity for Task Shifting and Task Sharing Implementation In Africa</b> .....	<b>147</b>
<b>6.4.3</b>	<b>Qualitative Study On Barriers, Promoters, And Strategies for Improving Task Shifting and Task Sharing Implementation</b> .....	<b>148</b>
<b>6.4.4</b>	<b>Implementation Framework for Task Shifting and Task Sharing In Africa</b> .....	<b>148</b>
<b>6.5</b>	<b>DISCUSSION</b> .....	<b>162</b>
<b>6.5.1</b>	<b>Implications for Policy and Practice</b> .....	<b>165</b>
<b>6.5.2</b>	<b>Limitations</b> .....	<b>165</b>
<b>6.6</b>	<b>CONCLUSION</b> .....	<b>166</b>
<b>6.7</b>	<b>REFERENCES</b> .....	<b>166</b>
<b>CHAPTER 7: SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS</b> .....		<b>174</b>
<b>7.1</b>	<b>INTRODUCTION</b> .....	<b>174</b>
<b>7.2</b>	<b>SUMMARY</b> .....	<b>176</b>
<b>7.3</b>	<b>OVERALL CONCLUSION</b> .....	<b>181</b>
<b>7.3.1</b>	<b>Research Objective 1: Synthesize Evidence On Rationale and Scope of Task Shifting and Task Sharing in Africa</b> .....	<b>182</b>
<b>7.3.2</b>	<b>Research Objective 2: Synthesize Evidence On Health Professions Education Strategies Applied to Enhance Capacities for Task Shifting and Task Sharing Implementation in Africa</b> .....	<b>182</b>
<b>7.3.3</b>	<b>Research Objective 3: Explore The Perceptions of Policymakers On the Barriers, Promoters, And Strategies for Improving Task Shifting and Task Sharing Implementation in Nigeria.</b> .....	<b>182</b>

7.3.4	Research Objective 4: Develop an Implementation Framework for Task Shifting and Task Sharing for Policy and Practice in Africa. ....	183
7.4	CONTRIBUTIONS OF THE STUDY .....	183
7.4.1	Contribution to Theory .....	183
7.4.2	Contribution to Policy and Practice .....	184
7.5	LIMITATIONS OF THE STUDY .....	185
7.6	RECOMMENDATIONS .....	185
7.6.1	Further Research.....	185
7.6.2	Task Shifting and Task Sharing Implementation.....	186
7.7	REFERENCES.....	186
	ANNEXES .....	191
	ANNEX A: SCIENTIFIC COMMITTEE APPROVAL .....	191
	ANNEX B: ETHICS APPROVAL – NWU HEALTH RESEARCH ETHICS COMMITTEE (NWU-HREC).....	193
	ANNEX C: ETHICS APPROVAL – FEDERAL MINISTRY OF HEALTH NATIONAL HEALTH RESEARCH ETHICS COMMITTEE .....	196
	ANNEX D: PERMISSION LETTERS FROM BAUCHI AND CROSS RIVER STATES .....	197
	ANNEX E: INVITATION LETTER TO POLICYMAKERS TO PARTICIPATE IN THE QUALITATIVE STUDY WITH THE INFORMATION SHEET FORM.....	199
	ANNEX F: NWU-HREC STAMPED INFORMED CONSENT FORM .....	202
	ANNEX G: KEY INFORMANT SEMI-STRUCTURED INTERVIEW GUIDE.....	207
	ANNEX H: ONLINE EXPERT REVIEW INVITATION LETTER, INFORMATION SHEET, INFORMED CONSENT AND FORM FOR EVALUATION OF IMPLEMENTATION FRAMEWORK .....	208
	ANNEX I: PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSES EXTENSION FOR SCOPING REVIEWS (PRISMA-SCR) CHECKLIST.....	211
	ANNEX J: EVIDENCE OF ARTICLE 1 ACCEPTED AND PUBLISHED .....	213
	ANNEX K: EVIDENCE OF ARTICLE 2 ACCEPTED.....	214
	ANNEX L: EVIDENCE OF ARTICLE 3 UNDER PEER REVIEW .....	215
	ANNEX M: EVIDENCE OF ARTICLE 4 UNDER PEER-REVIEW .....	216
	ANNEX N: LANGUAGE EDITING CERTIFICATE.....	217
	ANNEX O: PLAGIARISM CHECK – SUMMARY OF TURNITIN REPORT .....	218

## GLOSSARY OF TERMS

<b>Community Health Extension Worker</b>	A sub-cadre of community health practitioners trained in Colleges of Health Technology for three years and regulated 'by the Community Health Practitioners Registration Board of Nigeria' (Adegoke et al. 2013; Couper et al. 2018; NPHCDA 2018).
<b>Community Health Officer</b>	A sub-cadre of community health practitioners trained in teaching hospitals in Nigeria under the Community Health Officers Diploma programme for four years and regulated by the Community Health Practitioners Registration Board of Nigeria (Adegoke et al. 2013; Couper et al. 2018; NPHCDA 2018).
<b>Community Health Practitioner</b>	A regulated cadre of 'health workers in Nigeria that comprises community health officers, community health extension workers and junior community health extension workers. This category is under the regulatory authority of the Community Health Practitioners Registration Board of Nigeria'.
<b>Doctors</b>	This category of health professionals is defined in the International Standard for Classification of Occupations '(ISCO) - 08 as generalist medical practitioners, who apply the principles and procedures of modern medicine in the prevention, diagnosis, care and treatment of diseases, illnesses and injuries in humans and the maintenance of health in general. They can supervise the implementation of care and treatment plans and conduct medical education and research activities' (ILO 2008).
<b>Health manager</b>	A person involved in planning, directing, and coordinating health systems functions towards achieving the goals of health policies and strategies.
<b>Health professional</b>	'A health worker who has a minimum of post-secondary education and is trained to provide direct health care treatment and advice to patients, families or communities' (WHO 2017a).
<b>Health professions education</b>	'An approved and structured training given to people to qualify for licensing as health professionals' by a regulatory body (WHO 2017a).

<b>Health worker</b>	Health workers are people whose job it is to protect and improve the health of population served. ‘Such workers range from less-skilled professionals such as community health workers through highly skilled and specialised medical professionals. It also includes non-clinicians working in the health sector’ (WHO, 2006).
<b>Health workforce</b>	‘The aggregate health workers in all their diversity’ make up the health workforce (WHO 2017a).
<b>Junior Community Health Extension Worker</b>	A sub-cadre of community health practitioners trained in Colleges of Health Technology in Nigeria under the Community Health basic certificate programme for 24 to 30 months and under the regulatory authority of the Community Health Practitioners Registration Board of Nigeria (Adegoke et al. 2013; Couper et al. 2018; NPHCDA 2018).
<b>Midwife</b>	A midwife is a cadre of the health workforce who plans, manages, provides, and evaluates midwifery care services before, during and after pregnancy and childbirth. (ILO, 2008). In Nigeria, they are licensed and regulated by the Nursing and Midwifery Council of Nigeria.
<b>Nurse</b>	‘This category of health professionals is defined in ISCO-08 as nursing professionals (ISCO-code 2221). They manage, plan, anticipate and evaluate nursing services for people who require nursing care because of the effects of illness, injury or other physical or mental disability, or potential health risks. They work independently or in teams with physicians and other health care workers. They can oversee the implementation of nursing plans and conduct nursing education activities. (ISCO-08 code 3221) in the performance of their tasks’ (ILO, 2008).
<b>Policy maker</b>	A person involved in developing, planning, enacting and implementing laws, policies, and strategies toward improving the health and wellbeing of the population.
<b>Task shifting and task sharing</b>	Task shifting and task sharing is defined by WHO as “ <i>the rational redistribution of tasks among health workforce teams</i> ” from trained and qualified health workers to other health workers with

shorter training duration to maximize the available health workforce (WHO 2007b, p. 2). In task shifting, tasks are delegated or transferred, and in task sharing, tasks are delivered collaboratively by different staff categories (Orkin et al. 2021)

## LIST OF TABLES

### Chapter 1

Table 1: Roles and responsibilities of the PHCC workforce.....4

Table 2: Summary of the sequential multimethod approach employed in this study ...14

### Chapter 2

Table 1: Research phases, objectives, methods, and outputs .....24

Table 2: Population, concept, and context (PCC) framework for the scoping review....26

Table 3: Risks and precautions.....41

### Chapter 3

Table 1: Population, concept, and context (PCC) framework for the scoping review....52

Table 2: Search strategy.....55

Table 3. Main characteristics of included papers.....57

Table 4: Details on study characteristics.....60

Table 5. Summary of key findings on rationale and scope of task shifting and task sharing in reviewed studies.....72

### Chapter 4

Table 1: Summary of key findings on rationale and scope of task shifting and task sharing in reviewed studies.....104

Table 2: Details of the reviewed studies.....104

Table 3: Summary of findings on in-service trainings.....108

Table 4: Key findings from reviewed studies.....113

### Chapter 6

Table 1: Synthesis of implementation framework constructs based on scoping reviews and qualitative study findings.....168

Table 2: Demographic characteristics of the subject matter experts.....171

Table 3: Summary of responses from subject matter experts.....172

## LIST OF FIGURES

### Chapter 1

Figure 1: Densities of doctors, nurses, and midwives per 1000 population in the African Region.....	4
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### Chapter 2

Figure 1: Phases of the study.....	23
Figure 2: Nigeria's health care system structure.....	30

### Chapter 3

Figure 1. PRISMA-ScR flow diagram.....	54
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### Chapter 4

Figure 1. PRISMA-ScR flow diagram.....	102
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### Chapter 6

Figure 1: Implementation framework for task shifting and task sharing in Africa.....	174
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## LIST OF ABBREVIATIONS

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>ART</b>	Anti-retroviral Therapy
<b>CHPE</b>	Centre for Health Professions Education
<b>CHEW</b>	Community Health Extension Workers
<b>CHO</b>	Community Health Officers
<b>CHPRBN</b>	Community Health Practitioners Registration Board of Nigeria
<b>FCT</b>	Federal Capital Territory
<b>FMoH</b>	Federal Ministry of Health
<b>HREC</b>	Health Research Ethics Committee
<b>HIV</b>	Human Immunodeficiency Virus
<b>HRH</b>	Human Resources for Health
<b>JCHEW</b>	Junior Community Health Extension Workers
<b>LGA</b>	Local Government Area
<b>LMIC</b>	Low- and Middle-income Countries
<b>MDCN</b>	Medical and Dental Council of Nigeria
<b>NHREC</b>	National Health Research Ethics Committee
<b>NPHCDA</b>	National Primary Health Care Development Authority
<b>NWU</b>	North-West University
<b>NMCN</b>	Nursing and Midwifery Council of Nigeria
<b>ODK</b>	Open Data Kit
<b>PCC</b>	Population, Concept and Context
<b>PHCC</b>	Primary Healthcare Centres
<b>RMNCAH</b>	Reproductive, Maternal, Neonatal, Child and Adolescent Health

<b>SDG</b>	Sustainable Development Goals
<b>TB</b>	Tuberculosis
<b>UHC</b>	Universal Health Coverage
<b>WB</b>	World Bank
<b>WHO</b>	World Health Organization

## SUMMARY

Achieving universal health coverage (UHC) by 2030 is one of the targets (Target 3.8) of the United Nations Sustainable Development Goals. UHC emphasizes improving access to health services that are people-centred and integrated, and delivered along the life course. Attaining this requires a well-trained, skilled, and motivated health workforce at all levels of the health system. However, this is hampered by a widespread shortage of health workers due to increasing population, and outbreaks of diseases. This necessitates strategies for optimally utilizing existing health workers to improve access to health services. Task shifting and task sharing have been proposed as an approach to efficiently utilize existing health workers to ensure improved access to health services. The shortage of some essential cadres of the health workforce is very acute and systemic that if the services they provide are not transferred or shared with other health workers, the life of the population will be at risk. Transferring or sharing the tasks of a cadre of the health workforce to or with another cadre is termed task shifting and sharing respectively. Currently, there are ongoing deliberations in Africa on the need for an implementation framework to guide the adoption and operationalization of task shifting and task sharing as a key strategy for optimally utilizing the existing health workforce towards the achievement of UHC. Yet, there remains a lack of information on context-specific evidence to support the development of the framework, hence the need to generate evidence on task shifting and task sharing in Africa. To address this gap and to contribute to the body knowledge, an implementation framework for task shifting and task sharing for policy and practice in Africa was developed. To achieve this, a sequential multimethod research design, supported by a scoping review, and qualitative explorative descriptive study was employed in this study. There were four key phases before the dissemination of the study findings. In phase 1, two scoping reviews were conducted to generate needed evidence. The reviews synthesized evidence on the rationale and scope of task shifting and task sharing in Africa, and the health professions' educations strategies applied to enhance capacities for task shifting and task sharing implementation in Africa. In phase 2, a qualitative study exploring the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria was conducted. Subsequently, evidence generated from the scoping review, and the qualitative explorative-descriptive study were used to develop an implementation framework (phase 3). In phase 4, 36 subject matter experts reviewed the applicability of

the framework in Africa and, based on their feedback, the framework was finalized and disseminated. The implementation framework for task shifting and task sharing has three core components – context, implementation strategies and intended change. The implementation strategies comprises of iterative actions in the development, translation, and sustainment phases to achieve an intended change. The implementation strategies in the framework include mapping and engagement of stakeholders, generating evidence, development, implementation and review of a road map (or action plan) and national and/or sub-national policies and strategies, education of health workers using manuals, job aids, curricula and clinical guidelines, and monitoring, evaluation, reviews and learning. The implementation framework serves as a guide on actions needed to achieve national, regional and global goals based on contextual evidence. It provides a critical path for undertaking actions to achieve set health service delivery goals in practice. Its understanding and application in tailoring task shifting and task sharing policy directions, strategies and practice actions will ensure achievement of goals and ultimately, improved health outcomes.

**Keywords:** Task shifting, task sharing, rationale, scope, implementation framework, health service delivery, access to health services, health professions education, Africa, health workers.

## **CHAPTER 1: OVERVIEW AND INTRODUCTION**

### **1.1 INTRODUCTION**

Achieving universal health coverage (UHC) in 2030 is one of the targets (Target 3.8) of the United Nations Sustainable Development Goals (WB, 2021). UHC emphasizes improving access to health services that are people-centred and integrated, and delivered along the life course. This requires a well-trained, skilled, and motivated health workforce at all health system's levels but is hampered by widespread shortages due to increasing population, and outbreaks of diseases (WHO, 2006). In, turn, this necessitates strategies for optimally utilizing existing health workers to improve access to health services (WHO, 2016b). Task shifting and task sharing have been proposed as an approach to utilize existing health workers efficiently towards ensuring improved access to health services (WHO, 2016a). The shortage of some essential cadres of the health workforce is acute and systemic necessitating the transfer or sharing of some of the services they provide with other health workers. Transferring or sharing the tasks of a cadre of the health workforce to or with another cadre is termed task shifting and sharing respectively (Orkin et al., 2021).

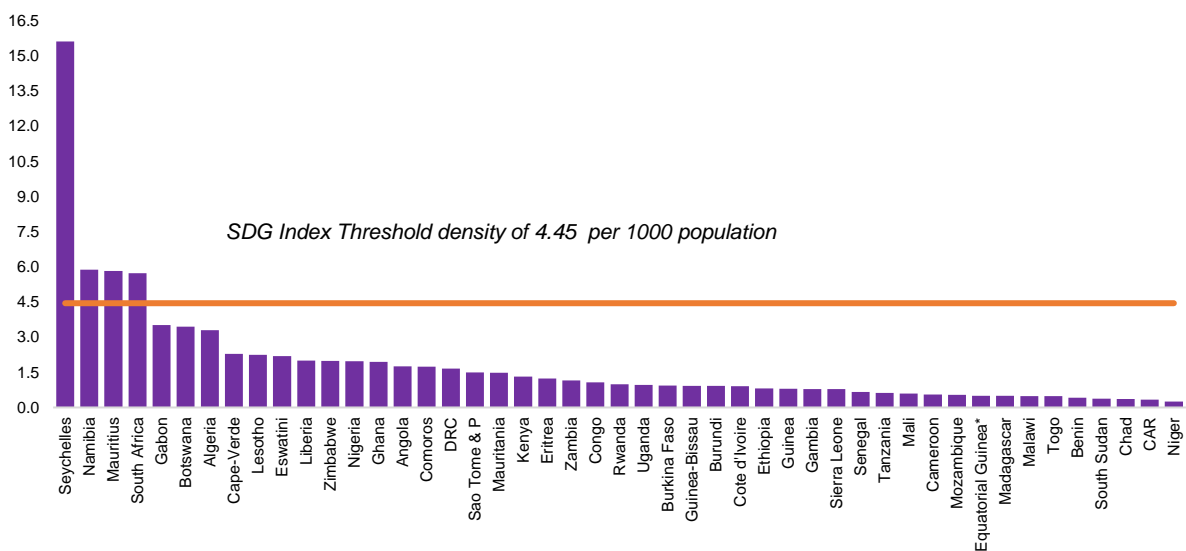
### **1.2. BACKGROUND**

#### **1.2.1 State of the Health Workforce in Africa**

According to the World Health Organization (WHO), an extra 18 million health workers are required to provide of a wide range of services necessary to ensure universal health coverage (UHC) by 2030 (WHO, 2016a, 2016b). The need is critical in Africa because of its large population and the demand for health services (WHO, 2016a). About half of the 57 countries in Africa were reported to have a marked shortage of health workers with most being from the WHO Africa Region (WHO, 2006). The average density of doctors, nurses and midwives per 1,000 population in the African Region is approximately 1.55 as shown in Figure 1 (WHO, 2021). This is far below the sustainable development goals (SDG) threshold of 4.45 health workers per 1,000 population (WHO, 2016a). The threshold of doctors, nurses, and midwives per 1,000 population in Seychelles, Namibia,

Mauritius, and South Africa is above 4.45 per 1000 population, whilst those of 'Algeria, Botswana, Gabon, Cape Verde, Eswatini, Lesotho, and Liberia' range between 2.0 and 4.0 per 1000 population (WHO, 2021).

The health workforce crisis in Africa is attributable to several factors including increasing population, low production and retention rate of health workers to match population needs, high international migration, and non – evidence-based health workforce planning (WHO, 2020). Additionally, the inequitable distribution of health workforce in countries is quite marked and this leads to those most in need of essential health services having the least access (Joshi et al., 2014; WHO, 2018c).



**Figure 1: Densities of doctors, nurses, and midwives per 1000 population in the African Region**

**Source:** WHO, 2021

### 1.2.2 Health Workforce and Task Shifting and Task Sharing

The ambition of achieving UHC, where everyone has access to quality health services, when and where needed, without experiencing financial hardship is one of the targets of the United Nations Agenda 2030 for Sustainable Development (WB, 2021). Of particular importance is the focus on improving access to health services that are people-centred and integrated, and delivered to provide a continuum of care along the life course. People-centred health services are based on the needs and expectations of an individual or group of persons, and are informed by their involvement and choices (Hall et al., 2019; Leyns et al., 2018). Also, integrated health services are provided along the continuum of health

care services, across different levels of health, and based on the life-course needs (Huitema et al., 2018; Thornicroft et al., 2019). Of vital importance is that these services should also meet the preferences of the clients in terms of safety, effectiveness, timeliness, efficiency and acceptability (WHO, 2015, 2018a).

The level of access of the population in the African Region to people-centred and integrated services is estimated at 32% (WHO, 2018b). Challenges to access to health services include reduced access to health workers, absence of medicines, technologies and vaccines due to disruptions in the supply chain, and lack of financial resources for out-of-pocket payment for health services (WHO, 2018b). This necessitates interventions to reduce barriers to accessing health services.

Achieving improved access to people-centred and integrated services; ultimately increasing coverage of health services and health outcomes, requires a qualified, skilled, and motivated health workforce at all levels. Health workers are key in ensuring health services are people-centred by ascertaining the health needs of individuals, families, and communities, and involving them in the planning and implementation of interventions that are based on their needs and choices.

However, due to the continual growth in populations, the increase in the ageing population and adolescents, as well as the epidemiology of illnesses and outbreaks of diseases, the need for health workers has been on the rise (WHO, 2016b). The shortage of health workforce is estimated to rise to 18 million by 2030 in Low- and Middle-income Countries (LMICs), which shortage will continue to threaten and exacerbate access to health services. This necessitates strategies for optimally utilizing existing health workers to improve access to health.

Task shifting and task sharing have been proposed as an approach to efficiently utilize existing health workers to ensure improved access to people-centred and integrated health services (Orkin et al., 2021; WHO, 2007b, 2012). Task shifting is defined by WHO as “*the rational redistribution of tasks among health workforce teams*” (WHO, 2007b: p. 2). In task shifting, tasks are delegated or transferred, and in task sharing, tasks are delivered collaboratively by different staff categories (Orkin et al., 2021). This is ultimately aimed at improving access to health care without compromising quality. Task shifting has

been implemented globally, especially in Africa, for example, in HIV/AIDS, mental health, surgery, maternal and newborn care service delivery in Botswana, Ethiopia, Swaziland, Zambia, amongst other countries. Evaluation studies in Africa show that its practice improved efficiency by delegating less complicated tasks to non-specialized health workers and allowing the specialists to handle complicated cases resulting in cost savings (Callaghan et al., 2010).

In Nigeria, a National Task Shifting and Task Sharing Policy was developed in 2014 (FMOH, 2014) and updated in 2018 (FMOH, 2018b). The policy has the goal of achieving UHC by optimally utilizing the existing health workers to deliver essential health services. It endorses the rational distribution of tasks amongst health workers towards ensuring improved access to essential health services at primary healthcare centres (PHCC). The priority tasks approved in the policy were family and reproductive health services, maternal and child health services, HIV/AIDS, tuberculosis, and malaria. The identification of these tasks as well as the formulation of strategies for achieving task shifting and task sharing involved key stakeholders including professional regulatory bodies and associations, civil society organizations and partners (FMOH, 2018b). The professional regulatory bodies that were involved in the process were those that regulate the cadres normatively earmarked to provide health services at PHCC. They are medical doctors, community health officers, nurses and midwives, community health extension workers, pharmacy technicians, health records technicians, medical laboratory technicians, and junior community health workers (NPHCDA, 2018). However, in practice, their availability is contingent on the level of investment by the government (Abdulraheem et al., 2012; Okoroafor et al., 2019). Also, the primary cadres available to provide services in most PHCCs are nurses, midwives and community health practitioners, with doctors (where available) having supervisory roles (as policy makers and health managers) over a cluster of PHCCs (FMOH, 2018a; Nkwo, 2015).

### **1.2.3 Primary Healthcare Workforce in Nigeria and Their Health Professions' Education**

In 2018, Nigeria had more than 74,000 medical doctors, which equated to 36.3 medical doctors per 100,000 population. There were 38 medical education institutions spread across the country. For nurses and midwives, a total of 180,709 and 120,870, respectively, were registered, which equals 88.1 nurses per 100,000 population and 58.9

midwives per 100,000 population. There were 262 nursing, midwifery, and community midwifery training institutions in Nigeria - 171 nursing institutions, 83 midwifery institutions, and eight community midwifery education institutions. In the same year, there were 8,533 community health officers, and 14 University Teaching Hospitals offering community health officer training programmes. There were also 61,668 community health extension workers, and, 46,253 junior community health extension workers, and 103 training institutions for these cadres (FMOH, 2020b).

Table 1 shows the roles and responsibilities of doctors, nurses, midwives, and community health practitioners based on the national operational guidelines for primary health care (NPHCDA, 2018). Evidence indicates that in PHCC in Nigeria, nurses and midwives comprise about 8% of the health workforce, with community health practitioners being 42% and performing an estimated 90% of all deliveries (Couper et al., 2018). According to national regulations, community health officers are next in rank to nurses and head a PHCC in their absence (FMOH, 2018a). Community health extension workers and junior community health extension workers usually allocate their working time between service delivery in facilities and communities. Whilst community health extension workers work 40% and 60% in the facility and communities respectively, junior community health extension workers work 20% and 80% in the health facility and communities correspondingly (NPHCDA, 2018).

For tasks to be shifted from one profession to another or shared among professionals, it is essential to map out the skills, knowledge and the potential for additional training of the professionals involved. Outlining the quality of inputs, intensity and duration of training and internship requirements of the professionals is crucial in task shifting and sharing. The level of training, duration of training and core areas of training for key professionals in Nigeria are presented below.

The entry requirement into medical education institutions for a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree is a West African Senior Secondary Certificate Examination or General Certificate Examinations certificate, with at least a credit in Biology, Physics, Chemistry, Mathematics and English language. The programme usually lasts for six years with a series of professional board examinations at various

stages, and a certificate to practice issued after a mandatory one-year internship. The practice of medical doctors is regulated by the Medical and Dental Council of Nigeria (MDCN, 2022; Osoba et al., 2021).

**Table 1: Roles and responsibilities of the PHCC workforce**

Cadre	Responsibilities
Medical doctor	<ul style="list-style-type: none"> <li>▪ Head of a health team for various PHCCs in a ward as a policy maker/ health manager.</li> <li>▪ Ensure that service users receive the appropriate treatment necessary for conditions.</li> <li>▪ Ensure the availability of essential medicines, vaccines, consumables, and essential equipment for service delivery.</li> <li>▪ Establish and ensure the functionality of referral linkages with other facilities and levels of care.</li> </ul>
Nurse/ midwife	<ul style="list-style-type: none"> <li>▪ Assess and provide maternal and child health services and refer complicated cases.</li> <li>▪ Manage minor ailments based on National Standard Treatment Guidelines.</li> <li>▪ Perform administrative functions where applicable.</li> </ul>
Community Health Officer	<ul style="list-style-type: none"> <li>▪ Develop and ensure implementation of ward action plans in collaboration with ward development committees.</li> <li>▪ Oversee data collection, collation and analysis and reporting using the health information system.</li> <li>▪ Facilitate community participation in health and health-related matters.</li> <li>▪ Ensure all pregnant women are identified and have access to antenatal care services.</li> <li>▪ Assess and provide health services to users based on standing orders.</li> </ul>
Community Health Extension Worker	<ul style="list-style-type: none"> <li>▪ Develop and ensure implementation of ward action plans in collaboration with ward development committees</li> <li>▪ Devote 60% of working time in the community to ensure access to community-based services, and referral to facilities.</li> <li>▪ Facilitate community participation in health and health-related activities.</li> <li>▪ Ensure improved access of pregnant women to antenatal care services.</li> <li>▪ Assess and provide health services to users based on standing orders.</li> </ul>
Junior Community Health Worker	<ul style="list-style-type: none"> <li>▪ Devote 80% of working time in the community to ensure access of community members to community-based services, and referral to facilities.</li> <li>▪ Assess and deliver essential services based on standing orders.</li> <li>▪ Ensure community participation in health and health-related activities.</li> <li>▪ Conduct home visits and follow-up of service users.</li> </ul>

**Source:** NPHCDA 2018

The entry requirement into nursing and midwifery programmes is five ordinary level credit passes (Mathematics, English Language, Physics, Chemistry and Biology) at not more than two sittings from the examination councils (West African Examination Council, National Examination Council, and National Business and Technical Examinations Board). Diploma programmes are provided by Colleges of Nursing and Midwifery and Schools of Nursing/ School of Midwifery. The diploma programmes are broadly categorized into basic and post-basic. Basic programmes include Basic Nursing with a three-year duration, Basic Midwifery with a three-year duration, and Community Midwifery with a two-year duration. Several post-basic programmes last from 18 months to two years in various specialist areas. Bachelors in nursing programmes are offered by accredited universities in the country. Nursing and midwifery practice in Nigeria is

regulated by the Nursing and Midwifery Council of Nigeria (Adegoke et al., 2013; NMCN, 2022).

The entry requirement for community health practitioner cadres varies. For junior community health extension workers that undergo a basic certificate programme, candidates must possess three credits (in English Language, Mathematics, and Biology) and two passes in any of the science subjects in West African Examinations Council Senior School Certificate examinations or General Certificate Examination. For community health extension workers and community health officers, entry into the program requires five credit level passes in West African Examinations Council Senior School Certificate examinations or General Certificate Examination in not more than two sittings (which must include English Language, Mathematics, Biology, Chemistry and Physics) (Adegoke et al., 2013; Couper et al., 2018; NPHCDA, 2018). Community health officers are usually trained at teaching hospitals under the Community Health Officers diploma programme for four years. Community health extension workers and junior community health extension workers are trained in Colleges of Health Technology for three years and 24 to 30 months respectively. Junior community health officers can transit to the community health extension worker cadre by undergoing an additional two years of training in designated Colleges of Health Technology (Couper et al., 2018; Nkwo, 2015; NPHCDA, 2018). The practice of community health practitioners is regulated by the Community Health Practitioners Registration Board of Nigeria.

### **1.3 PROBLEM STATEMENT**

As countries aim towards realizing UHC by 2030, the need to increase access to health workers have become imperative. This is based on evidence that health system's performance depends on the accessibility and even distribution of qualified and competent health workforce (WHO, 2006).

Numerous health workforce challenges persists and they contribute to the health indices in Africa (WHO, 2013). They include weak health governance, weak capacity to develop and implement human resources for health (HRH) plans, and optimally utilize the health workforce (Esu et al., 2021; Okoroafor et al., 2019; WHO, 2013). The impact is huge as

there exists a strong association between effective health system governance, optimized health worker performance and better-quality outcomes (WHO, 2007a).

Africa has a high deficit in the health workforce. This has hampered health care access and slowed the course of the attainment of desired key population outcomes (FMOH, 2014; Russo et al., 2019). The density of doctors, nurses and midwives per 1,000 population in 2018 is 1.55 and this is much lower than the SDG index threshold of 4.45 (WHO, 2021). The current level of investment in the production and management of the health workers is below the requirement to fill this gap. To cope with the marked shortage and inequitable distribution of health workers to provide services in in Africa, several countries promoted the adoption of task shifting and task sharing.

#### **1.4 PURPOSE OF THE STUDY**

Currently, there are ongoing deliberations in Africa on the need for a framework to guide operationalization of task shifting and task sharing as a key strategy for optimally utilizing the existing health workforce towards the achievement of UHC. Yet, there remains a lack of information on context-specific evidence to support this. This informs the need to generate evidence on task shifting and task sharing.

The study, therefore, sought to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa, and health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa, and to explore the perceptions on barriers and promoters of task shifting and task sharing in Nigeria. This evidence was applied in developing an implementation framework for task shifting and task sharing for policy and practice in Africa. The implementation framework illustrates the rationale and the role of a combination of factors in influencing the application of task shifting and task sharing in Africa towards achieving set national goals to improve access to health workers. Ultimately, this will contribute to the achievement of UHC and the SDGs.

## **1.5 RESEARCH AIM AND OBJECTIVES**

### **1.5.1 Research Aim and Objectives**

This study aimed to develop an implementation framework for task shifting and task sharing towards evidence-based optimization of health workers' roles for improved access to health services in Africa.

The specific objectives of the study were:

**Objective 1:** Synthesize evidence on rationale and scope of task shifting and task sharing in Africa.

**Objective 2:** Synthesize evidence on health professions education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa.

**Objective 3:** Explore the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria.

**Objective 4:** Develop an implementation framework for task shifting and task sharing for policy and practice in Africa.

### **1.5.2 Research Questions**

What task shifting and task sharing implementation framework can be developed to guide evidence-based optimization of health workers' roles for improved access to health services in Africa?

Research sub-questions:

**Question 1:** What are the documented rationales for task shifting and task sharing, and the scope of tasks shifted or shared to improve access of the population to health services in Africa?

**Question 2:** What health professions' education strategies have been applied to enhance capacities for task shifting and task sharing implementation in Africa?

**Question 3:** What are the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria?

**Question 4:** What framework can guide the implementation of task shifting and task sharing in Africa?

## **1.6 RESEARCH PARADIGM**

Pragmatism focuses on the problem and the application of every possible approach to understanding it (Creswell, 2014; Creswell & Creswell, 2017; Taguchi, 2018). Thus, it encourages innovation in methods of enquiry on reality based on various philosophical assumptions.

In this study, a pragmatic approach was taken by innovatively using evidence obtained to develop an implementation framework for task shifting and task sharing. This approach allowed the investigator to be flexible in the use of various methods to gain contextual information on the several dynamics and perspectives impacting the application of task shifting and task sharing. Thus, this study is not situated within any a priori theoretical framework.

## **1.7 RESEARCH DESIGN AND METHODOLOGY**

This study employed a sequential multimethod research design (Hunter & Brewer, 2015) whereby a study addresses individual research questions for a phase with the results of each study phase informing the subsequent phase(s) (Teddie & Tashakkori, 2011). There were four key phases before the dissemination of the study findings. In phase 1, a scoping review was conducted to generate needed evidence on rationale and scope of task shifting and task sharing in Africa (Chapter 3) and the health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa (Chapter 4) . In phase 2, a qualitative study exploring the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria was conducted (Chapter 5). Subsequently, evidence generated from the scoping review, and the qualitative explorative-descriptive study was used to inform the design and development of an implementation framework in phase 3 (Chapter 6). In phase 4, the subject matter experts, and policy makers reviewed the applicability of the framework in Africa (Chapter 6) and based on their feedback, the framework was finalized and disseminated. Table 2 presents a summary of the sequential multimethod approach employed in this study.

**Table 2: Summary of the sequential multimethod approach employed in this study**

Research method	Research objective addressed	Published/ submitted article
Phase 1: Scoping review	<b>Objective 1:</b> Synthesize evidence on rationale and scope of task shifting and task sharing in Africa.	Okoroafor, S. C. and Christmals, C. D. (2023). Task shifting and task sharing implementation in Africa: A scoping review on rationale and scope. Healthcare (under review)
	<b>Objective 2:</b> Synthesize evidence on health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa.	Okoroafor, S. C. and Christmals, C. D. (2023). Health professions education strategies for enhancing capacity for task shifting and task sharing implementation in Africa: a scoping review. The Journal of Continuing Education in the Health Professions (under review)
Phase 2: Qualitative study	<b>Objective 3:</b> Explore the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria.	Okoroafor, S. C. and Christmals, C. D. (2023). Barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria: qualitative perspectives of policy makers in Nigeria. Journal of Public Health Policy (under review)
Phases 3 and 4: Design and review an implementation framework	<b>Objective 4:</b> Develop an implementation framework for task shifting and task sharing for policy and practice in Africa.	Okoroafor, S. C. and Christmals, C. D. (2023). Optimizing the roles of health workers to improve access to health services in Africa: an implementation framework for task shifting and sharing for policy and practice. BMC Health Services Research (under review)

## **1.8 ETHICAL CONSIDERATIONS**

Adherence to ethical considerations, including ensuring safety of participants of a study, thorough explanation of aim, objectives, methods and potential benefits of a study, ensuring confidentiality and anonymity of study participants, and voluntary consent of participants to participate or withdraw from a study, are pertinent in research (Babbie, 2015; Polit & Beck, 2014).

To ensure adherence to contemporary ethical considerations in the conduct of this study, the protocol was reviewed and approved by the Health Professions Education (HPEd) Scientific Committee, (Annex A), the NWU Health Research Ethics Committee (NWU-HREC) with approval number NWU-00099-22-A1 (Annex B), and the Nigeria Federal Ministry of Health National Health Research Ethics Committee with approval number NHREC/01/01/2007-30/06/2022 (Annex C). Additionally, permission letters were obtained from the State Primary Health Care Development Agencies for Bauchi and Cross River States in Nigeria (Annex D), which was the setting of primary data collection for the qualitative component of the study. Details of the ethical considerations are provided in Chapter 2 on the research design and methodology and Chapter 5 on the qualitative study.

## **1.9 STRUCTURE OF THE THESIS**

This thesis follows the North-West University's "article format" submission guidelines. This format presents Chapters 3, 4, 5 and 6 as peer-reviewed articles for scientific journals. These chapters were written for the specific objectives and based on the author guideless of the targeted journals. In addition, these chapters detail the methodology and findings for each objective, and the article formats, reference styles, figures, and tables were based on the author guidelines for the journals.

**Chapter 1: Overview and introduction:** The chapter summarizes the health workforce context in Africa, outlines the importance of the health workforce and task shifting and task sharing in ensuring access of the population to health services, outlines the primary healthcare workforce in Nigeria and their health professions education, and defines the research problem addressed in the thesis, and the

objectives and research paradigm. The APA 7<sup>th</sup> edition intext-citation and referencing style was used, and the list of references are presented at the end of the chapter.

**Chapter 2: Research design and methodology:** This chapter outlines the research design and methodology employed in the study. The chapter consists of an introduction, research paradigm, research design and methodology for each phase, quality and rigor, ethical considerations and references. The APA 7<sup>th</sup> edition intext-citation and referencing style was used, and the list of references are presented.

**Chapter 3: Article 1: Task shifting and task sharing implementation in Africa: A scoping review on rationale and scope** - This article is accepted and published in [Healthcare](#) journal, with an impact factor of 3.160. It addressed the first objective. The chapter and its referencing are presented according to the journal guidelines, with adjustments made to follow the NWU guidelines and uphold consistency with the rest of the thesis.

**Chapter 4: Article 2: Health professions education strategies for enhancing capacity for task shifting and task sharing implementation in Africa: a scoping review** - This article has been accepted for publication in [The Journal of Continuing Education in the Health Professions](#), with an impact factor of 2.190. It addressed the second objective. The chapter and its referencing are presented according to the journal guidelines, with adjustments made to follow the NWU guidelines and uphold consistency with the rest of the thesis.

**Chapter 5: Article 3: Barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria: qualitative perspectives of policymakers** - This article under consideration for publication in [Journal of Public Health Policy](#), with an impact factor of 3.526. It addressed the third objective. The chapter and its referencing are presented according to the journal guidelines, with adjustments made to follow the NWU guidelines and uphold consistency with the rest of the thesis.

**Chapter 6: Article 4: Optimizing the roles of health workers to improve access to health services in Africa: an implementation framework for task shifting and sharing for policy and practice** - This article under consideration for publication in [BMC Health Services Research](#) journal, with an impact factor of 2.908. It addressed

the fourth objective. The chapter and its referencing are presented according to the journal guidelines, with adjustments made to follow the NWU guidelines and uphold consistency with the rest of the thesis.

**Chapter 7: Summary, conclusions, limitations and recommendations.** This final chapter offers an overall summary and the conclusions for all the chapters. The chapter also presents the limitations and recommendations for further research. The APA 7<sup>th</sup> edition intext-citation and referencing style was used.

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## **CHAPTER 2: RESEARCH DESIGN AND METHODOLOGY**

### **2.1 INTRODUCTION**

This chapter presents the detailed research methodology employed in this study, with Chapters 3, 4 5 and 6 providing a summary of the methodology by objective based on the author guidelines for the target journals. Specifically, this Chapter outlines the research paradigm, and describes the research design, quality and rigor, and ethical considerations for the phases of this study.

### **2.2. RESEARCH PARADIGM**

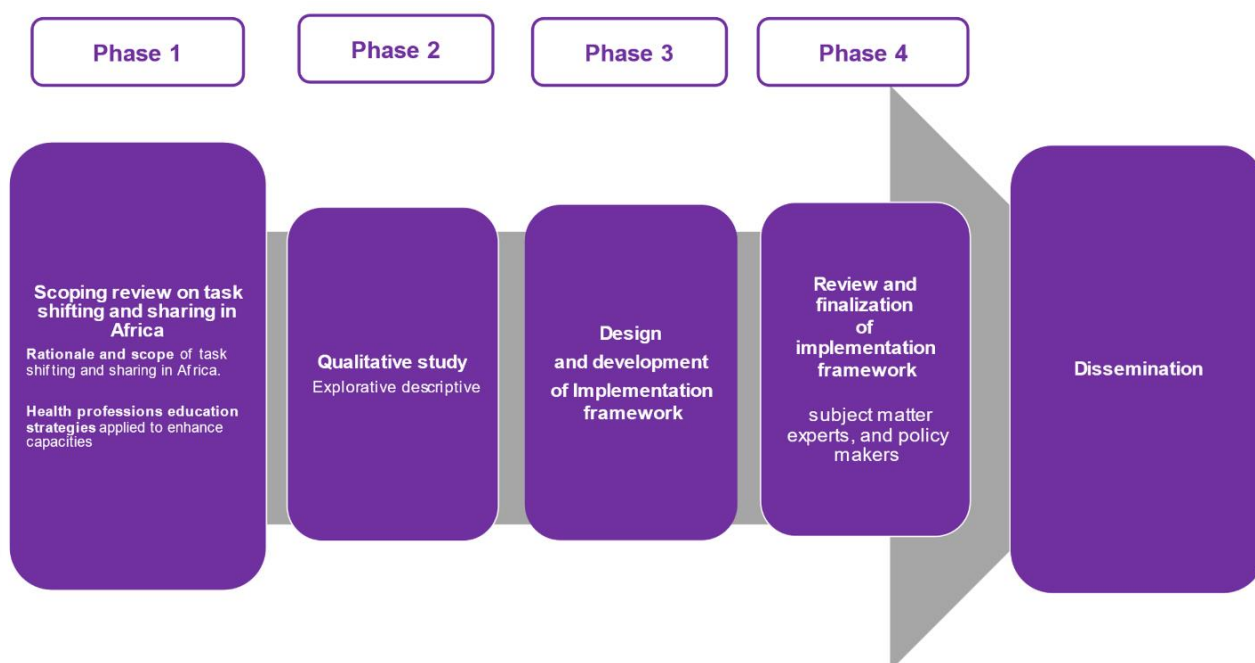
A well-performing health system that ensures improved access to integrated health services is dependent on complex interactions of various factors which are often contextual (WHO, 2000, 2017, 2018). Due to the nature of health systems, obtaining relevant evidence for policy and practice requires an approach where relevant variables are measured objectively, using scientific instruments (Parahoo, 2014), and subjectively based on constructed and re-constructed perceptions and interactions (Denscombe, 2009). Accordingly, a pragmatic research philosophy was adopted for this study.

Pragmatism focuses on the problem and the application of every possible approach to understanding it (Creswell, 2014; Creswell & Creswell, 2017; Taguchi, 2018). Thus, it encourages innovation in methods of enquiry on reality based on various philosophical assumptions.

In this study, a pragmatic approach was taken by innovatively using evidence obtained to develop an implementation framework for task shifting and task sharing. This approach allowed the investigator to be flexible in the use of several methods to gain contextual evidence on the several dynamics and perspectives impacting the implementation of task shifting and task sharing. Applying these methods was critical in achieving the set objectives.

## 2.3 RESEARCH DESIGN

A sequential multimethod research design, supported by a scoping review, and qualitative explorative descriptive study was employed in this study. There were four key phases before the dissemination of the study findings (Figure 1 and Table 1). In phase 1, two scoping reviews were conducted to generate needed evidence. The reviews synthesized evidence on the rationale and scope of task shifting and task sharing in Africa, and the health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa. In phase 2, a qualitative study exploring the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria was conducted. Subsequently, evidence generated from the scoping review, and the qualitative explorative-descriptive study were used to inform the design and development of an implementation framework (phase 3). In phase 4, subject matter experts and policy makers reviewed the applicability of the framework in Africa and, based on their feedback, the framework was finalized and disseminated.



**Figure 1: Phases of the study**

**Table 1: Research phases, objectives, methods, and outputs**

Phases	Objective	Research method	Population and sample	Data collection/data sources	Data analysis	Output
Phase 1	1. Synthesize evidence on rationale and scope of task shifting and task sharing in Africa.	Scoping review using enhanced Arksey and O'Malley's framework (Arksey and O'Malley 2005; Colquhoun et al. 2014)	Peer-reviewed papers from PubMed, Scopus and CINAHL on task shifting or sharing for integrated health service delivery. Studies were included if they were published from 2010 to 2021.	Key findings and recommendations were extracted from the articles obtained through the database searches Data was extracted onto an excel sheet.	Thematic analysis approach with review reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines Extension for Scoping Review reporting standard (Tessema et al., 2021; Tricco et al., 2016).	<b>Journal:</b> Healthcare <b>Title:</b> Task shifting and task sharing implementation in Africa: A scoping review on rationale and scope <b>Status:</b> Accepted and published
	2. Synthesize evidence on health professions education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa.					<b>Journal:</b> The Journal of Continuing Education in the Health Professions <b>Title:</b> Health professions education strategies for enhancing capacity for task shifting and task sharing implementation in Africa: a scoping review. The Journal of Continuing Education in the Health Professions <b>Status:</b> Accepted
Phase 2	3. Explore the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria.	Qualitative explorative descriptive study	A purposeful sample of policymakers was targeted in Bauchi and Cross River States of Nigeria.	Individual in-person interviews using a semi-structured interview guide.	Braun and Clark six-stage thematic analysis approach (Braun & Clarke, 2013; Vaismoradi et al., 2016) using Nvivo 12 Pro software.	<b>Journal:</b> Journal of Public Health Policy <b>Title:</b> Barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria: qualitative perspectives of policy makers in Nigeria <b>Status:</b> Under review
Phases 3 and 4	4. Develop an implementation framework for task shifting and task sharing for policy and practice in Africa.	Findings of objectives 1, 2, and 3 were synthesized into an implementation framework in phase 3, using the building blocks of implementation frameworks (Huybrechts et al. 2021).			Implementation framework was subjected to a rigorous review by subject matter experts, and policymakers in phase 4.	<b>Journal:</b> BMC Health Services Research <b>Title:</b> Optimizing the roles of health workers to improve access to health services in Africa: an implementation framework for task shifting and sharing for policy and practice <b>Status:</b> Under review

### 2.3.1 Phase 1: Scoping Review

This phase synthesized evidence on the rationale and scope of task shifting and task sharing in Africa, and health professions' education strategies applied to enhance health workers' capacities for task shifting and task sharing in Africa.

A scoping review was conducted using the enhanced Arksey and O'Malley's framework for scoping reviews (Arksey & O'Malley, 2005; Colquhoun et al., 2014). The scoping review was conducted in five steps: 1) identify research questions, 2) identify appropriate studies, 3) select relevant studies, 4) extract and chart data and 5) summarise and report results.

#### 2.3.1.1 Review questions

This scoping review focused on answering the following questions: (1) What are the documented rationales for task shifting and task sharing, and the scope of tasks shifted or shared to improve access of the population to health services in Africa? and (2) What health professions' education strategies have been applied to enhance health workers' capacities for task shifting and task sharing in Africa? In answering these questions, the Joanna Briggs Institute's population, concept, and context (PCC) framework presented in Table 2 was adopted.

**Table 2: Population, concept, and context (PCC) framework for the scoping review**

Criteria	Component(s)	Explanation
Population (P)	Population Health workforce	Everyone accessing health services. Healthcare workers such as physicians, nurses, midwives, and community health workers that are working as frontline contact in the healthcare system.
Concept (C)	Rationale Scope Health professions education	Usual reasons or the logical explanations for task shifting and task sharing. Extent or range of services that are task shifted or shared amongst various categories of health workers. Approved and organized trainings given to individuals to qualify as health professionals
Context (C)	Health care services	Health care services within essential service packages that are either sought or received by the population at any health care service delivery level in both public and private sectors.

Criteria	Component(s)	Explanation
	African countries	Any country within the African continent.

2.3.1.2 Identification of relevant studies

PubMed, Scopus and CINAHL bibliographic databases were searched by the investigator to obtain peer-reviewed papers. Quantitative, qualitative, and mixed-methods studies, as well as review and perspective papers on task shifting or sharing for integrated health service delivery were considered. To ensure that articles with the most recent information were obtained and included, studies published from 2010 to 2021 were included in the review.

2.3.1.3 Selection of studies

Following the above-described literature search by the researcher, duplicate papers were removed, and screening of potential papers was conducted by the investigator and the promoter independently. The titles were read for relevance, and titles that were not relevant to the study were excluded. A meeting was held between the investigator and the promoter to compare their decisions and a consensus was reached on conflicting decisions. Following the same process for inclusion of titles, the abstracts of the titles included were read by the investigator for their appropriateness to the review question. Afterwards, the full texts were reviewed by the investigator and promoter based on the review questions and the eligibility criteria for inclusion. Critical appraisal of the papers was not conducted as a part of the review as this is not a requirement for scoping reviews (Arksey & O'Malley, 2005). Mendeley reference manager was used in managing the studies retrieved.

2.3.1.4 Eligibility criteria for review

The papers that met the under listed criteria for inclusion were included in this review:

- i. Quantitative, qualitative, and mixed-methods studies on task shifting or sharing for integrated health service delivery in Africa
- ii. Review and perspective papers on task shifting or sharing for integrated health service delivery in Africa

- iii. Full text is written in the English language and is accessible
- iv. Published from 2010 to 2021

Papers were excluded if:

- i. Not written in English (Studies have shown that the exclusion of non - English papers does not impact negatively on findings of studies involving systematic review of the literature (Dobrescu et al., 2021; Morrison et al., 2012)
- ii. Full texts are not accessible
- iii. News articles, editorials, commentaries, and letters which did not involve primary data and did not provide insights into the rationale, scope and health professions education for task shifting and task sharing in Africa.

#### 2.3.1.5 Data charting

A data matrix was used to extract data from studies that met the inclusion criteria. A data matrix, informed by the Juana Briggs Institute Reviewer's Manual for Scoping Reviews (Peters et al., 2015; Tricco et al., 2016), was used to extract pertinent data on the author and year of publication, country name, study design, study setting and population. Others were the key findings on scope, rationale and health professions' education strategy, and the author-declared limitations of the study.

#### 2.3.1.6 Synthesis and reporting of results

This study applied the thematic analysis approach (Tessema et al., 2021; Tricco et al., 2016) to synthesize information and presented narrative descriptions of the extracted data based on rationale, scope, and health professions education strategies. The review was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Guidelines Extension for Scoping Review reporting standards (Tessema et al., 2021; Tricco et al., 2016).

### **2.3.2 Phase 2: Qualitative Explorative Descriptive Study**

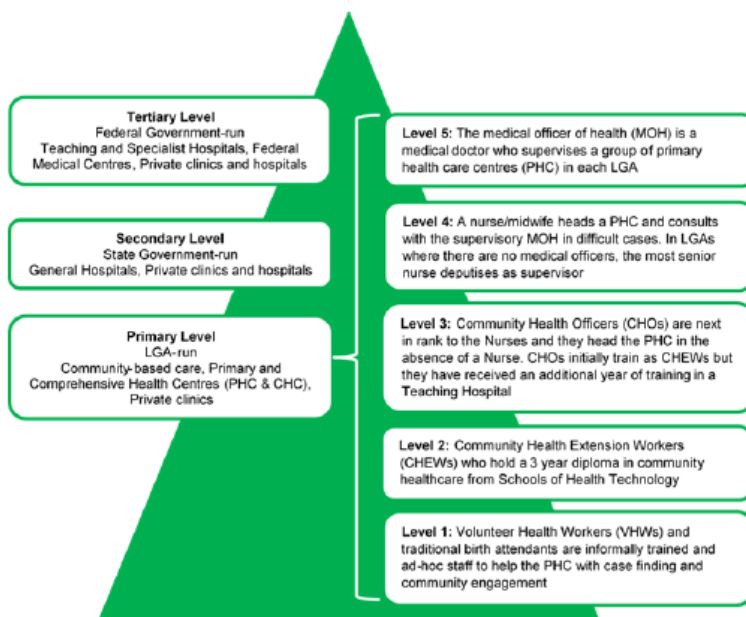
This phase employed an explorative descriptive research method using key informant interviews to collect data. The interviews aimed to explore perceptions of policymakers

on barriers and promoters of task shifting and sharing, and strategies for improving task shifting and task sharing implementation in Nigeria.

### 2.3.2.1 Study context

Nigeria is the most populous country in Africa, with a projected population of 210 million. The country is located in the western region, sharing boundaries with Benin, Niger, Cameroon and Chad. It has six geopolitical zones - North East, North West, North Central, South East, South West and South South, 36 States and the Federal Capital Territory (FCT), and 774 Local Government Areas (LGA) (FMOH, 2018a).

The healthcare system in Nigeria is pluralistic, with healthcare being provided by a mix of traditional and modern systems and public and private sectors (FMOH, 2018a). The three levels of government – Federal, State and LGA – have responsibilities in service delivery. Federal is responsible for the design and operationalization of national health policies and plans, the public-sector healthcare service delivery of tertiary and specialist health services, and coordination of sub-national public-sector healthcare primary service delivery (FMOH, 2018a). State government provides secondary health care services and coordinates public-sector healthcare primary service delivery at local levels in partnership with health development authorities at LGA level (FMOH, 2018a; NPHCDA, 2013).



**Figure 2: Nigeria's health care system structure (Source: FMOH, 2018)**

Primary health care centres (PHCC) are recognised as the entry into Nigeria's healthcare system. This level is staffed as presented in Figure 2 (FMOH, 2018a). Availability of resources in terms of staffing and scope of service delivery is informed by the level of investment and political will of the government (Abdulraheem et al., 2012; Okoroafor et al., 2019). As a result, this level of care often is insufficiently staffed to meet the health service delivery needs with few of the facilities having medical doctors (Aluko et al., 2019; Villar Uribe et al., 2018). This fosters the implementation of task shifting and task sharing as a measure to ensure improved access to integrated health services (FMOH, 2014, 2018b; Okoroafor et al., 2022; Okoroafor et al., 2021; Villar Uribe et al., 2018).

#### 2.3.2.2 Population and sample

The target population for this phase were policymakers in the ministries of health and primary health care agencies in Bauchi and Cross River States. This population group were selected because they have the responsibility of policy formulation and/or implementation of task shifting and sharing. Bauchi and Cross River States were purposively selected for this study because they adapted the National task shifting and task sharing policy and plan to sub-national policies and plans in 2015 and have been implementing it.

#### 2.3.2.3 Inclusion and exclusion criteria

##### *Inclusion:*

- I. Policymakers (irrespective of health worker category) who are fluent in English Language with the responsibility of policy formulation and/or implementation in Bauchi and Cross River States, and with two or more years' experience in the implementation of task-shifting and task-sharing were included in the study.

##### *Exclusion:*

- I. Policymakers who are not responsible for policy formulation and/or implementation in Bauchi and Cross River states or with less than two years' experience in the implementation of task-shifting and task-sharing, or who refused to participate were excluded from the study.

#### 2.3.2.4 Sampling process

Purposive and snowball sampling techniques (Parahoo, 2014) were applied in selecting a sample of policymakers in Bauchi and Cross River States. Applying purposive sampling enabled the investigator to recruit respondents that provided rich information and perspectives on barriers and enablers of task shifting and task sharing as well as provided recommendations for improving its implementation based on their experiences in policy formulation, planning and implementation. The purposeful sampling targeted stakeholders involved in policy formulation and/or implementation at sub-national levels. Twenty (20) policymakers (ten per State) were recruited in this phase.

#### 2.3.2.5 Recruitment and written informed consent

##### 2.3.2.5.1 *Advocating the intended research*

On receipt of ethical clearance from the North-West University Health Research Ethics Committee (NWU-HREC) (Annex B) and the National Health Research Ethics Committee (NHREC) of the Nigeria FMoH (Annex C), and permission letters from the leadership of the State Primary Health Care Development Agencies in Bauchi and Cross River States (Annex D), the investigator requested the Director General of the State Primary Health Care Development Agencies in Bauchi and Cross River States (the gate keepers) to share the information sheet with policymakers involved in the formulation and implementation of task shifting and sharing in the two states via email. Afterwards, the designated independent person engaged potential respondents that met the inclusion criteria via email. The email indicated that if they were interested in participating in the study, they should contact the independent person. Also, those who needed any clarifications were directed to contact the researcher or the promoter for such clarifications.

##### 2.3.2.5.2 *Mediator facilitated information session and obtaining informed consent*

The independent person shared an invitation letter with the information sheet form (Annex E), Ethics clearance (from NWU-HREC and NHREC), NWU-HREC stamped informed consent form (Annex F), and permission from the State with the potential respondents via email. The invitation letter contained the information of the investigator that the potential respondents could contact to seek clarity on any aspect of the study. Also, the letter

contained the contact details of the independent person that interested respondents could contact to initiate the informed consent process. The participants were asked to choose an appropriate time when the online informed consent could be signed in a presence of a witness of their choice. The consent form also included consent to audiotape the interviews.

After reviewing the documents and seeking clarification from the independent person, the interested potential respondents contacted the independent person to initiate the informed consent process. The independent person and researcher scheduled a meeting on WhatsApp with participants during which the participant signed the consent form, which was witnessed by their witness; they sent a scanned copy to the researcher who also signed in the presence of a witness and sent a scanned copy back to the participant.

#### 2.3.2.6 Research methods

##### 2.3.2.6.1 *Data collection instrument*

A semi-structured interview guide (Annex G) was used in collecting data on the perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation.

The guide was developed by the investigator who is a trained qualitative investigator and has experience in the design, conduct, analysis and reporting of qualitative studies. The semi-structured interview guide was reviewed by the promoter and three content and methodology experts in a small group review.

##### 2.3.2.6.2 *Data collection*

The investigator contacted the participants that returned signed informed consents to schedule key informant interviews with them at a conducive and convenient location of their choice. On the day of the interview, the investigator ensured all the COVID-19 protocols were followed. The investigator administered the semi-structured interview guide (Annex G) to respondents in-person and each interview lasted between 30 to 60 minutes. This interview approach allowed for flexibility, to some extent, for participants to elaborate on views and perceptions to reach qualitative data, which was analysed to

describe the phenomenon under study (Flick, 2017). After each question, the respondents were allowed ample time to provide responses. Based on the responses provided, the investigator probed to facilitate responses that answered the research question.

All interviews were conducted in English, and the information obtained were collected through two recognized qualitative data collection methods - field notes and audio records (Braun & Clarke, 2013). Interviewing was terminated after exceeding the targeted minimum number of 16 participants (eight per State) and data saturation was achieved.

#### *2.3.2.6.3 Data analysis*

The audio recorded qualitative information were transcribed verbatim and anonymized by the investigator. The data was thematic analysed (Vaismoradi et al., 2016) with the Nvivo 12 Pro software by the investigator. According to Braun and Clark, the six stages for thematic analysis are acquainting oneself with the data through transcription, reading and noting of early thoughts, producing initial codes for the full dataset, organizing the codes into initial themes, aligning the codes and the themes for the full dataset, producing definitions and descriptions for the themes, and creating a report of the analysis with clear and convincing extracts related to the objective and literature (Braun & Clarke, 2013).

In this study, the investigator and an independent person independently read through three randomly selected transcripts repeatedly to familiarize themselves with the information provided. The investigator and the independent person then inductively coded the three transcripts independently and organized a meeting to discuss the codes (Linneberg & Korsgaard, 2019). After reaching a consensus on the coding system, the investigator and the independent person then gave each participant a code so that all data is coded and quotes can be extracted using a code for a participant, and coded all the transcripts using the coding system. Similar codes were then gathered together into subthemes and described. Related subthemes were further clustered into a theme and described. The findings were presented in a paper describing the views of policymakers on implementing task shifting and task sharing in Nigeria.

The findings of the research were shared with the participants via email to confirm if the findings corresponded with the information they provided. Participants were asked to

respond to the email in affirmation or otherwise, providing details of the disparities, if any. The researcher then reconciled the findings with the disparities provided by the participants under the guidance of the promoter.

#### *2.3.2.6.4 Reimbursement for time*

Each participant was reimbursed with N2500, an equivalence of R100, for their time used in the planning for and participation in the interview.

### **2.3.3 Phases 3 and 4: Develop and Evaluate an Implementation Framework for Task Shifting and Task Sharing**

These phases sought to develop and evaluate an implementation framework for task shifting and task sharing for policy and practice in Africa.

#### *2.3.3.1 Approach*

There remains a gap between evidence from research and public health practice (Mwendera et al., 2017) that is contributing to the slow achievement of the SDGs. To fill this gap, the development of frameworks has been promoted to ensure that evidence is translated into practice to facilitate maximal utilization of health research in policy and practice by policymakers, rather than the current trend of using political ideologies (Behague et al., 2009; Black & Donald, 2001). Research-to-policy frameworks have been proposed to facilitate this process (Hanney et al., 2003), with considerations of contextual factors being key. Implementation frameworks are being promoted since they consider steps or process or stages of implementation, areas or levels of influence and the elements of factors/ determinants i.e., barriers and promoters of practice, strategies/approaches to mitigate the impact of the factors and implement the best practice, and evaluations/ assessment of impact.

The findings of the scoping reviews and the qualitative study were synthesized (Schick-Makaroff et al., 2016) and an implementation framework (Huybrechts et al., 2021; Nilsen, 2020; Okumus, 2001) was proposed in phase 3. The main phases are development, translation, and sustainment phases, and the main components are intended change, context, and implementation strategies (Huybrechts et al., 2021). This framework

illustrates the rationale and the role of a combination of factors (enablers and barriers) in influencing the implementation of task shifting and task sharing in Africa towards achieving set national goals to improve access to skilled and competent health workers.

Findings of the scoping review on Africa provided evidence on the contextual factors (scope, rationale and intended goal for task shifting and task sharing) in Africa. Evidence from the qualitative study provided insights on the barriers and promoters of practice, as well as strategies to enhancing task shifting and sharing implementation. The framework was subjected to expert review by a purposefully sampled group of experts on task shifting and sharing in Africa to gain the perspectives on its applicability in their context.

### 2.3.3.2 Expert evaluation of the framework

#### 2.3.3.2.1 *Population and sample*

The target population of this phase of the study included subject matter experts on task shifting and sharing in Africa (population group 1), and the policymakers (population group 2) interviewed in Nigeria during phase 2. The subject matter experts were purposefully selected based on the publications obtained during the scoping review process targeting about 30 experts. The subject matter experts were selected because they are knowledgeable on task shifting and sharing in Africa, whilst the policymakers (purposefully selected in phase 2) were selected because they provided insights that informed the development of the framework. Thus, their review and views on context, applicability and how the framework could be improved would ultimately enhance the framework.

#### 2.3.3.2.2 *Inclusion and exclusion criteria*

##### Inclusion:

- I. Population group 1: Subject matter experts on task shifting and sharing in Africa who are fluent in English Language and have published on task shifting and sharing in any country in Africa were included in the study.
- II. Population group 2: Policymakers (irrespective of health worker category) who are fluent in English Language with the responsibility of policy formulation and/or implementation in Bauchi and Cross River States, and with two or more years'

experience in the implementation of task-shifting and task-sharing were included in the study.

Exclusion:

- II. Population group 1: Subject matter experts in Africa who have not published on task shifting and sharing and those approached that refused to participate were excluded from the study.
- III. Population group 2: Policymakers who are not responsible for policy formulation and/or implementation in Bauchi and Cross River states or with less than two years' experience in the implementation of task-shifting and task-sharing or those who refused to participate were excluded from the study.

*2.3.3.2.3 Sampling process*

Thirty (30) subject matter experts were purposefully selected based on the publications obtained during the scoping review process. Ten policymakers who took part in phase 2 of the study were purposefully recruited and contacted directly by the investigator to take part in this phase of the study.

*2.3.3.2.4 Recruitment and written informed consent*

Advocating the intended research

Based on the ethical clearance from the NWU-HREC (Annex B) and the NHREC (Annex C), the investigator invited the expert reviewers via an online invitation letter which contained information on the study (Annex H, Section A). This preceded the online template and the participants accessed the template after they agreed to participate in the study.

Online information and consent dissemination

An online invitation was sent to the respondents that met the inclusion criteria. For the policy makers who took part in the interview, the emails used by the independent reviewer was used. For the subject matter experts, the emails used to correspond papers, which were included in the scoping review, were used in sending the invitation. Those who

agreed to participate in the study indicated their informed consent by clicking on a link that led to the review form.

#### 2.3.3.2.5 *Research methods*

##### Data instrument

A template to guide the evaluation of the framework study (Annex H, Section C) was uploaded into QuestionPro, an online survey tool (QuestionPro, 2022) to guide the respondents in the expert review process. The template was reviewed by experts in implementation research, and scholars in teaching and learning including the study promoter.

##### Data collection, synthesis and finalization

The reviewers that wished to proceed with completing the form were requested to click a link to a QuestionPro form to indicate their informed consent before completing the online template. The data collection process, using this approach, lasted for two weeks.

All completed forms were downloaded and securely kept in the investigator's password-protected laptop, where only the investigator had access to them during the study. After the study, they were transferred into a password-protected computer of the promoter in the Centre for Health Professions Education at North West University.

The completed templates were analysed by comparing suggestions and synthesizing the key themes into the implementation framework. Following the finalization of the framework it was dissemination.

## **2.4 QUALITY AND RIGOR OF THE RESEARCH**

### **2.4.1 Qualitative Explorative Descriptive Study**

Trustworthiness is the criterion for appraising quality (that is, the soundness and appropriateness of methodology and methods) in qualitative research (Holloway & Galvin, 2016). Trustworthiness, therefore, is reliant on the correctness of the methodology and approaches used in the collection, analysis and presentation of results in a study (Polit &

Beck, 2009). It is the qualitative equivalent for validity and reliability that is used to assess methodological quality in quantitative research. Polit and Beck (2009), suggest credibility, dependability, transferability, confirmability, and authenticity as the five criteria for assessing the trustworthiness of a qualitative study.

Credibility is the qualitative equivalent of the internal validity of quantitative research (Holloway & Galvin, 2016). It refers to the findings of a study being a true representation of interpretations of the phenomena within a specific context (Polit & Beck, 2009). Dependability corresponds to reliability, and it refers to how accurate and consistent the findings of a study are with the research process. Transferability, the equivalent of generalisability (external validity); is the degree to which results obtained within a particular context can be applied to other contexts. Confirmability equates to objectivity in qualitative research, and it has to do with providing proof that findings and interpretations are products of information collected from participants and not the investigator's preconceptions. Finally, authenticity refers to a study clearly and adequately presenting the interpretations and opinions of the participants (Holloway & Galvin, 2016; Polit & Beck, 2009). There are several measures (or strategies) for achieving trustworthiness. They include investigator(s) being credible and qualified, prolonged engagement in data collection, citing of excerpts, searching for negative cases and alternative perspectives, audiotaping and verbatim transcription, theoretically driven sampling, a saturation of data, reflexivity and thick description (Holloway & Galvin, 2016; Polit & Beck, 2009).

For the qualitative study, several measures were taken to achieve trustworthiness. The investigator and promoter were reflexive all through the research process and ensured that the findings presented were from collected data. Also, participants were asked to authenticate if the understandings of information gained from them fittingly denoted their views. To ensure dependability and credibility, the investigator used probes to clarify the interpretations drawn from information obtained from the participants.

Alternative perspectives were sought during the interviewing of the participants in this study through probing. The process followed in the conduct of the study was thoroughly described to meet the transferability, dependability, confirmability, and authenticity criteria

for trustworthiness. Details were provided on the study participants and design, and the processes followed in analysing collected data and the findings are reinforced by citing excerpts.

Other methods employed to achieve trustworthiness include prolonged engagement in data collection by the investigator, and audio taping and verbatim transcription; both of which are strategies for achieving credibility and authenticity (Polit & Beck, 2009). To ensure the trustworthiness of the verbatim descriptions, the investigator employed respondent validation in ensuring that excerpts and their description correctly depicted the views of the respondents.

Employing the above strategies allowed for the immersion of the investigator in the collected data and was necessary for proper data analysis (Holloway and Galvin 2016).

#### **2.4.2 Evaluation of Framework**

To ensure the validity of the template that guided the evaluation of the framework, it was reviewed by experts in implementation research and scholars in teaching and learning including the study promoter. Inputs from the experts was used to finalize the template.

### **2.5 ETHICAL CONSIDERATIONS**

#### **2.5.1 Ethical Approval**

Ethical approval to conduct this study was obtained from the NWU-HREC (Annex B) and NHREC (Annex C). For the qualitative study, permission to interview health workers in Bauchi and Cross River States was obtained from the State Primary Health Care Development Agency leadership (Annex D).

The rights of the participants in the qualitative research were protected in several ways. Before data collection, official permission was obtained from the leadership of the State Primary Health Care Development Agencies in Bauchi and Cross River States (Annex D). Following receipt of permission, the participants were briefed on the study details with those who met eligibility criteria and agreed to be interviewed signing an informed consent form (Annex F). The participants were also informed that privacy would be preserved by

not revealing any private information gained through the interviewing to a third party. The participants were informed that suggestions they offered that are relevant to the research, would be put in the final report in the form of quotes using pseudonyms so that the information cannot be traced back to them. Also, the interviews were conducted in private offices chosen by the participants that ensured privacy and at their preferred time.

## 2.5.2 Risks, Precautions, And Benefits

### 2.5.2.1 Risks and precautions

In identifying the likely risk level of the qualitative study that involved interviews, the NWU Risk level descriptors for human participants (NWU, 2022) were reviewed. This study posed a minimal/ low risk of harm (negligible risk). Probable sources of potential risks were identified with mitigation measures put in place to mitigate their impact (table 3).

**Table 3: Risks and precautions**

Possible risks	Precautions
Power relations	The investigator had no power relationship with the participants. Thus, the investigator was not able to influence the decisions of the participants to take part or otherwise.
Recordings The participants' voices will be recorded. The is the risk of the recordings being leaked.	In qualitative study, respondents were informed of the design to audio record sessions during the informed consent process with their consent obtained prior to the interviews commencing. Also, an explanation was provided on what would be done with the recordings. Specifically, the interview recordings were transcribed verbatim and deleted. Transcripts were stored in the investigator's briefcase and laptop respectively, and they were locked with codes. After the study, they were transferred into a password-protected computer of the promoter in the Centre for Health Professions Education at North West University.
Anonymity and confidentiality	In the qualitative study, the participants were informed that suggestions they offered that are relevant to the research, were included in the final report in the form of quotes using pseudonyms to ensure anonymity so that the information cannot be traced back to them.
Contact during the COVID-19 pandemic	All relevant COVID-19 protocols were maintained. The interviewer and participants wore masks during the course of the interviews, the venue of the interviews (private office) was spacious with windows open to ensure air circulation, and a physical distance of 2m was maintained. This precaution was taken in addition to the risk of contracting COVID -19 being minimal as the incidence of COVID-19 was very low in the two target states for the qualitative study.

#### 2.5.2.2 Benefits

Each participant was reimbursed with N2500, an equivalence of R100, for their time used in the planning for and participation in the interview.

#### 2.5.2.3 Risk/benefit ratio analysis

This study had a minimal risk threshold as there was no anticipated harm or discomfort to respondents beyond those they experienced in their daily life. The study did not elicit any sensitive information and measures were in place to protect the identities of the respondents.

On the other hand, the findings of the study are beneficial as it has the potential of improving the access of the community they serve to health services.

Based on these, the benefits of this study out-weigh its risks.

### **2.5.3 Data Management, Storage, and Destruction**

#### 2.5.3.1 Hard copy data

During this study, all data were kept safely by the investigator during fieldwork and subsequently under lock and key in the Centre for Health Professions Education where the promoter and investigator have access. All hard copies will be destroyed based on the NWU policy after five years. Soft copies were kept in a password protected computer during the study. After the study, they were transferred into a password-protected computer of the supervisor in the Centre for Health Professions Education.

#### 2.5.3.2 Electronic data

Interview transcripts, and scanned consent forms were stored in the investigator's laptop and an external hard drive, and they were locked with codes. After the study, they were transferred into a password-protected computer of the promoter in the Centre for Health Professions Education.

#### 2.5.4 Data Monitoring

The promoter was responsible for monitoring the quality and safekeeping of all data gathered during the research. The investigator reported to the promoter on the process of data gathering and safekeeping during and after each phase of the research. Data collected will be used for the purpose of this study only. The data was not shared with any third party except the study promoter and persons directly involved in the study.

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## CHAPTER 3: ARTICLE 1: TASK SHIFTING AND TASK SHARING IMPLEMENTATION IN AFRICA: A SCOPING REVIEW ON RATIONALE AND SCOPE

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The article was submitted to Healthcare and has been accepted and published. This chapter is presented according to the guidelines of the journal (available at <https://ejournal.undip.ac.id/index.php/medianers/about/submissions#authorGuidelines>).

Exceptions were, however, made in respect of margins, line-spacing, fonts and formatting of tables to conform with the guidelines of NWU and to ensure uniformity in thesis.

### **3.1 ABSTRACT**

Numerous studies have reported on task shifting and task sharing for various reasons and with varied scopes of health services either task shifted or shared. However, very few studies have mapped the evidence on task shifting and task sharing. We conducted a scoping review to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa. We identified peer-reviewed papers from PubMed, Scopus, CINAHL bibliographic databases. Studies that met the eligibility criteria were charted to document data on the rationale for task shifting and task sharing and the scope of tasks shifted or shared in Africa. The charted data were thematically analysed. Sixty-one studies met the eligibility criteria, with 53 providing insights on the rationale and scope of task shifting and task sharing, and seven on the scope and one on rationale respectively. The rationales for task shifting and task sharing were health worker shortages, optimally utilize existing health workers and to expand access to health services. The scope of health services shifted or shared in 23 countries were HIV/AIDS, tuberculosis, hypertension, diabetes, mental health, eyecare, maternal and child health, sexual and reproductive health, surgical care, medicines management and emergency care. Task shifting and task sharing are widely implemented in Africa across various health services contexts towards ensuring access to health services.

Keywords: task shifting, task sharing, rationale, scope, health service delivery, optimal utilization of health workers, access to health services.

### **3.2 INTRODUCTION**

Task shifting and task sharing are being implemented in several countries to utilize existing health workers efficiently to improve access to quality health services. Access of populations to quality healthcare is essential in achieving Universal Health Coverage (UHC) [1-3]. Task shifting is defined by the World Health Organization (WHO) as “the rational redistribution of tasks among health workforce teams” from trained and qualified health workers to other health workers with shorter training duration to maximize the available health workforce [2]. In task shifting, tasks are delegated or transferred, and in task sharing, tasks are delivered collaboratively by different staff categories [3]. This

approach is implemented in many countries globally including Africa where there remains a persistent health workforce shortage and deficient access to health care [4, 5].

Africa faces numerous health worker challenges that are contributing to the health systems performance of countries [6]. These challenges are also impacting negatively on the functionality and the resilience of the health system [7 8,], and the realisation of key population outcomes [9]. These challenges, which are quite broad and have contextual specificities, include weak health and health workforce leadership, governance and stewardship mechanisms, and management systems, as well as poor regulation, and evidence generation and use mechanisms [6, 10]. Furthermore, there is a persistent low stock of qualified and skilled health workers, inequitable distribution of existing ones, marked inequalities in education, employment and population needs, and poor work environments at levels of the system [6, 11].

The impact of the aforementioned challenges includes a high deficit in the health workforce in most countries. The Africa Regional average density of doctors, nurses and midwives per 1,000 population in 2018 was 1.55 which is lower than the SDG index threshold of 4.45 [4]. Coping with the persistent deficit, which has been ever-present over the years informed the implementation of task shifting and task sharing, formally and informally, in levels of service delivery and programmes. Its implementation varies widely with several countries currently implementing the approach and others planning to commence implementation. For those implementing, in the early stages of implementation or planning to commence implementation, evidence on circumstances that should inform its implementation and the scopes of tasks that could be task shifted or shared is pertinent.

Numerous studies have reported task shifting and task sharing due to various reasons and with varied scopes of health services either task shifted or shared. However, very few studies have mapped the evidence on task shifting and task sharing holistically with most focusing on specific programs [12-15]. It is worth reviewing the evidence of task shifting and task sharing for integrated health service delivery focusing on the rationale and scope

of tasks. Therefore, this scoping review aimed to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa.

### **3.3 MATERIALS AND METHODS**

This scoping review was conducted based on the enhanced Arksey and O'Malley's framework for scoping reviews [16, 17]. The review questions were: 1) What are the documented rationales for task shifting and task sharing, and 2) What scope of tasks were shifted or shared to improve access of the population to health services in Africa? To answer these questions, the Joanna Briggs Institute's population, concept, and context (PCC) framework, presented in Table 1, was adopted.

We identified relevant studies by applying the search strategy in Table 2 to obtain peer-reviewed papers from PubMed, Scopus and CINAHL. We considered quantitative, qualitative, and mixed-methods studies, as well as review and perspective papers on task shifting or sharing for integrated health service delivery. We considered articles published from 2010 to 2021 to obtain a wide range of contemporary information.

All articles obtained from the literature search, which was conducted independently by the authors, were downloaded into the Mendeley reference manager with duplicates removed. The titles and abstracts were screened independently by the authors with discrepancies discussed and a consensus reached. Afterwards, the full texts were reviewed according to the eligibility criteria. The inclusion criteria were: 1) quantitative, qualitative, and mixed-methods studies on task shifting or sharing for integrated health service delivery in Africa, 2) review and perspective papers on task shifting or sharing for integrated health service delivery in Africa, 3) full-text articles are written in the English language and is accessible, and 4) articles were published from 2010 to 2021. The exclusion criteria were: 1) papers were not written in English, 2) full texts were not accessible, and 3) papers were news articles, editorials, commentaries, and letters which did not involve primary data and did not provide insights into the rationale, scope and health professions education for task shifting and task sharing in Africa.

**Table 1: Population, concept, and context (PCC) framework for the scoping review**

Criteria	Component(s)	Explanation
Population (P)	Population	Everyone accessing health services.
	Health workforce	Healthcare workers such as physicians, nurses, midwives, and community health workers that are working as frontline contact in the healthcare system.
Concept (C)	Rationale	Usual reasons or the logical explanations for task shifting and task sharing. Extent or range of services that are task shifted or shared amongst various categories of health workers.
	Scope	
Context (C)	Health care services	Health care services within essential service packages that are either sought or received by the population at any health care service delivery level in both public and private sectors.
	African countries	Any country within the African continent.

The first author (SCO) used a data extraction matrix to extract information on the author and year of publication, country name, study design, study setting and population. Also extracted were the key findings on the rationale and scope of task shifting and task sharing, health service context and level of care. As had been done in other studies, we extracted text verbatim on themes, concepts, and categories relevant to the research questions [18, 19] into the extraction matrix for analysis using the thematic analysis approach. The second author randomly reviewed the charting for 50% of the studies with an agreement reached on the charting output.

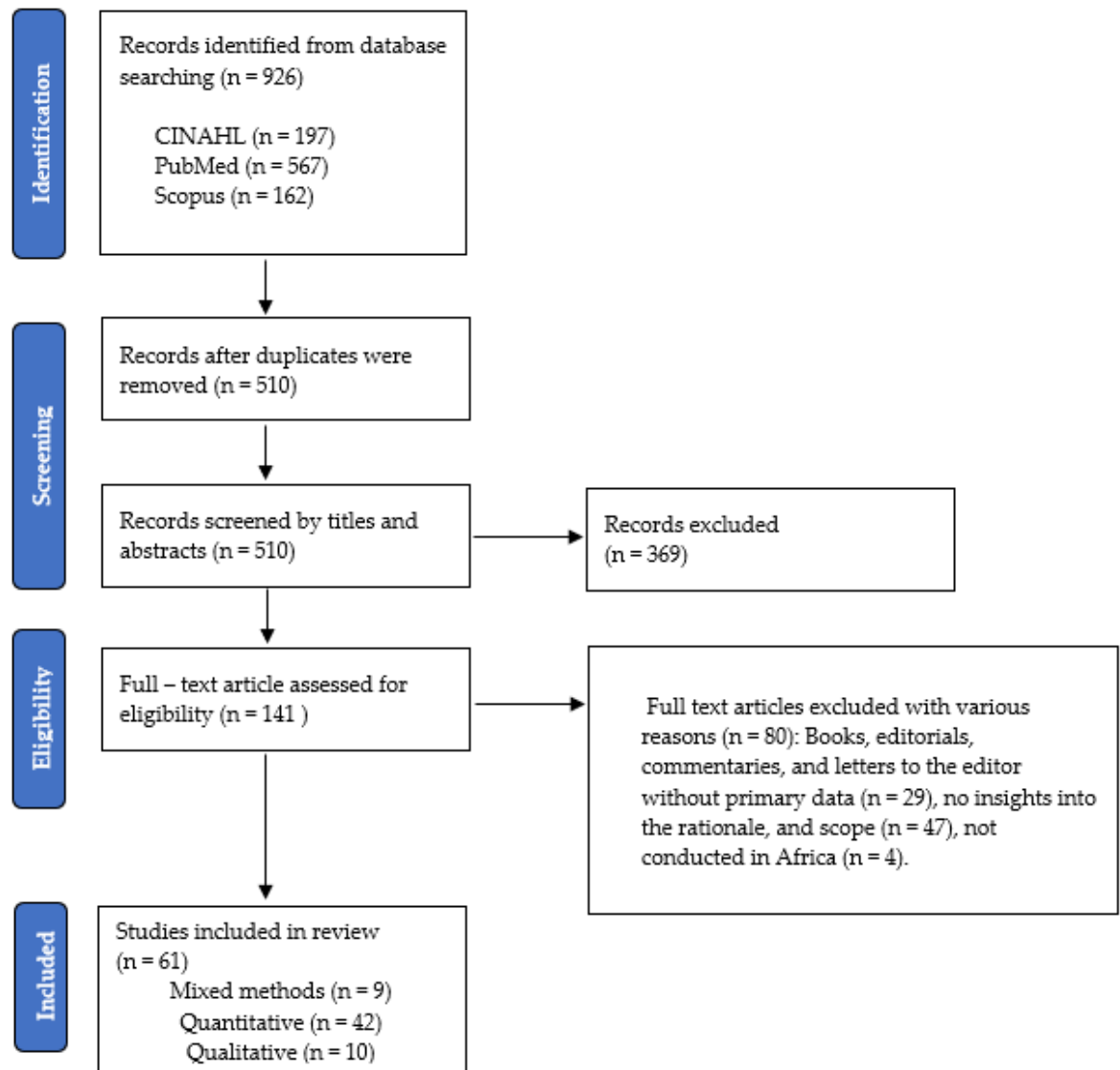
We analyzed the characteristics of the papers based on the extracts using descriptive statistics. We analyzed the qualitative content of the papers using thematic analysis [20, 21] with synthesized information described narratively based on information on the rationale, and scope of task shifting and task sharing in Africa. We reported the findings using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines Extension for Scoping Review reporting standards.

### **3.4 RESULTS**

#### **3.4.1 Description of Studies**

We identified 926 records from databases - CINAHL (n = 197), PubMed (n = 567) and Scopus (n = 162). After duplicates were removed, 510 records were screened by title and

abstract, from which 141 articles' full text were assessed for eligibility (Figure 1). Sixty-one original research papers were included in the final review with nine (15%) mixed methods studies, 42 (69%) quantitative, and 10 (16%) qualitative (Table 2). In all, 80 papers were excluded following full-text review with 29 being books, editorials, commentaries, and letters to the editor without primary data, 47 papers providing no insights on rationale and scope of task shifting and task sharing, and four not being conducted in Africa.



**Figure 1. PRISMA-ScR flow diagram**

**Table 2. Search strategy**

Source of literature	Task shifting/ sharing terms	Health system/ services terms	Africa terms
PubMed	"task shifting"[Title/Abstract] OR "task sharing"[Title/Abstract]) AND ("Africa"[Mesh]	"health system*" [tiab] OR "healthcare system*" [tiab] OR "health care system*" [tiab] OR "healthcare sector*" [tiab] OR "healthcare industr*" [tiab] OR "health industr*" [tiab] OR "health facilit*" [tiab] OR "hospital*" [tiab] OR "healthcare" [tiab] OR "health care" [tiab] OR "health service*" [tiab] OR "healthcare service*" [tiab] OR "health cent*" [tiab] OR "care, health" [tiab] OR "system, health care" [tiab] OR "systems, health care" [tiab] OR "system, healthcare" [tiab]	"Africa*[tiab] OR Algeria*[tiab] OR Angola*[tiab] OR Benin*[tiab] OR Botswana*[tiab] OR Burkina Faso [tiab] OR Burundi*[tiab] OR Cape Verde*[tiab] OR Cabo Verde [tiab] OR Cameroon*[tiab] OR Cameroon*[tiab] OR Chad*[tiab] OR Comoros*[tiab] OR Congo*[tiab] OR Cote d'Ivoire[tiab] OR Ivory coast [tiab] OR Djibouti*[tiab] OR Egypt*[tiab] OR Eritrea*[tiab] OR Ethiopia*[tiab] OR Gabon*[tiab] OR Gambia*[tiab] OR Ghana*[tiab] OR Guinea*[tiab] OR Kenya*[tiab] OR Lesotho*[tiab] OR Liberia*[tiab] OR Libya*[tiab] OR Madagascar*[tiab] OR Malawi*[tiab] OR Mali*[tiab] OR Maurit*[tiab] OR Morocc*[tiab] OR Mozambiqu*[tiab] OR Namibia*[tiab] OR Niger*[tiab] OR Rwanda*[tiab] OR Senegal*[tiab] OR Seychelles[tiab] OR Sierra Leone*[tiab] OR Somalia*[tiab] OR South Africa*[tiab] OR Sudan*[tiab] OR Swaziland*[tiab] OR Tanzania*[tiab] OR Togo*[tiab] OR Tunisia*[tiab] OR Uganda*[tiab] OR Zambia*[tiab] OR Zimbabwe*[tiab])"
CINHAL	TI "task shifting" OR AB "task shifting" OR TI "task sharing" OR AB "task sharing" OR MH "task shifting" OR MH "task sharing"	TI" health system*" OR AB "health system*" OR TI" healthcare system*" OR AB" healthcare system*" OR TI" health care system*" OR AB" health care system*" OR TI" healthcare sector*" OR AB" healthcare sector*" OR TI" health facilit*" OR AB" health facilit*" OR TI "hospital*" OR AB "hospital*" OR TI" healthcare" OR AB" healthcare" OR TI" health care" OR AB "health care" OR TI" health service*" OR AB" health service*" OR TI" healthcare service*" OR AB"	"MH Africa OR TI Africa* OR AB Africa* OR TI Algeria* OR AB Algeria* OR TI Angola*OR AB Angola* OR TI Benin*OR AB Benin* OR TI Botswana* OR AB Botswana OR TI "Burkina Faso*" OR AB "Burkina Faso*" OR TI Burundi* OR AB Burundi* OR TI "Cape Verde*" OR AB "Cape Verde*" OR TI Cameron* OR AB Cameron*OR TI Cameroon*OR AB Cameroon* OR TI Chad* OR AB chad* OR TI Comoros* OR AB Comoros* OR TI Congo* OR AB Congo* OR TI "Cote d'Ivoire" OR AB "Cote d'Ivoire" OR TI "Ivory coast" OR AB "Ivory coast" OR TI Djibouti* OR AB Djibouti* OR TI Egypt* OR AB Egypt* OR TI Eritrea* OR AB Eritrea* OR TI Ethiopia* OR AB Ethiopia* OR TI Gabon* OR AB Gabon* OR TI Gambia*OR AB Gambia* OR TI Ghana* OR AB Ghana OR TI Guinea* OR AB Guinea* OR TI Kenya* OR AB Kenya* OR TI Lesotho* OR Lesotho* OR TI Liberia* OR AB Liberia OR TI Libya* AB Libya* OR TI Madagascar* OR AB Madagascar* OR TI Malawi* OR AB Malawi* OR TI Mali* OR AB Mali* OR TI Maurit* OR AB Maurit* OR TI Morocc* OR AB Morocc* OR TI Mozambiqu* OR AB Mozambiqu*

Source of literature	Task shifting/ sharing terms	Health system/ services terms	Africa terms
		healthcare service*" OR TI" health cent*" OR AB" health cent*" OR TI" care, health" OR AB" care, health" OR TI "system, health care" OR AB "system, health care" OR TI "systems, health care" OR AB "systems, health care" OR TI "system, healthcare" OR TI "system, healthcare"	OR TI Namibia* OR AB Namibia* OR TI Niger* OR AB Niger* OR TI Rwanda* OR AB Rwanda* OR TI Senegal* OR AB Senegal* OR TI Seychelles* OR TI Seychelles* OR TI "Sierra Leone*" OR AB "Sierra Leone*" OR TI Somalia* OR AB Somalia" OR TI South Africa* OR AB South Africa* OR TI Sudan* OR AB Sudan* OR TI Swaziland* OR AB Swaziland* OR TI Tanzania* OR AB Tanzania* OR TI Togo* OR AB Togo* OR TI Tunisia* OR AB Tunisia OR TI Uganda* OR AB Uganda* OR TI Zambia* OR TI Zambia* OR TI Zimbabwe* OR AB Zimbabwe**
Scopus	"task shifting" OR "task sharing"	"health system*" OR "healthcare system*" [tiab] OR "health care system*" OR "healthcare sector*" OR "healthcare industr*" OR "health industr*" OR "health facilit*" OR "hospital*" OR "healthcare" OR "health care" OR "health service*" OR "healthcare service*" OR "health cent*" OR "care, health" OR "system, health care" OR "systems, health care" OR "system, healthcare"	"TITLE-ABS-KEY ( "Africa" OR "Algeria*" OR "Angola*" OR "Benin*" OR "Botswana*" OR "Burkina Faso" OR "Burundi*" OR "Cape Verde*" OR "Cabo Verde" OR "Cameron*" OR "Cameroon*" OR "Chad*" OR "Comoros*" OR "Congo*" OR "Cote d'Ivoire" OR "Ivory coast" OR "Djibou*" OR "Egypt*" OR "Eritrea*" OR "Ethiopia*" OR "Gabon*" OR "Gambia*" OR "Ghana*" OR "Guinea*" OR "Kenya*" OR "Lesotho*" OR "Liberia*" OR "Libya*" OR "Madagascar*" OR "Malawi*" OR "Mali*" OR "Maurit*" OR "Morocc*" OR "Mozambiqu*" OR "Namibia*" OR "Niger*" OR "Rwanda*" OR "Senegal*" OR "Seychelles" OR "Sierra Leone*" OR "Somalia*" OR "South Africa*" OR "Sudan*" OR "Swaziland*" OR "Tanzania*" OR "Togo*" OR "Tunisia*" OR "Uganda*" OR "Zambia*" OR "Zimbabwe*" )"

### **3.4.2 Characteristics of Studies**

The main characteristics of the included papers are presented in Table 3 with details in Table 4. The highest proportion of papers was published in 2017 (18%) with the lowest proportion published in 2019 (3%). Of the included papers, two were multi-country, and 22 were conducted in different countries in Africa. Thirteen percent (n=8) were conducted in Uganda, and 10% (n=6) were conducted in Ghana and Kenya. Eighty-seven percent (n=53) of the reviewed papers provided insights on the rationale and scope of task shifting and task sharing with 11% (n=7) providing insights on scope only, and 2% (n=1) on rationale only. Furthermore, 59% (n=36) studies reported task shifting and task sharing practices in the community and primary level of care with 3% (n=2) studies reporting practices at the tertiary level of care.

**Table 3. Main characteristics of included papers**

Paper characteristic	Categories	Results	
		n	%
Year of publication	2010	4	7
	2011	5	8
	2012	5	8
	2013	4	7
	2014	6	10
	2015	6	10
	2016	7	11
	2017	11	18
	2018	4	7
	2019	2	3
	2020	4	7
	2021	3	5
Country of study	Benin	1	2
	Botswana	1	2
	Burkina Faso	1	2
	Cameroon	3	5
	Democratic Republic of the Congo	1	2
	Eswatini	1	2
	Ethiopia	4	7
	Ghana	6	10
	Kenya	6	10
	Madagascar	1	2
	Malawi	5	8
	Mozambique	3	5
	Namibia	2	3
	Nigeria	4	7
	Senegal	1	2
	Sierra Leone	1	2
	South Africa	4	7
	Swaziland	1	2
	Tanzania	2	3
	Uganda	8	13
Zambia	2	3	
Zimbabwe	1	2	
Multi-country	2	3	
Type of article	Original research	61	100
Study design	Quantitative research	42	69
	Qualitative research	10	16
	Mixed methods	9	15
	Both	53	87
Main focus	Rationale	1	2
	Scope	7	11
	Both	53	87
Level of care	Community care level	8	13
	Primary care level	13	21
	Primary and community care level	15	25
	Secondary and primary care level	7	11
	Secondary care level	13	21
	Secondary, primary and community care level	2	3
	Tertiary care level	2	3
All levels	1	2	

### **3.4.3 Main Themes from The Included Studies**

#### **3.4.3.1 Rationale for task shifting and task sharing**

Fifty-four studies [22-74] included under this theme provided insights on the rationale for the implementation of task shifting and task sharing in Africa as presented in Table 5.

##### *3.4.3.1.1 Health worker shortages*

Forty studies [22-37] reported the rationale for task shifting and task sharing implementation to be due to a shortage of health workers. The cadres reported to be inadequate to inform task shifting and task sharing in the various countries included physicians [38-43], nurses [44-46], midwives [46], surgical specialists [47 48], eye care specialists [75, 76], pharmaceutical staff [49], emergency care practitioners [27], psychiatrists [50-53], psychologists [51], and pathologists [54]. Insights on the reported shortages were provided in four studies. A study in Malawi [22] stated that the shortage was prominent by the level of care and geographical location. Studies in Cameroun [41], Ethiopia [55] and Nigeria [56] reported that the shortage of physicians and nurses was more prominent in rural areas. Two Nigerian studies reported shortages being marked in the primary level of care [45, 77]. Further insight on the impact on health services delivery was provided in two Ugandan studies [57, 58]. These studies highlighted that the health worker shortage meant the high demand for health services could not be met adequately.

##### *3.4.3.1.2 Optimally utilize existing health workers*

Seven [22, 59-64] studies reported the rationale for task shifting and sharing implementation to include the need to optimally utilize the available human resources within a health service level to deliver health services. The study in Benin [59] implemented task shifting to expand the role of existing lay nurse aides to conduct counselling in maternal and newborn care. In a study conducted in Kenya [60], task shifting was implemented in HIV/AIDS care to optimally utilize existing health workers to improve outcomes with-out increasing resources. A Nigerian study [61] reported the implementation of task shifting to reduce the waiting time for accessing services from doctors by expanding the role of existing nurses. In Zambia [62], the rationale for implementing task shifting and sharing was to utilize existing peer educators in expanding

the delivery of health services. A study in Tanzania [63] reported a task shifting implementation in preventing mother to child transmission (PMTCT) service delivery to optimally utilize existing health workers by reducing nurses' workload and health system costs.

**Table 4: Details on study characteristics**

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
Bemelmans 2010	Malawi	Providing universal access to antiretroviral therapy in Thyolo, Malawi, through task shifting and decentralization of HIV/AIDS care	<b>Design</b> Cross-sectional study (descriptive) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> nurses to Health Surveillance Assistant (HSA) / lay counsellor, medical doctors, Clinical Officer, Medical Assistant, and nurses.	Rationale, Scope,	Secondary and primary care level
Kosgei 2010	Kenya	Task shifting in HIV clinics, Western Kenya	<b>Design</b> Cross-sectional study (descriptive) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Nurses and clinical officer.	Rationale, Scope	Primary care level
Labhardt 2010	Cameroon	Task shifting to non-physician clinicians for integrated management of hypertension and diabetes in rural Cameroon: a programme assessment at two years	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> People requiring hypertension and diabetes care <b>Health workers:</b> non-physician clinician (NPC) - nurses	Rationale, Scope	Primary care level
Selke 2010	Kenya	Task-Shifting of Antiretroviral Delivery From Health Care Workers to Persons Living With HIV/AIDS: Clinical Outcomes of a Community-Based Program in Kenya	<b>Design:</b> Prospective cluster randomized controlled clinical trial <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> People living with HIV/AIDS (PLWAs) as Community Care Coordinators (CCCs)	Scope,	Primary care level
De Wet 2011	South Africa	Exploring task-shifting practices in antiretroviral treatment facilities in the Free State Province, South Africa	<b>Design:</b> Prospective cluster randomized controlled clinical trial <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Nurses and community health workers - 'lay workers', 'community care workers', 'home-based carers', 'directly observed treatment (DOT) supporters', or 'lay counselors.	Rationale, Scope,	Primary care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
Chibanda 2011	Zimbabwe	Problem-solving therapy for depression and common mental disorders in Zimbabwe: piloting a task-shifting primary mental health care intervention in a population with a high prevalence of people living with HIV	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> General population with a high prevalence of people living with HIV <b>Health workers:</b> lay workers (health promoters)	Scope,	Primary care level
Gessesew 2011	Ethiopia	Task shifting and sharing in Tigray, Ethiopia, to achieve comprehensive emergency obstetric care	<b>Design:</b> Cross sectional study (retrospective review of hospital records) <b>Population:</b> Women of reproductive age receiving obstetric care <b>Health workers:</b> nonphysician clinicians (NPCs)	Scope,	Secondary and primary care level
Jennings 2011	Benin	Task shifting in maternal and newborn care: a non-inferiority study examining delegation of antenatal counseling to lay nurse aides supported by job aids in Benin	<b>Design:</b> Non-inferiority quasi-experimental design <b>Population:</b> Women of reproductive age receiving maternal and new-born health service <b>Health workers:</b> Nurse-midwives and lay nurse aides	Rationale, Scope,	Primary care level
Umar 2011	Nigeria	Reduction of client waiting time using task shifting in an anti-retroviral clinic at Specialist Hospital Bauchi, Nigeria	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Doctors and nurses	Rationale, Scope,	Secondary care level
Tweya 2012	Malawi	Task shifting in an antiretroviral clinic in Malawi: can health surveillance assistants manage patients safely?	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> health surveillance assistants (HSAs)	Rationale, Scope,	Primary care level
Hoke 2012	Madagascar		<b>Design:</b> Cross-sectional study (implementation)		

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		Community-based provision of injectable contraceptives in Madagascar: 'task shifting' to expand access to injectable contraceptives	<b>Population:</b> Women of reproductive age requiring contraceptives <b>Health workers:</b> Community-based distribution (CBD) agents/ community health workers	Rationale, Scope,	Community care level
Born 2012	Zambia	Evaluation of a task-shifting strategy involving peer educators in HIV care and treatment clinics in Lusaka, Zambia	<b>Design</b> Cross-sectional mixed method study <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> peer educators (PEs).	Rationale, Scope, c	Community care level
Dambisya 2012	Uganda	Policy and programmatic implications of task shifting in Uganda: a case study	<b>Design:</b> Cross sectional, Qualitative descriptive study <b>Population:</b> general population, PLWHA etc <b>Health workers:</b> Clinical officers, nurses, midwives, and CHWs	Rationale, Scope,	Secondary, primary and community care level
Mafigiri 2012	Uganda	Task shifting for tuberculosis control: A qualitative study of community-based directly observed therapy in urban Uganda	<b>Design</b> Cross-sectional mixed methods study <b>Population:</b> People living receiving TB care <b>Health workers:</b> laypersons	Rationale, Scope,	Community care level
Kiweewa 2013	Uganda	Noninferiority of a task-shifting HIV care and treatment model using peer counselors and nurses among Ugandan women initiated on ART: evidence from a randomized trial	<b>Design:</b> Prospective randomized intervention trial study <b>Population:</b> Women on ART <b>Health workers:</b> peer counselors and nurses	Rationale, Scope,	Secondary care level
Boullé 2013	Cameroon	Task shifting HIV care in rural district hospitals in Cameroon	<b>Design</b> cohort study <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Nurses	Rationale, Scope,	secondary care level
Ledikwe 2013	Botswana	Evaluation of a Well-Established Task-Shifting Initiative: The Lay Counselor Cadre in Botswana	<b>Design:</b> Cross sectional multi-method study <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Lay Counselors	Rationale, Scope,	Primary and community care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
Galukande 2013	Uganda	Use of surgical task shifting to scale up essential surgical services: a feasibility analysis at facility level in Uganda	<b>Design:</b> Cross sectional qualitative study <b>Population:</b> General population <b>Health workers:</b> surgical specialists	Rationale, Scope	Secondary care level
Baine 2014	Uganda	A scoping study on task shifting; the case of Uganda	<b>Design:</b> Cross sectional qualitative study <b>Population:</b> General population <b>Health workers:</b> Clinical officers, nurses	Rationale, Scope,	Secondary, primary and community care levels
Asfaw 2014	Ethiopia	Patient satisfaction with task shifting of antiretroviral services in Ethiopia: implications for universal health coverage	<b>Design:</b> Cross sectional study <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Health officers and nurses	Scope	Secondary, and primary care level
Paul 2014	Uganda	Barriers and facilitators in the provision of post-abortion care at district level in central Uganda – a qualitative study focusing on task sharing between physicians and midwives	<b>Design:</b> Cross sectional qualitative study <b>Population:</b> Women of reproductive health <b>Health workers:</b> midwives	Rationale, Scope	Secondary care level
O'Malley 2014	Namibia	Nurse Task Shifting for Antiretroviral Treatment Services in Namibia: Implementation Research to Move Evidence into Action	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Nurses	Rationale, Scope,	Secondary, and primary care level
Andriamanjato 2014	Madagascar, Malawi and Rwanda	Task shifting in primary eye care: how sensitive and specific are common signs and symptoms to predict conditions requiring referral to specialist eye personnel?	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> General population <b>Health workers:</b> general primary health care (PHC) workers -ophthalmic clinical officers	Rationale, Scope,	Secondary care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
Elijah 2014	Kenya, Malawi and Tanzania	Task shifting for cataract surgery in eastern Africa: productivity and attrition of non-physician cataract surgeons in Kenya, Malawi and Tanzania	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> General population <b>Health workers:</b> non-physician cataract surgeons	Rationale, Scope,	Secondary care level
Wiedenmayer 2015	Tanzania	The reality of task shifting in medicines management- a case study from Tanzania	<b>Design:</b> cross-sectional study <b>Population:</b> General population. <b>Health workers:</b> Nurses and medical attendants	Rationale, Scope,	Secondary, and primary care level
Mwangala 2015	Zambia	Task-Shifting and Quality of HIV Testing Services: Experiences from a National Reference Hospital in Zambia	<b>Design:</b> Cross sectional qualitative study <b>Population:</b> General population. <b>Health workers:</b> lay counselors, nurses and laboratory personnel	Rationale, Scope,	Secondary care level
Suzan-Monti 2015	Cameroon	Benefits of task-shifting HIV care to nurses in terms of health-related quality of life in patients initiating antiretroviral therapy in rural district hospitals in Cameroon	<b>Design:</b> Cross-sectional study (implementation) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Nurses	Rationale, Scope	Secondary care level
Chamberlain 2015	Uganda	Mortality Related to Acute Illness and Injury in Rural Uganda: Task Shifting to Improve Outcomes	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> General population. <b>Health workers:</b> Nurses	Rationale, Scope,	Secondary care level
Charyeva 2015	Nigeria	Task Shifting Provision of Contraceptive Implants to Community Health Extension Workers: Results of Operations Research in Northern Nigeria	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Women of reproductive age <b>Health workers:</b> Community Health Extension Workers	Rationale, Scope,	Community care level
Agyapon 2015	Ghana	Task shifting Ghana's community mental health workers' experiences	<b>Design:</b> Cross-sectional study <b>Population:</b> General population.	Rationale, Scope	Community care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		and perceptions of their roles and scope of practice	<b>Health workers:</b> community mental health workers - community psychiatric nurses (CPNs), clinical psychiatric officers (CPOs), and community mental health officers (CMHOs).		
Akeju 2016	Nigeria	Human resource constraints and the prospect of task-sharing among community health workers for the detection of early signs of pre-eclampsia in Ogun State, Nigeria	<b>Design:</b> Cross-sectional qualitative study <b>Population:</b> Women of reproductive age <b>Health workers:</b> Community Health Extension Workers (CHEW)	Rationale, Scope,	Primary care level
Wright 2016	Malawi	Building capacity for community mental health care in rural Malawi: Findings from a district-wide task-sharing intervention with village-based health workers	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> General population <b>Health workers:</b> village-based health workers	Rationale, Scope	Primary and community care level
Gueye 2016	Senegal	Mentoring, Task Sharing, and Community Outreach through the TutoratPlus Approach: Increasing Use of Long-Acting Reversible Contraceptives in Senegal	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Women of reproductive age <b>Health workers:</b> nurses, nonclinical family planning counselors, and community health workers	Rationale, Scope,	Primary and community care level
Dos Santos 2016	Mozambique	Overview of the mental health system in Mozambique: addressing the treatment gap with a task-shifting strategy in primary care	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> General population <b>Health workers:</b> Psychiatric Technicians	Rationale, Scope,	Primary and community care level
Agyapong 2016a	Ghana	Improving Ghana's mental healthcare through task-shifting- psychiatrists and health policy directors' perceptions about	<b>Design:</b> Cross-sectional study (mixed methods) <b>Population:</b> General population <b>Health workers:</b> community mental health workers - Community Mental Health Officers (CMHOs), Clinical	Rationale, Scope	Primary and community care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		government's commitment and the role of community mental health workers	Psychiatric Officers (CPOs) and Clinical Psychiatric Nurses (CPNs).		
Some 2016	Kenya	Task Shifting the Management of Non- Communicable Diseases to Nurses in Kibera, Kenya: Does It Work?	<b>Design:</b> Cross-sectional study (descriptive retrospective) <b>Population:</b> General population <b>Health workers:</b> nurses	Rationale, Scope,	Primary care level
Agyapong 2016b	Ghana	Task shifting perception of stake holders about adequacy of training and supervision for community mental health workers in Ghana	<b>Design:</b> Cross-sectional study (mixed methods) <b>Population:</b> General population <b>Health workers:</b> community mental health workers - Community Mental Health Officers (CMHOs), Clinical Psychiatric Officers (CPOs) and Clinical Psychiatric Nurses (CPNs).	Rationale, Scope	Primary and community care level
Landes 2017	Malawi	Task shifting of triage to peer expert informal care providers at a tertiary referral HIV clinic in Malawi: a cross-sectional operational evaluation	<b>Design</b> Cross-sectional study (implementation) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> lay health cadre of expert patients (EPs)	Rationale, Scope,	Tertiary care level
Okyere 2017	Ghana	Is task-shifting a solution to the health workers' shortage in Northern Ghana?	<b>Design:</b> Cross-sectional study (qualitative) <b>Population:</b> General population <b>Health workers:</b> Medical Assistants (MA), midwives, General Registered, Nurses (GRN), Enrolled Nurses (EN), Community Health Officers (CHO), Disease Control, Officers (DCO), Psychiatric Nurses (PN), optometrist and health nurse aides	Rationale	All levels
Tilahun 2017	Ethiopia	Improving Contraceptive Access, Use, and Method Mix by Task Sharing Implanon Insertion to Frontline Health Workers: The	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Women of reproductive age <b>Health workers:</b> Health Extension Workers	Rationale, Scope,	Primary and community care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		Experience of the Integrated Family Health Program in Ethiopia			
Bolkan 2017	Sierra Leone	Safety, productivity and predicted contribution of a surgical task-sharing programme in Sierra Leone	<b>Design:</b> Prospective observational study <b>Population:</b> General population <b>Health workers:</b> Associate clinicians/ community health officers (CHOs) and junior doctors	Rationale, Scope,	Secondary care level
Farley 2017	South Africa	Evaluation of a nurse practitioner-physician task-sharing model for multidrug-resistant tuberculosis in South Africa	<b>Design:</b> Prospective cohort study <b>Population:</b> People with Multidrug-resistant tuberculosis <b>Health workers:</b> clinical nurse practitioner (CNP) and a medical officer (MO).	Rationale, Scope	Secondary care level
Lulebo 2017	Democratic Republic of the Congo	Task shifting in the management of hypertension in Kinshasa, Democratic Republic of Congo: a cross-sectional study	<b>Design:</b> Cross-sectional study <b>Population:</b> People with hypertension <b>Health workers:</b> Nurses	Rationale, Scope	Primary care level
Gyamfi 2017	Ghana	Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study	<b>Design:</b> Mixed methods study <b>Population:</b> People with hypertension <b>Health workers:</b> Community health nurses (CHNs) and enrolled nurses (ENs)	Rationale, Scope,	Secondary, and primary care level
Dlamini-Simelane 2017	Swaziland	Task shifting or shifting care practices? The impact of task shifting on patients' experiences and health care arrangements in Swaziland	<b>Design:</b> Cross Sectional (qualitative - ethnographic) study <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Lay counsellors and nurses	Rationale, Scope	Primary and community care level
Kaandjee-Tjituka 2017	Namibia	Task-shifting point-of-care CD4+ testing to lay health workers in HIV	<b>Design:</b> Cross-sectional study <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> Lay health workers and nurses	Rationale, Scope,	Primary and community care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		care and treatment services in Namibia			
Naburi 2017	Tanzania	The potential of task-shifting in scaling up services for prevention of mother-to-child transmission of HIV: a time and motion study in Dar es Salaam, Tanzania	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> community health workers (CHWs) and nurses	Rationale, Scope	Primary and community care level
Naikoba 2017	Uganda	Improved HIV and TB Knowledge and Competence Among Mid-level Providers in a Cluster-Randomized Trial of One-on-One Mentorship for Task Shifting	<b>Design:</b> Cluster-randomized trial <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> mid-level providers (MLPs) - clinical officers, registered nurses, and registered midwives	Rationale, Scope,	Secondary and primary care level
Marotta 2018	Mozambique	Pathways of care for HIV infected children in Beira, Mozambique: pre-post intervention study to assess impact of task shifting	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> People living with HIV/AIDS <b>Health workers:</b> maternal and child nurses	Rationale, Scope	Primary and community care level
Davis 2018	Malawi	Task shifting levonorgestrel implant insertion to community midwife assistants in Malawi: results from a non-inferiority evaluation	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Women of reproductive age requiring contraceptives <b>Health workers:</b> Community Midwife Assistants (CMAs)	Rationale, Scope,	Primary and community care level
Awolude 2018	Nigeria	Screen and Triage by Community Extension Workers to Facilitate Screen and Treat: Task-Sharing Strategy to Achieve Universal Coverage for Cervical Cancer Screening in Nigeria	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Women of reproductive age <b>Health workers:</b> CHEWs and CHOs	Rationale, Scope,	Primary care level
Sayed 2018	Kenya	Task Sharing and Shifting to Provide Pathology Diagnostic	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> General population	Rationale, Scope,	Tertiary care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		Services: The Kenya Fine-Needle Aspiration Biopsy Cytology and Bone Marrow Aspiration and Trepine Biopsy Training Program	<b>Health workers:</b> Pathologists, Medical officers (MO), clinical officers (CO), and technologists		
Millogo 2019	Burkina Faso	Task sharing for family planning services, Burkina Faso	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Women of reproductive age requiring contraceptives <b>Health workers:</b> Community health workers (CHWs), auxiliary nurses and auxiliary midwives	Rationale, Scope,	Primary and community care level
Tariku 2019	Ethiopia	Surgical Task Shifting Helps Reduce Neonatal Mortality in Ethiopia: A Retrospective Cohort Study	<b>Design:</b> Retrospective Cohort Study <b>Population:</b> Women of reproductive age requiring contraceptives <b>Health workers:</b> Nonphysician surgeons (NPS)	Rationale, Scope	Secondary care level
Wall 2020	Kenya	What about lay counselors' experiences of task-shifting mental health interventions? Example from a family-based intervention in Kenya	<b>Design:</b> Cross-sectional study (mixed methods) <b>Population:</b> General population <b>Health workers:</b> lay counselors	Scope	Community care level
Gbagbo 2020	Ghana	Increasing access to intrauterine contraceptive device uptake in Ghana: stakeholders views on task sharing service delivery with community health nurses	<b>Design:</b> Cross-sectional qualitative study <b>Population:</b> Women of reproductive age requiring contraceptives <b>Health workers:</b> community health nurses	Rationale, Scope,	Community care level
Peresu 2020	Eswatini	Task-shifting directly observed treatment and multidrug-resistant tuberculosis injection administration to lay health	<b>Design:</b> Mixed methods study - cross sectional survey and qualitative study <b>Population:</b> People with tuberculosis <b>Health workers:</b> lay health workers (LHWs)/ community treatment supporter (CTS).	Rationale, Scope,	Community care level

First author (year)	Country	Study title	Study design and population	Study focus	Level of care
		workers: stakeholder perceptions in rural Eswatini			
Lund 2020	South Africa	Task-sharing of psychological treatment for antenatal depression in Khayelitsha, South Africa: Effects on antenatal and postnatal outcomes in an individual randomised controlled trial	<b>Design:</b> Randomised controlled trial <b>Population:</b> Women of reproductive age <b>Health workers:</b> non-specialist community health workers	Rationale, Scope,	Primary and community care level
Sevene 2021	Mozambique	Feasibility of task-sharing with community health workers for the identification, emergency management and referral of women with pre-eclampsia, in Mozambique	<b>Design:</b> Mixed methods study <b>Population:</b> Pregnant women <b>Health workers:</b> community health workers	Rationale, Scope	Primary and community care level
Jacobs 2021	South Africa	Task Sharing or Task Dumping: Counsellors Experiences of Delivering a Psychosocial Intervention for Mental Health Problems in South Africa	<b>Design:</b> Cross-sectional qualitative study <b>Population:</b> General population <b>Health workers:</b> non-specialist - facility-based counsellors (FBCs) -specific cadre of community health workers trained to deliver health promotion and HIV adherence counselling services.	Scope	Primary care level
Yator 2021	Kenya	Task-sharing and piloting WHO group interpersonal psychotherapy (IPT-G) for adolescent mothers living with HIV in Nairobi primary health care centers: a process paper	<b>Design:</b> Cross-sectional study (intervention) <b>Population:</b> Postpartum Adolescent (PPA) mothers living with HIV <b>Health workers:</b> Community Health Workers (CHWs)	Scope,	Primary care level

#### 3.4.3.1.3 *Expand access to health services*

Twelve [22] studies reported the rationale for task shifting and sharing implementation to be to ensure increased access to health services at other levels of care and geographical locations, specifically, rural areas. The countries where an expansion of health services to other levels of care was reported include Ghana, Kenya, Madagascar, Malawi, Namibia, Swaziland and Uganda. A study in Ghana [68] reported the implementation of task sharing to expand the service delivery of hypertension management and control to lower levels of care. In Kenya [45], the rationale for implementing task shifting was to increase access to non-communicable diseases (NCD) services (hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell) in primary health care settings. Another study in Kenya [74] reported implementing task shifting to improve access to mental health interventions at the community level. A study in Madagascar [66] reported that task shifting of the provision of contraceptives was implemented to expand access of community members through community health workers. A study in Malawi [67] reported task shifting of primary mental health care to the community level to improve access of community members. In a Namibian study [73], task shifting was implemented to scale-up point of care CD4+ testing in HIV counselling and testing settings in public health facilities. A study in Swaziland [72] reported the implementation of task sharing to decentralize antiretroviral therapy (ART) provision to improve access. A Ugandan study [71] reported the implementation of task shifting for tuberculosis to improve access of community members to directly observed treatment short-course (DOTS).

Studies from Cameroon, Eswatini, Ethiopia and Senegal reported the implementation of task shifting and task sharing to expand health services to rural areas. In a study conducted in Cameroon [65], task shifting was implemented to increase access of the rural population to adequate hypertension and diabetes care. A study in Eswatini [35] reported the implementation of task shifting tuberculosis management to improve access in rural areas. A study in Ethiopia [69] reported the task sharing implementation to improve access to family planning in rural areas. In a study in Senegal [70], task sharing to increase the use of long-acting reversible contraceptives was done to improve access to family planning in rural areas.

### 3.4.3.2 Scope of shifted and shared tasks

Sixty reviewed studies reported a range of tasks that were either task shifted or task shared in various health services contexts in Africa (Table 5).

#### 3.4.3.2.1 *HIV/AIDS care*

Twenty-three studies reported task shifting and task sharing of HIV/AIDS services as shown in Table 5. The HIV/AIDS service areas reported included HIV counselling and testing, ART, PMTCT, and care and support. Task shifting and sharing of HIV counselling and testing were reported in studies in Botswana [24], Malawi [22], Namibia [73], Swaziland [72] and Zambia [26]. The beneficiary cadres included laypersons [24], Health Surveillance Assistants (HSA) / lay counsellors [22, 26,72], nurses [26, 73], and laboratory personnel [26]. ART related task shifting and sharing were reported in Cameroun [41], Ethiopia [78], Kenya [60] and Malawi [22, 44], with beneficiary cadres including nurses [22, 41, 60, 78], health officers [78], clinical officers [22, 60], medical assistants [22], and health surveillance assistants (HSAs) [44]. The task shifting and task sharing of care and support services by community health workers [79], people living with HIV/AIDS (PLWAs) as community care coordinators [80], lay persons [29], maternal and child nurses [64] and peer educators [62] was reported in Kenya [79, 80], Malawi [29], Mozambique [64] and Zambia [62].

**Table 5. Summary of key findings on rationale and scope of task shifting and task sharing in reviewed studies**

First author (year)	Country	Health services context	Key findings
Bemelmans 2010	Malawi	Access to HIV/AIDS care	<b>Rationale:</b> Staff shortages in the levels of care and by location. <b>Scope:</b> HIV testing and counselling from nurses to Health Surveillance Assistant (HSA) / lay counsellor, antiretroviral therapy (ART) initiations from medical doctors to non-physician clinicians - clinical officer, medical assistant and nurse
Kosgei 2010	Kenya	Access to HIV/AIDS care	<b>Rationale:</b> Scarcity of health care providers and the need to improve patient outcomes without increasing clinic human resources. <b>Scope:</b> ART care
Labhardt 2010	Cameroon	Access to care for hypertension and type 2 diabetes care	<b>Rationale:</b> Majority of the rural population does not have access to adequate hypertension and diabetes care. <b>Scope:</b> Hypertension and diabetes care
Selke 2010	Kenya	Access to HIV/AIDS care	<b>Scope:</b> Delivery of medications and provision of follow-up care to patients on ART in the community with support of an electronic decision tool, and 3 monthly visits to facilities as against the usual monthly visit.
De Wet 2011	South Africa	Access to HIV/AIDS care	<b>Rationale:</b> Shortage of health workers (physicians and nurses). <b>Scope:</b> Task shifting from nurses to community health workers for HIV treatment and care. - HIV counselling, drug readiness training, distribution of nutritional supplements, and capturing and updating electronic information.
Chibanda 2011	Zimbabwe	Access to mental health intervention/ services	<b>Scope:</b> Depression and other common mental disorders (CMD) - screening and monitoring CMD and in delivering the intervention
Gessesew 2011	Ethiopia	Access to comprehensive obstetric care	<b>Rationale:</b> Shortage of physicians in rural areas. <b>Scope:</b> Comprehensive emergency obstetric care (CEmOC)
Jennings 2011	Benin	Access to maternal and newborn health services	<b>Rationale:</b> Need to expand the role of lay nurse aides. <b>Scope:</b> Counselling in maternal and newborn care.
Umar 2011	Nigeria	Access to HIV/AIDS care	<b>Rationale:</b> Long waiting time of HIV/AIDS patients in the clinic due to the high workload on available doctors. <b>Scope:</b> Consultation for HIV patients presenting for routine refill and follow-up visits
Tweya 2012	Malawi	Access to HIV/AIDS care	<b>Rationale:</b> Shortage of clinicians and nurses. <b>Scope:</b> Provision of antiretroviral therapy (ART) to stable patients.

First author (year)	Country	Health services context	Key findings
Hoke 2012	Madagascar	Access to injectable contraceptives	<b>Rationale</b> Lack of access to health facilities. <b>Scope:</b> Injection (re-injection) and counselling of patients.
Born 2012	Zambia	Access to HIV/AIDS care	<b>Rationale:</b> Rapid expansion of antiretroviral therapy (ART) using existing health workers. <b>Scope:</b> Provision of counselling, education talks, and adherence support to patients in HIV care.
Dambisya 2012	Uganda	Access to HIV/AIDS care, maternal and child health, general health care etc.	<b>Rationale:</b> Severe health worker shortage and a high demand for health care services. <b>Scope:</b> Community health workers (CHW) and PLWHA in care and support of AIDS patients, ophthalmic clinical officers conduct cataract surgery, psychiatric clinical officers cover the same scope as the psychiatrists, but are more community-oriented than the psychiatrists who tend to be mainly hospital based, nurses set IV lines in upcountry due to lack of physicians, midwives conduct manual vacuum extraction, manual removal of the placenta and manual vacuum aspiration due to shortage of doctors, CHWs and community members involved in delivery of expanded programme on immunization (EPI) services etc.
Mafigiri 2012	Uganda	Access to TB care	<b>Rationale:</b> To address barriers to successful DOTS in rural areas. <b>Scope:</b> Directly observed treatment short-course (DOTS)
Kiweewa 2013	Uganda	Access to HIV/AIDS care	<b>Rationale</b> Shortage of physicians. <b>Scope:</b> ART follow-up care to postpartum women
Boullé 2013	Cameroon	Access to HIV/AIDS care	<b>Rationale</b> Shortage of physicians
Ledikwe 2013	Botswana	Access to HIV/AIDS care	<b>Rationale:</b> Shortage of health workers. <b>Scope:</b> HIV tests and related counselling at public health facilities
Galukande 2013	Uganda	Access to surgical services	<b>Rationale:</b> Shortage and maldistribution of surgical specialists. <b>Scope:</b> Emergency and essential surgical care
Baine 2014	Uganda	Access to health services	<b>Rationale:</b> Shortage of health workers in Uganda. <b>Scope:</b> Surgical care, Sexual and reproductive health, HIV/AIDS, tuberculosis DOTS therapy.
Asfaw 2014	Ethiopia	Access to HIV/AIDS care	<b>Scope:</b> Antiretroviral therapy
Paul 2014	Uganda	Access to post abortion care	<b>Rationale</b> Absence of physicians. <b>Scope:</b> Post-abortion care
O'Malley 2014	Namibia	Access to HIV/AIDS care	<b>Rationale:</b> Shortage of physicians. <b>Scope:</b> Antiretroviral Treatment Services

First author (year)	Country	Health services context	Key findings
Andriamanjato 2014	Madagascar, Malawi and Rwanda	Access to eye care	<b>Rationale:</b> shortage of health workers trained in eye care. <b>Scope:</b> Primary eye care
Elijah 2014	Kenya, Malawi and Tanzania	Access to eye care	<b>Rationale:</b> shortage and maldistribution of ophthalmologists. <b>Scope:</b> Cataract surgery
Wiedenmayer 2015	Tanzania	Access to medicines	<b>Rationale:</b> Severe shortage of pharmaceutical staff. <b>Scope:</b> Pharmaceutical management
Mwangala 2015	Zambia	Access to HIV testing	<b>Rationale:</b> Shortage of human resources. <b>Scope:</b> HIV testing services
Suzan-Monti 2015	Cameroon	Access to HIV/AIDS care	<b>Rationale:</b> Shortage of physicians in rural areas. <b>Scope:</b> Initiating antiretroviral therapy (ART)
Chamberlain 2015	Uganda	Access to emergency care services	<b>Rationale:</b> Critical shortages of acute care and healthcare workers in resource-limited settings. <b>Scope:</b> Emergency care services in a rural setting
Charyeva 2015	Nigeria	Access to Contraceptive Implants	<b>Rationale:</b> Severe shortage of human resources. <b>Scope:</b> Provision of Contraceptive Implants
Agyapon 2015	Ghana	Access to mental health services	<b>Rationale:</b> Inadequate numbers of psychiatrists. <b>Scope:</b> Mental health care
Akeju 2016	Nigeria	Access to maternal health services	<b>Rationale:</b> non-availability of health personnel at primary health care level. <b>Scope:</b> detection of early signs of pre-eclampsia
Wright 2016	Malawi	Access to mental health services	<b>Rationale:</b> Improve access to primary mental health care. <b>Scope:</b> Primary mental health care
Gueye 2016	Senegal	Access to family planning services	<b>Rationale:</b> To improve access to family planning in rural areas and improve contraceptive prevalence. <b>Scope:</b> Provision of family planning services - long-acting reversible contraceptives (LARC), specifically implants and the intrauterine device.
Dos Santos 2016	Mozambique	Access to mental health services	<b>Rationale:</b> To expand access to primary mental health care due to low numbers of psychiatrists and psychologists <b>Scope:</b> Delivery of psychiatric care
Agyapong 2016a	Ghana	Access to mental health services	<b>Rationale:</b> Expand mental health care delivery due to shortage of psychiatrists.

First author (year)	Country	Health services context	Key findings
			<b>Scope:</b> CPNs and CMHOs are responsible primarily for case detection in the community, referral of patients to CPOs and Psychiatrists. CPOs are responsible for diagnosing and treating a range of common psychiatric conditions
Some 2016	Kenya	Access to non-communicable diseases (NCDs) care	<b>Rationale:</b> Shortage of health workers in primary level of care and need to increase access to NCD care in primary health care settings. <b>Scope:</b> Management of NCDs (hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell)
Agyapong 2016b	Ghana	Access to mental health services	<b>Rationale:</b> Shortage of psychiatrists. <b>Scope:</b> Case detection and referral, and diagnosis and treatment of common psychiatric conditions.
Landes 2017	Malawi	Access to HIV/AIDS care	<b>Rationale:</b> Shortage of health workers <b>Scope:</b> Triaging of HIV/AIDS patients
Okyere 2017	Ghana		<b>Rationale:</b> Insufficient health workers.
Tilahun 2017	Ethiopia	Access to family planning services	<b>Rationale:</b> To improve access to family planning in rural areas and improve contraceptive prevalence. <b>Scope:</b> Provision of long - acting contraceptive (implanon) family planning services.
Bolkan 2017	Sierra Leone	Access to emergency surgical care	<b>Rationale:</b> Shortage of surgical providers. <b>Scope</b> Surgical and obstetric emergencies
Farley 2017	South Africa	Access to TB treatment services	<b>Rationale:</b> Shortages of medical officers to implement decentralization of MDR-TB treatment service to outpatient settings/ lower level health facilities. <b>Scope:</b> Multidrug-resistant tuberculosis (MDR-TB) treatment
Lulebo 2017	Democratic Republic of the Congo	Access to hypertension management services	<b>Rationale</b> Shortage of health workers. <b>Scope</b> Hypertension management
Gyamfi 2017	Ghana	Access to hypertension management services	<b>Rationale:</b> To expand service delivery to lower levels. <b>Scope:</b> Hypertension management and control
Dlamini-Simelane 2017	Swaziland	Access to HIV/AIDS care	<b>Rationale:</b> Decentralized ART provision to improve access. <b>Scope</b> HIV counselling by lay counsellors (predominantly PLHIV), initiation of patients on ART by nurses
Kaindjee-Tjituka 2017	Namibia	Access to CD4+ testing	<b>Rationale</b> Roll-out and scale-up of POC CD4+ testing in HCT settings in public health facilities.

First author (year)	Country	Health services context	Key findings
			<b>Scope:</b> Point-of-care (POC) CD4+ testing
Naburi 2017	Tanzania	Access to HIV/AIDS care - PMTCT services	<b>Rationale:</b> reduce nurses' workload and health system costs. <b>Scope:</b> prevention of mother-to-child transmission of HIV (PMTCT) service delivery
Naikoba 2017	Uganda	Access to HIV/AIDS and TB services	<b>Rationale:</b> Health worker shortages. <b>Scope:</b> HIV care and treatment
Marotta 2018	Mozambique	Access to HIV/AIDS services for children < 5 years	<b>Rationale:</b> To improve ART initiation and retention of HIV infected children. <b>Scope:</b> Care for HIV positive children < 5 years old
Davis 2018	Malawi	Access to Contraceptive Implants	<b>Rationale:</b> Shortage of nurses/ midwives. <b>Scope:</b> Long-acting reversible contraception (LARC) insertion (levonorgestrel (LNG) contraceptive implants)
Awolude 2018	Nigeria	Access to cervical cancer screenings	<b>Rationale:</b> Shortage of doctors and nurses in rural areas. <b>Scope:</b> Screen for cervical cancer using visual inspection with acetic acid
Sayed 2018	Kenya	Access to cancer screenings	<b>Rationale:</b> Scarcity of pathologists in Kenya. <b>Scope:</b> Fine-Needle Aspiration Biopsy Cytology and Bone Marrow Aspiration and Trepine Biopsy
Millogo 2019	Burkina Faso	Access to contraceptives	<b>Rationale</b> Shortage of qualified health staff <b>Scope:</b> Community health workers (CHWs) to offer oral and injectable contraceptives to new users, auxiliary nurses and auxiliary midwives to provide implants and intrauterine devices.
Tariku 2019	Ethiopia	Access to Contraceptives	<b>Rationale:</b> Shortage of physicians, improve access to surgical service and to reduce neonatal mortality. <b>Scope:</b> Caesarean section
Wall 2020	Kenya	Access to mental health services	<b>Rationale:</b> Improve access at community level. <b>Scope:</b> Community - based family therapy mental health interventions
Gbagbo 2020	Ghana	Access to intrauterine contraceptive device	<b>Rationale:</b> addressing persistent human resource shortage. <b>Scope:</b> intrauterine contraceptive device
Peresu 2020	Eswatini	Access to multidrug-resistant tuberculosis (MDR-TB) treatment in rural areas	<b>Rationale:</b> Shortage of human resources for health (HRH) and limited access to multidrug-resistant tuberculosis (MDR-TB) treatment in rural areas <b>Scope:</b> directly observed treatment (DOT) supervision and administration of intramuscular MDR-TB injections
Lund 2020	South Africa	Access to mental health services	<b>Rationale</b> Dearth of mental health professionals. <b>Scope:</b> Psychological treatment for perinatal depression

First author (year)	Country	Health services context	Key findings
Sevene 2021	Mozambique	Access to hypertension services	<b>Rationale:</b> Delays in reaching health facilities and insufficient health care professionals <b>Scope:</b> Initial screening and initiation of obstetric emergency care for pre-eclampsia/eclampsia
Jacobs 2021	South Africa	Access to mental health services	<b>Scope:</b> Mental health counselling
Yator 2021	Kenya	Access to HIV/AIDS care	<b>Scope:</b> interpersonal psychotherapy (IPT-G) for adolescent mothers living with HIV

#### 3.4.3.2.2 *Hypertension management*

Five studies reported task shifting and task sharing in the management of hypertension. A study conducted in Cameroun [65] reported a task shifting of integrated management of hypertension to non-physician clinicians (nurses) in a rural setting to improve access to care for hypertension. In Kenya [45], NCD service delivery, including hypertension, was task shifted to nurses in primary health care settings. In a Democratic Republic of Congo (DRC) study [31], hypertension management was task shifted to nurses. In a Ghanaian study [68], hypertension management was task shifted to community health nurses (CHNs) and enrolled nurses (ENs). The study conducted in Mozambique [37] reported screening and initiation of obstetric emergency care for pre-eclampsia/eclampsia was task shifted to community health workers.

#### 3.4.3.2.3 *Diabetes management*

Two studies reported task shifting and task sharing in diabetes management. The first study from Cameroun [65] reported a task shifting of integrated management diabetes to nurses in a rural setting to improve access to type 2 diabetes care. The second study that was conducted in Kenya [45], reported task shifting of task shifted NCD services including for diabetes mellitus to nurses in primary health care settings.

#### 3.4.3.2.4 *Mental health*

Ten studies conducted in eight countries reported the scope of shifted or shared tasks to be within the delivery of mental health services domain. Three studies in Ghana [50, 52, 53] reported the task shifting of mental health care to community mental health workers. A study in Malawi [67] reported task shifting of primary mental health care at the community level to village-based health workers. In a study conducted in Zimbabwe [82], delivery of depression and other common mental disorders (CMD) services, specifically screening and monitoring CMD and delivery of interventions, were task shifted to lay workers. The study in Ugandan study [57] reported task shifting and sharing practices to include psychiatric clinical officers covering the same scope as the psychiatrists. A study in Mozambique [51] reported task shifting of delivery of psychiatric care to psychiatric technicians due to low numbers of psychiatrists and psychologists. A study in Kenya [74] reported implementing task shifting of community-based family therapy mental health interventions to lay counsellors. A study in South Africa [36] reported task shifting of treatment for perinatal depression to non-

specialist community health workers. Another study in South Africa [82] reported task sharing of mental health counselling to non-specialist facility-based counsellors (FBCs).

#### 3.4.3.2.5 *Maternal and child health care*

In six studies from four countries, maternal and child health services were either task shifted or task shared. The study in Benin [59] implemented task shifting to expand the role of existing lay nurse aides to conduct counselling in maternal and newborn care. A study in Ethiopia [55] reported the task shifting of comprehensive emergency obstetric care (CEmOC) to nonphysician clinicians (NPCs). In another study in Ethiopia [43], task shifting of the conduct of the caesarian section to Non-physician surgeons (NPS) was reported. In a study in Nigeria [77], detection of early signs of pre-eclampsia was re-ported to be task shifted, albeit informally, to community health extension workers. The study in Uganda [57] reported task shifting and task sharing practices to include midwives conducting manual vacuum extraction, removal of the placenta and vacuum aspiration due to a shortage of doctors. Another study in Uganda [39] highlighted that due to the absence of physicians in certain locations, midwives were often the main providers of post abortion care services.

#### 3.4.3.2.6 *Sexual and Reproductive health services*

Eight reviewed studies from seven countries reported the task shifting or task sharing of sexual and reproductive health services. A study in Burkina Faso [33] reported task shifting of provision of oral and injectable contraceptives to community health workers, and implants and intrauterine devices to auxiliary midwives and nurses. A study in Ethiopia [69] reported the implementation task sharing of the provision of long-acting contraceptive (Implanon) family planning services to health extension workers. A study in Ghana [34] reported the implementation task sharing of the provision of an intrauterine contraceptive device to community health nurses. A study in Madagascar [66] task shifted the provision of injectable contraceptives and counselling of patients to community health workers. In a study in Malawi [46], task shifting of long-acting reversible contraception (LARC) insertion was done to community midwife assistants (CMAs). In a study in Nigeria [28], the provision of contraceptive implants was task shifted to community health extension workers. Another Nigerian study [56] reported the task shifting of the screening for cervical cancer using visual inspection with acetic acid to community health officers and community health extension workers. In a study in Senegal [70], task sharing of long-acting reversible contraceptives (LARC), specifically implants and the intrauterine device, was implemented for nurses, non-clinical family planning counsellors, and community health workers.

#### 3.4.3.2.7 *Eye care*

Task shifting of eye care services was reported in three studies conducted in six countries. A study in Uganda [57] reported task shifting and sharing practices to include ophthalmic clinical officers conducting cataract surgery. A study [75] in Madagascar, Malawi and Rwanda reported task shifting of primary eye care service delivery to general primary health care (PHC) workers (ophthalmic clinical officers). A multi-country study [76] in Kenya, Malawi and Tanzania also reported task shifting of cataract surgery to non-physician cataract surgeons.

#### 3.4.3.2.8 *Tuberculosis care*

The task shifting of tuberculosis-related care was reported in three studies. A Ugandan study reported the task shifting directly observed treatment short-course (DOTS) to lay-persons [71] and nurses [25]. A study in South Africa [42] reported the task sharing of multidrug-resistant tuberculosis (MDR-TB) management between clinical nurse practitioners (CNPs) and medical officers (MO). A study in Eswatini [35] reported the task shifting of directly observed treatment (DOT) supervision and administration of intramuscular MDR-TB injections to community treatment supporters (CTS) to improve access in rural areas.

#### 3.4.3.2.9 *Surgical care and procedures*

For surgical care and procedures, three studies provided insights into task shifting and sharing practices. A study in Uganda [47] that explored surgical task shifting practices from surgical specialists to non-specialist physicians reported that the practice was already in place. A study in Sierra Leone [48] reported the implementation task sharing of surgical and obstetric emergencies to associate clinicians/ community health officers (CHOs) and junior doctors. In a Kenyan study [54], the conduct of Fine-Needle Aspiration Biopsy Cytology, and Bone Marrow Aspiration and Trepine Biopsy was shared by pathologists, medical officers (MO), clinical officers (CO), and technologists.

#### 3.4.3.2.10 *Medicines management*

One study from Tanzania [49] reported task shifting of pharmaceutical management to nurses and medical attendants. This was reported to be because of the shortage of pharmaceutical personnel in the country which impacts negatively on service provision, especially in rural areas.

#### 3.4.3.2.11 *Emergency care*

One study reported task shifting of emergency care-related services. A study from Uganda [27] reported task shifting of acute care for emergency services in a rural setting to nurses.

This was pertinent as 84% of the country's population living in rural areas who require access to emergency care.

### **3.5 DISCUSSION**

This scoping review synthesized evidence on the rationale for task shifting and task sharing in Africa. The reported rationales in the reviewed papers were health worker shortages, to optimally utilize existing health workers and to expand access to health services.

The health worker shortages were reported to be prominent by the level of care and geographical location, especially in rural areas. The finding on the dearth of health workers matches the reported global shortage of health workers, which is projected at 10 million by 2030 [83] and is more prominent in Africa [84] and rural and remote areas [85]. The implementation of task shifting and task sharing to cope with this is consistent in the literature. The suboptimal funding of public health [86], including service delivery and its impact on the quality of health infrastructure, availability of health workers and service delivery is also reported in the literature. Similarly, the weak investment in HRH development has also been widely reported in Africa and this is suggested to contribute substantially in the shortage of health workers [87]. Contributing to this is the dearth of attraction and retention strategies in countries, which is also compounding the shortages and resulting in poorly motivated health workers that are also inequitably distributed [85].

We also found that the need to optimally utilize existing health workers was another reported rationale for task shifting and task sharing. An important perspective gained in a study from Kenya [60] was task shifting being implemented to improve populations' access to health services without increasing resource needs. This is recommended in instances where evidence exists of varied workloads and availability of certain cadres of health workers with low workloads that can take up additional tasks and relieve those with high workloads [88]. This should, however, be informed by an assessment of the workloads, use of the evidence to explore task shifting and task sharing possibilities [89], and adequate capacity building of beneficiary cadres to ensure quality service delivery.

Another reported rationale for task shifting and task sharing was to expand access to health services to other levels of care and geographical locations, specifically, rural areas. The reported expansion of service to other levels of care and rural areas was implemented in scenarios where the primary cadres responsible for the service delivery are not typically

available in the target level of care, based on the service delivery organization model. In the reviewed studies, the reported instances were expanding service delivery to primary level [45] and community level settings [66, 67, 74], and rural areas [35, 65, 69] for improved access to NCD services, family planning services, HIV/AIDS and tuberculosis services.

This scoping review also synthesized evidence on the scope of task shifting and task sharing implementation in Africa. Our findings indicate that the health services shifted or shared, in 23 countries from where reviewed papers emanated, include communicable diseases (HIV/AIDS, and tuberculosis), NCD (hypertension, diabetes, mental health, and eyecare), maternal and child health, sexual and reproductive health, surgical care, medicines management and emergency care. In addition to these conditions and health services being those contributing to the burden of morbidity and mortality in Africa [90 - 92], some of these areas, especially HIV/AIDS, tuberculosis, maternal and child health, sexual and reproductive health, and medicines management have received substantive investments from donors and partners in recent years. Perhaps, this investment promoted the task shifting and task sharing practices that were published in the reviewed studies across all levels of the health system, considering most of the studies were funded by projects.

### **3.5.1 Implications for Policy and Practice**

Health systems in Africa will likely continue to be faced with a shortage of health workers until urgent steps are taken. Governments and Health Departments should aim to urgently strengthen health systems adequately to become resilient [93] and ensure widespread access to qualified, skillful and motivated health workers that are equitable distributed [94]. Until this is achieved, persistent health worker shortages call for policies aimed at ensuring adequate numbers of qualified, skilled and motivated health workers are available to deliver quality health services at all levels of the system in Africa, based on population health needs. Attaining this also needs apposite contextual policies and interventions to attract and retain health workers with emphasis given to rural and remote areas.

Task shifting and task sharing implementation to optimally utilize existing health workers or expand service delivery using cadres whose primary function differs should be implemented based on contextual needs. Furthermore, evidence from a needs assessment on scope and competencies should be documented [27] and used to inform the capacity building and the provision of necessary job aids [45, 72]. These are pertinent in ensuring quality service delivery.

### 3.5.2 Limitations

The findings should not be considered to provide a complete view of the rationale and scope for task shifting and task sharing in Africa as this review was based on peer-reviewed literature that met a set of criteria. There is a possibility that there are ongoing practices that either are not published in the peer review literature or did not meet the inclusion criteria for this review. Also, in alignment with the scoping review methodology, we did not critically appraise the evidence provided in this paper. We may also have missed out on task shifting and task sharing practices not published in English. Lastly, although we rigorously searched three databases, we may have missed studies that are available in other databases.

### 3.6 CONCLUSION

Task shifting and task sharing are widely implemented in Africa across various health services contexts towards ensuring access to health services. To guide its implementation, populations' needs should be used to inform the capacity building of beneficiary cadres to ensure they have the required knowledge, skills, competence and job aids to ensure quality service delivery.

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## **CHAPTER 4: ARTICLE 2: HEALTH PROFESSIONS' EDUCATION STRATEGIES FOR ENHANCING CAPACITY FOR TASK SHIFTING AND TASK SHARING IMPLEMENTATION IN AFRICA: A SCOPING REVIEW**

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Exceptions were, however, made in respect of margins, line-spacing, fonts and formatting of tables to conform with the guidelines of NWU and to ensure uniformity in thesis.

## 4.1 ABSTRACT

**Background:** To compensate for the shortage of health workers and effectively utilize the available health workforce to provide access to health services at various levels of the health system, several countries are implementing task shifting and task sharing. This scoping review was conducted to synthesize evidence on health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa.

**Methods:** This scoping review was conducted using the enhanced Arksey and O'Malley's framework for scoping reviews. The sources of evidence included CINAHL, PubMed and Scopus.

**Results:** Thirty-eight studies conducted in 23 countries provided insights on the strategies implemented in various health services contexts including general health, cancer screenings, reproductive, maternal, newborn, child and adolescent health, HIV/AIDS, emergency care, hypertension, tuberculosis, eye care, diabetes, mental health, and medicines. The health professions' education strategies applied were in-service training, onsite clinical supervision and mentoring, periodic supportive supervision, provision of job aides and preservice education.

**Conclusion:** Scaling up health professions' education based on the evidence from this study will contribute immensely to enhancing the capacity of health workers in contexts where task shifting and task sharing are being implemented or planned to provide quality health services based on the population's health needs.

**Keywords:** Task shifting, task sharing, health professions education, Africa, health services, access, health workers.

### Lessons for practice

- In-service training of health workers should be informed by a needs assessment and based on a curriculum that ensures quality service delivery and improved health outcomes.

- Implementation of onsite clinical supervision and mentoring, and supportive supervision should be guided by a protocol and service guidelines metrics informed by context.
- Job aids should be designed based on contextual protocols and guidelines, evaluated to ensure their relevance and effectiveness, and health workers should be trained on their content and use.
- Pre-service training presents a sustainable strategy for ensuring that beneficiary cadres gain a comprehensive understanding of expectations and skills.

## **4.2 BACKGROUND**

Globally, national health sectors are striving to achieve universal health coverage (UHC), a target of the Sustainable Development Goal (SDG) 3 – good health and well-being. The main focus of UHC is ensuring that everyone accesses to quality essential health services when needed, without experiencing financial hardship<sup>1</sup>. To achieve this, there is a drive at global, national and sub-national levels to improve access to health services that are based on their needs and expectations, and integrated along the continuum of care<sup>2-5</sup>. Of vital importance is that these services should also meet the preferences of the clients in terms of safety, effectiveness, timeliness, efficiency and acceptability<sup>6 7</sup>. This ensures that there is increased coverage of health services and improved population health outcomes<sup>7</sup>. The UHC service coverage index (SCI) has increased globally, from 45 in 2000 to 68 in 2019 with the fastest growth (22 index points increase) recorded in the African Region<sup>1</sup>.

Improving access to quality health services requires functional health systems, including access to health workers delivering apposite services at all levels of the health system<sup>8</sup>. The need for health workers has remained on the rise due to constant population growth and rising morbidities and disease outbreaks<sup>9 10</sup>. It is reported that an extra 18 million health workers are required to achieve UHC by 2030<sup>11</sup> with the need being more critical in Africa. Recent evidence states that the average density of doctors, nurses and

midwives per 1,000 population in the African Region is 1.55<sup>12</sup> which is below the projected SDG threshold of 4.45 health workers per 1,000 population<sup>11</sup>.

To compensate for the shortage of health workers and effectively utilize the available health workforce to provide health services at various levels of the health system, several countries are implementing task shifting and task sharing (TSTS). TSTS is an approach to utilize existing health workers efficiently to ensure improved access to people-centred and integrated health services, despite the persistent health workforce shortages and deficient access to health care<sup>13-15</sup>. It has been implemented in several countries in the management of several conditions including HIV/AIDS, malaria, family planning, hypertension, mental health and tuberculosis<sup>16-21</sup>. To boost the capability of health workers to implement tasks that were shifted or shared, several health professions education (HPE) strategies have been applied. These strategies often varied by country and health service delivery context.

Based on a preliminary search of the literature, there is a lack of mapped evidence on the HPE strategies that have been applied to enhance the capacity of health workers to implement TSTS in various health service delivery contexts. Accordingly, this scoping review was conducted to synthesize evidence on HPE strategies applied to enhance capacities for TSTS implementation in Africa. The findings are pertinent in enriching the literature on strategies that can be applied in practice to ensure that health workers implementing shifted and shared tasks have the required knowledge and skills to deliver services.

## **4.3 METHODS**

### **4.3.1 Study Design**

A scoping review was conducted using the enhanced Arksey and O'Malley's framework for scoping reviews to synthesize the HPE strategies for enhancing capacity for TSTS implementation in Africa<sup>22</sup>. The five steps of the framework: 1) identify research questions, 2) identify appropriate studies, 3) select relevant studies, 4) extract and chart data and 5) summarise and report results were followed in this review. The search, inclusion and analysis in this review was guided by the review question, 'What HPE strategies have been applied to enhance capacities for TSTS implementation in Africa?'

### **4.3.2 Search Strategy**

Three databases (CINAHL, PubMed and Scopus) were searched using various Boolean combination of the keywords identified using the MeSH thesaurus, producing the search string: ("task shifting" OR "task sharing ") AND ("Africa" OR Algeria\* OR Angola\*OR Benin\* OR Botswana\* OR Burkina Faso OR Burundi\* OR Cape Verde\* OR Cabo Verde OR Cameron\* OR Cameroon\* OR Chad\* OR Comoros\* OR Congo\* OR Cote d'Ivoire OR Ivory coast OR Djibouti\* OR Egypt\* OR Eritrea\* OR Ethiopia\* OR Gabon\* OR Gambia\* OR Ghana\* OR Guinea\* OR Kenya\* OR Lesotho\* OR Liberia\* OR Libya\* OR Madagascar\* OR Malawi\* OR Mali\* OR Maurit\* OR Morocc\* OR Mozambiqu\* OR Namibia\* OR Niger\* OR Rwanda\* OR Senegal\* OR Seychelles OR Sierra Leone\* OR Somalia\* OR South Africa\* OR Sudan\* OR Swaziland\* OR Tanzania\* OR Togo\* OR Tunisia\* OR Uganda\* OR Zambia\* OR Zimbabwe\*). We also used the year limiter to choose studies conducted from 2010 to 2021. Following the literature search, records were imported into the Mendeley reference manager and duplicate studies were removed.

### **4.3.3 Article Selection**

To select relevant studies, based on the guidance of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), two researchers independently reviewed the titles and abstracts of the studies identified. Following that, a meeting was held to compare inclusion and reach consensus on the inclusion. Subsequently, we reviewed the full texts to ascertain their ability to answer or provide enlightenment on the review questions and checked that the texts met the eligibility criteria for inclusion: 1) quantitative, qualitative, and mixed-methods studies on task shifting or sharing for integrated health service delivery in Africa, 2) review and perspective papers on task shifting or sharing for integrated health service delivery in Africa, and 3) full text of studies were written in the English language and are accessible.

### **4.3.4 Data Extraction and Synthesis**

The first author (SCO) developed the charting form, which was reviewed by the second author CDC and consensus reached for use on the charting process. SCO extracted data on the author and year published, country name, article title, the study context, methodology, health service context, tasks shifted/ shared, target health workers, HPE

strategy and reported results from the studies included. The data matrix was reviewed by CDC and consensus was reached on the disparities in a meeting between the two reviewers.

We applied the thematic analysis approach<sup>23 24</sup> to synthesize information and report on the review based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Guidelines Extension for Scoping Review reporting standards<sup>24</sup>.

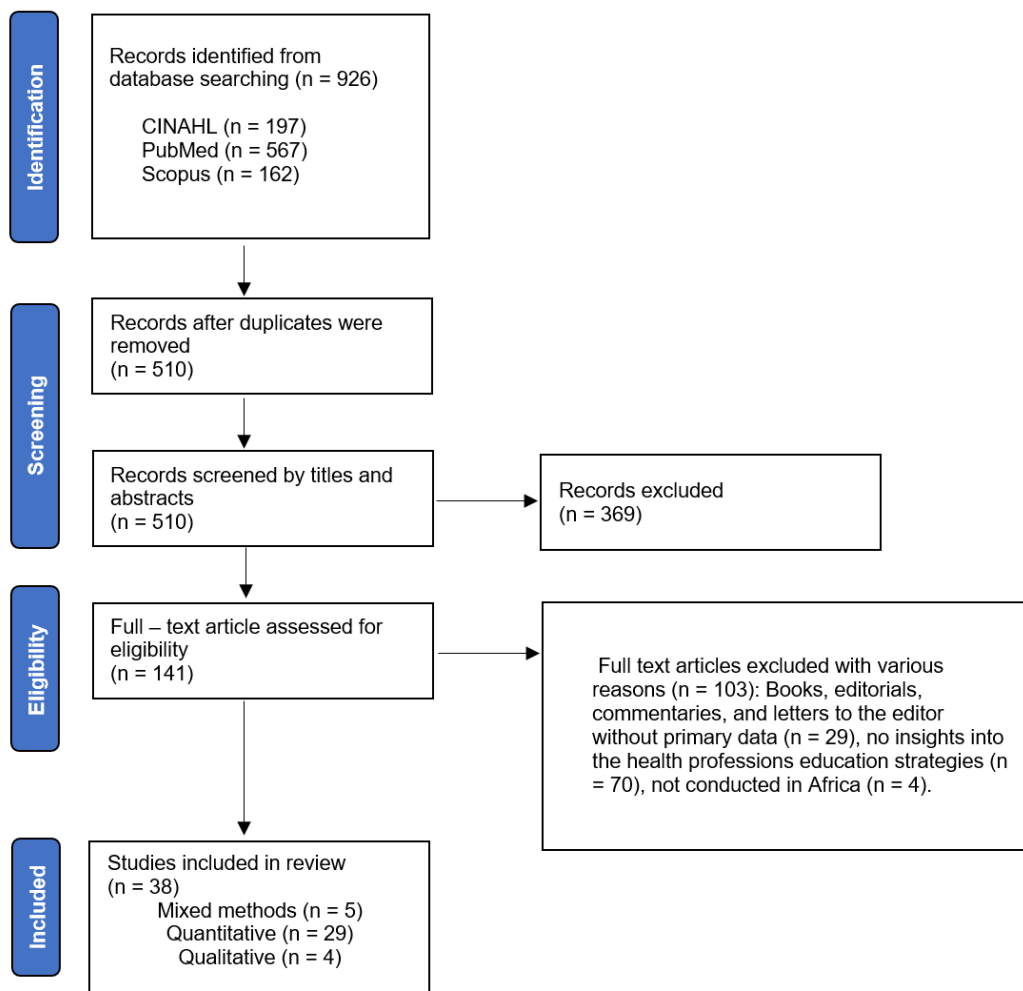
#### **4.3.5 Ethics Approval**

Ethics approval was received from the North-West University Health Research Ethics Committee (NWU-00099-22-A1, 31 August 2022).

### **4.4 RESULTS**

#### **4.4.1 Description of Studies**

We identified 926 records from the CINAHL, PubMed and Scopus databases from which 416 duplicates were eliminated, leaving 510 records. The titles and abstracts of the 510 studies were screened, leading to the exclusion of a further 309 studies. Additional screening of the remaining 141 full-text articles was conducted using the set inclusion criteria, resulting in the exclusion of 103 studies for various reasons including: not having primary data (n=29), providing no insights into HPE strategies for TSTS (n=70), or not being conducted in Africa (n=4). Thirty-eight (38) studies were finally included and extracted for analysis. Of these 38 studies, five were mixed methods studies, 29 were quantitative studies, and four were qualitative studies (Figure 1).



**Figure 1: PRISMA-ScR flow diagram**

#### 4.4.2 Characteristics of Studies

A summary of the key characteristics of the studies reviewed is presented in Table 1 with details in Table 2. Eight (21%) of the 38 studies reviewed were published in 2017<sup>25-32</sup>. The reviewed studies were from 21 countries except one multi-country study conducted in Madagascar, Malawi and Rwanda<sup>33</sup>. Four studies each were conducted in Kenya<sup>34-37</sup>, Malawi<sup>25,38-40</sup> and South Africa<sup>19 28 41 42</sup>, with three studies conducted in Nigeria<sup>43-45</sup> and Uganda<sup>32,46,47</sup>. Fourteen studies (35%) provided information on HIV/AIDS care, eight studies (20%) on reproductive, maternal, newborn, child and adolescent health (RMNCAH), and five studies on mental health service delivery.

**Table 1: Summary of the key characteristics of the studies reviewed**

Characteristics	Number	Percent
<b>Publication Year</b>		
2010	3	8%
2011	4	11%
2012	3	8%
2013	1	3%
2014	3	8%
2015	4	11%
2016	4	11%
2017	8	21%
2018	3	8%
2019	1	3%
2020	2	5%
2021	2	5%
<b>Country of study</b>		
Benin	1	3%
Botswana	1	3%
Burkina Faso	1	3%
Cameroon	1	3%
Eswatini	1	3%
Ethiopia	1	3%
Ghana	2	5%
Kenya	4	11%
Madagascar	1	3%
Malawi	4	11%
Mozambique	1	3%
Namibia	2	5%
Nigeria	3	8%
Senegal	1	3%
Sierra Leone	1	3%
South Africa	4	11%
Swaziland	1	3%
Tanzania	1	3%
Uganda	3	8%
Zambia	2	5%
Zimbabwe	1	3%
Multi-country (Madagascar, Malawi and Rwanda)	1	3%
<b>Study design</b>		
Quantitative	29	76%
Qualitative	4	11%
Mixed methods	5	13%
<b>Health Services context</b>		
General health/ health system	1	3%
Cancer screenings	1	3%
Reproductive, maternal, new-born, child and adolescent health	8	20%
HIV/AIDS	14	35%
Emergency care	1	3%
Hypertension	3	8%
Tuberculosis	2	5%
Eye care	2	5%
Diabetes	2	5%
Mental health	5	13%
Medicines	1	3%

### 4.4.3 Health Professions' Education Strategies for Enhancing TSTS

#### Implementation

Thirty-eight studies reported on the various health professions' strategies employed in countries to enhance the capacity of health workers to improve their ability to implement shifted or shared tasks (Table 2).

**Table 2: Details of the reviewed studies**

First author (year)	Country	Study title	Study design	Health services context
Bemelmans 2010 <sup>38</sup>	Malawi	Providing universal access to antiretroviral therapy in Thyolo, Malawi, through task shifting and decentralization of HIV/AIDS care	Cross-sectional study (descriptive)	Access to HIV /AIDS care
Labhardt 2010 <sup>76</sup>	Cameroon	Task shifting to non-physician clinicians for integrated management of hypertension and diabetes in rural Cameroon: a programme assessment at two years	Cross-sectional study (implementation)	Access to care for hypertension and type 2 diabetes care
Selke 2010 <sup>34</sup>	Kenya	Task-Shifting of Antiretroviral Delivery From Health Care Workers to Persons Living With HIV/AIDS: Clinical Outcomes of a Community-Based Program in Kenya	Prospective cluster randomized controlled clinical trial	Access to HIV /AIDS care
De Wet 2011 <sup>41</sup>	South Africa	Exploring task-shifting practices in antiretroviral treatment facilities in the Free State Province, South Africa	Cross-sectional study (implementation)	Access to HIV /AIDS care
Chibanda 2011 <sup>65</sup>	Zimbabwe	Problem-solving therapy for depression and common mental disorders in Zimbabwe: piloting a task-shifting primary mental health care intervention in a population with a high prevalence of people living with HIV	Cross-sectional study (implementation)	Access to mental health intervention/ services
Jennings 2011 <sup>78</sup>	Benin	Task shifting in maternal and newborn care: a non-inferiority study examining delegation of antenatal counselling to lay nurse aides supported by job aids in Benin	Non-inferiority quasi-experimental design	Access to maternal and newborn health services
Umar 2011 <sup>45</sup>	Nigeria	Reduction of client waiting time using task shifting in an anti-retroviral clinic at Specialist Hospital Bauchi, Nigeria	Cross-sectional study (implementation)	Access to HIV /AIDS care
Tweya 2012 <sup>39</sup>	Malawi	Task shifting in an antiretroviral clinic in Malawi: can health surveillance assistants manage patients safely?	Cross-sectional study (implementation)	Access to HIV /AIDS care
Hoke 2012 <sup>66</sup>	Madagascar	Community-based provision of injectable contraceptives in Madagascar: 'task shifting' to expand access to injectable contraceptives	Cross-sectional study (implementation)	Access to injectable contraceptives
Born 2012 <sup>77</sup>	Zambia	Evaluation of a task-shifting strategy involving peer educators in HIV care and treatment clinics in Lusaka, Zambia	Cross-sectional mixed method study	Access to HIV /AIDS care
Ledikwe 2013 <sup>51</sup>	Botswana	Evaluation of a Well-Established Task-Shifting Initiative: The Lay Counsellor Cadre in Botswana	Cross-sectional multi-method study	Access to HIV /AIDS care

<b>First author (year)</b>	<b>Country</b>	<b>Study title</b>	<b>Study design</b>	<b>Health services context</b>
Baine 2014 <sup>46</sup>	Uganda	A scoping study on task shifting; the case of Uganda	Cross-sectional qualitative study	Access to health services – surgical care,
O'Malley 2014 <sup>56</sup>	Namibia	Nurse Task Shifting for Antiretroviral Treatment Services in Namibia: Implementation Research to Move Evidence into Action	Cross-sectional study (implementation)	Access to HIV /AIDS care
Andriamanjato 2014 <sup>33</sup>	Madagascar, Malawi and Rwanda	Task shifting in primary eye care: how sensitive and specific are common signs and symptoms to predict conditions requiring referral to specialist eye personnel?	Cross-sectional study (implementation)	Access to eye care
Wiedenmayer 2015 <sup>58</sup>	Tanzania	The reality of task shifting in medicines management- a case study from Tanzania	Cross-sectional study	Access to medicines
Mwangala 2015 <sup>59</sup>	Zambia	Task-Shifting and Quality of HIV Testing Services: Experiences from a National Reference Hospital in Zambia	Cross-sectional qualitative study	Access to HIV testing
Chamberlain 2015 <sup>47</sup>	Uganda	Mortality Related to Acute Illness and Injury in Rural Uganda: Task Shifting to Improve Outcomes	Cross-sectional study (intervention)	Access to emergency care services
Charyeva 2015 <sup>43</sup>	Nigeria	Task Shifting Provision of Contraceptive Implants to Community Health Extension Workers: Results of Operations Research in Northern Nigeria	Cross-sectional study (intervention)	Access to Contraceptive Implants
Gueye 2016 <sup>79</sup>	Senegal	Mentoring, Task Sharing, and Community Outreach Through the TutoratPlus Approach: Increasing Use of Long-Acting Reversible Contraceptives in Senegal	Cross-sectional study (intervention)	Access to family planning services
Dos Santos 2016 <sup>61</sup>	Mozambique	Overview of the mental health system in Mozambique: addressing the treatment gap with a task-shifting strategy in primary care	Cross-sectional study (intervention)	Access to mental health services
Some 2016 <sup>35</sup>	Kenya	Task Shifting the Management of Non-Communicable Diseases to Nurses in Kibera, Kenya: Does It Work?	Cross-sectional study (descriptive retrospective)	Access to non-communicable diseases (NCDs) care
Agyapong 2016b <sup>64</sup>	Ghana	Task shifting perception of stakeholders about adequacy of training and supervision for community mental health workers in Ghana	Cross-sectional study (mixed methods)	Access to mental health services
Landes 2017 <sup>25</sup>	Malawi	Task shifting of triage to peer expert informal care providers at a tertiary referral HIV clinic in Malawi: a cross-sectional operational evaluation	Cross-sectional study (implementation)	Access to HIV /AIDS care
Tilahun 2017 <sup>26</sup>	Ethiopia	Improving Contraceptive Access, Use, and Method Mix by Task Sharing Implanon Insertion to Frontline Health Workers: The Experience of the Integrated Family Health Program in Ethiopia	Cross-sectional study (intervention)	Access to family planning services
Bolkan 2017 <sup>27</sup>	Sierra Leone	Safety, productivity and predicted contribution of a surgical task-sharing programme in Sierra Leone	Prospective observational study	Access to emergency surgical care
Farley 2017 <sup>28</sup>	South Africa	Evaluation of a nurse practitioner-physician task-sharing model for multidrug-resistant tuberculosis in South Africa	Prospective cohort study	Access to TB treatment services

<b>First author (year)</b>	<b>Country</b>	<b>Study title</b>	<b>Study design</b>	<b>Health services context</b>
Gyamfi 2017 <sup>29</sup>	Ghana	Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study	Mixed methods study	Access to hypertension management services
Dlamini-Simelane 2017 <sup>30</sup>	Swaziland	Task shifting or shifting care practices? The impact of task shifting on patients' experiences and health care arrangements in Swaziland	Cross-Sectional (qualitative - ethnographic) study	Access to HIV /AIDS care
Kaindjee-Tjituka 2017 <sup>31</sup>	Namibia	Task-shifting point-of-care CD4+ testing to lay health workers in HIV care and treatment services in Namibia	Cross-sectional study	Access to CD4+ testing
Naikoba 2017 <sup>32</sup>	Uganda	Improved HIV and TB Knowledge and Competence Among Mid-level Providers in a Cluster-Randomized Trial of One-on-One Mentorship for Task Shifting	Cluster-randomized trial	Access to HIV/AIDS and TB services
Davis 2018 <sup>40</sup>	Malawi	Task shifting levonorgestrel implant insertion to community midwife assistants in Malawi: results from a non-inferiority evaluation	Cross-sectional study (intervention)	Access to Contraceptive Implants
Awolude 2018 <sup>44</sup>	Nigeria	Screen and Triage by Community Extension Workers to Facilitate Screen and Treat: Task-Sharing Strategy to Achieve Universal Coverage for Cervical Cancer Screening in Nigeria	Cross-sectional study (intervention)	Access to cervical cancer screenings
Sayed 2018 <sup>36</sup>	Kenya	Task Sharing and Shifting to Provide Pathology Diagnostic Services: The Kenya Fine-Needle Aspiration Biopsy Cytology and Bone Marrow Aspiration and Trephine Biopsy Training Program	Cross-sectional study (intervention)	Access to cancer screenings
Millogo 2019 <sup>63</sup>	Burkina Faso	Task sharing for family planning services, Burkina Faso	Cross-sectional study (intervention)	Access to contraceptives
Peresu 2020 <sup>80</sup>	Eswatini	Task-shifting directly observed treatment and multidrug-resistant tuberculosis injection administration to lay health workers: stakeholder perceptions in rural Eswatini	Mixed methods study	Access to multidrug-resistant tuberculosis (MDR-TB) treatment in rural areas
Lund 2020 <sup>42</sup>	South Africa	Task-sharing of psychological treatment for antenatal depression in Khayelitsha, South Africa: Effects on antenatal and postnatal outcomes in an individual randomized controlled trial	Randomized controlled trial	Access to mental health services
Jacobs 2021 <sup>19</sup>	South Africa	Task Sharing or Task Dumping: Counsellors Experiences of Delivering a Psychosocial Intervention for Mental Health Problems in South Africa	Cross-sectional qualitative study	Access to mental health services
Yator 2021 <sup>37</sup>	Kenya	Task-sharing and piloting WHO group interpersonal psychotherapy (IPT-G) for adolescent mothers living with HIV in Nairobi primary health care centres: a process paper	Cross-sectional study (intervention)	Access to HIV/AIDS care

#### 4.4.3.1 In-service training

Thirty reviewed studies<sup>4,7,8,10,19,25,26,28,29,30,31,35,36,37,40,41,42,43,44,46,47,48-56,57,58,59,60,61</sup> reported in-service training of health workers to enhance their capacity to implement shifted or shared tasks. As presented in Table 3, the duration of the trainings varied widely and covered a wide range of health services contexts, including communicable and non-communicable diseases<sup>25,29,30,31,35,37,41,42,44,48,49,51,52,53,54,56,57,59,61,60,61</sup>, RMNCAH<sup>26,40,43,50,55</sup>, surgical care<sup>36</sup>, and pharmaceutical management<sup>58</sup>. Also, reviewed studies reported the development and use of context-specific curricula to inform the training of: 1) health surveillance assistants to provide antiretroviral therapy in Malawi<sup>54</sup>, 2) lay counsellors, nurses and laboratory personnel to conduct HIV testing in Zambia<sup>59</sup>, and 3) pathologists, medical officers, clinical officers, and technologists in Kenya<sup>36</sup> to conduct of fine-needle aspiration biopsy cytology, and bone marrow aspiration and trephine biopsy. The conduct of periodic refresher/ booster trainings following initial trainings to reinforce the capacities of health workers to implement shifted or shared tasks was reported in Ghana<sup>29</sup> for community health nurses and enrolled nurses to manage and control hypertension, and in Cameroon<sup>53</sup> for nurses for prevention, diagnosis and treatment of hypertension and diabetes.

**Table 3: Summary of findings on in-service trainings**

Health Services context	Details of in-service trainings
General health/ health system	<ul style="list-style-type: none"> <li>• A Ugandan study<sup>46</sup> highlighted that in-service continuing medical education of health workers built their knowledge, skills and practices to implement shifted tasks.</li> </ul>
Cancer screenings	<ul style="list-style-type: none"> <li>• A Nigerian study<sup>44</sup> reported conducting trainings and participatory supervision whilst the task shifting the screening for cervical cancer using visual inspection with acetic acid to community health officers and community health extension workers.</li> </ul>
Reproductive, maternal, new- born, child and adolescent health	<ul style="list-style-type: none"> <li>• To expand the role of existing lay nurse aides to conduct counselling in maternal and newborn care in Benin<sup>50</sup>, they were trained for three days to use job aids with curricula focusing on care during pregnancy, birth preparedness, danger signs, clean delivery, and newborn care.</li> <li>• In a study in Ethiopia<sup>26</sup> that reported the implementation task sharing of provision of long-acting contraceptive (implanon) family planning services to health extension workers, they were trained for six days with sessions including theoretical training, practical sessions simulating Implanon insertion and removal practice on arm models, and supervised clinical practicums with clients.</li> <li>• In a Madagascar<sup>55</sup>, before the task shifting of injectable contraceptive provision to community health workers, they undertook a three-day training and had to pass a written test to be certified to have completed the training.</li> </ul>

Health Services context	Details of in-service trainings
	<ul style="list-style-type: none"> <li>• In a study in Malawi<sup>40</sup>, in task shifting of long-acting reversible contraception (LARC) insertion, specifically, levonorgestrel (LNG) contraceptive implants to Community Midwife Assistants, they were trained in a two-day didactic session and three days practical session in a government facility.</li> <li>• In a study in Nigeria<sup>43</sup>, where the provision of contraceptive implants was task shifted to community health extension workers, they underwent modular learning sessions with practicum sessions on implant insertions and removals on arm models.</li> </ul>
HIV/AIDS	<ul style="list-style-type: none"> <li>• In a study conducted in Botswana<sup>51</sup>, lay persons were trained to prepare them to implement the shifted task of HIV testing and counselling.</li> <li>• In a Kenyan<sup>48</sup> study, Community Care Coordinators (CCCs) underwent didactic training on the use of a personal digital assistant (PDA) for documenting symptoms and aiding decisions on patient management strategies for antiretroviral therapy (ART) care.</li> <li>• A Kenyan<sup>37</sup> study reported task shifting of interpersonal psychotherapy (IPT-G) for adolescent mothers living with HIV to Community Health Workers (CHWs) following a two-day face-to-face training through lectures and role play.</li> <li>• In a study conducted in Malawi<sup>49</sup>, Health Surveillance Assistants (HSAs) / lay counsellors were trained for three weeks with certification provided by the Ministry of Health (MOH) to prepare them to implement HIV testing and counselling tasks shifted to them, and non-physician clinicians were trained for one week to take up the task of initiating of ART.</li> <li>• A study in Malawi<sup>54</sup>, HSAs were trained for five weeks using a designed curriculum based on the National ART guidelines to prepare them to provide antiretroviral therapy (ART) to stable patients.</li> <li>• In another study conducted in Malawi<sup>25</sup>, triaging of HIV/AIDS patients was task shifted to lay persons following a one-day training.</li> <li>• In a Namibian study<sup>56</sup>, to improve the capacity of nurses for task-shifted ART delivery, they undertook one week of classroom training.</li> <li>• In another Namibian study<sup>31</sup>, where task shifting was implemented to scale-up of POC CD4+ testing in HCT settings in public health facilities to lay health workers and nurses, they participated in a training that had theoretical and practical sessions.</li> <li>• Studies in Nigeria<sup>57</sup> reported training nurses for two weeks whilst expanding their role to providing ART to patients on follow-up visits without any clinical complaints.</li> <li>• In a South African study<sup>41</sup>, community health workers were trained on counselling and support, treatment adherence and drug resistance; and side effects of ARV medication, nutrition for ART patients, and patient monitoring with the duration not specified.</li> <li>• A study in Swaziland<sup>30</sup> reported that lay counsellors (predominantly PLHIV), and nurses being trained for two weeks to improve their capacity to take up counselling and ART initiation respectively.</li> <li>• In a study in Zambia<sup>59</sup>, to prepare lay counsellors, nurses and laboratory personnel to conduct shifted task of HIV testing, they were trained for three days using the national HIV rapid testing curriculum.</li> </ul>

<b>Health Services context</b>	<b>Details of in-service trainings</b>
Surgical care	<ul style="list-style-type: none"> <li>In a Kenyan study<sup>36</sup>, in task sharing the conduct of Fine-Needle Aspiration Biopsy Cytology, and Bone Marrow Aspiration and Trephine Biopsy with pathologists, medical officers (MO), clinical officers (CO), and technologists, a curriculum was developed and used to conduct training workshops.</li> </ul>
Hypertension	<ul style="list-style-type: none"> <li>In a study in Ghana<sup>29</sup>, to enhance the capacity of Community health nurses (CHNs) and enrolled nurses (ENs) to manage and control hypertension, there were trained and also receive periodic booster trainings.</li> <li>A study conducted in Cameroon<sup>53</sup> trained non-physician clinicians (nurses) five times with each being a three-day modular training focusing on protocol-driven care for the prevention, diagnosis and treatment of hypertension and diabetes. Additionally, six-monthly one-day refresher courses were conducted with participants presenting case studies.</li> <li>In Kenya<sup>35</sup>, to prepare nurses for NCD service delivery in primary health care settings for hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell, they were trained for one week with didactics and clinical case scenarios.</li> </ul>
Tuberculosis	<ul style="list-style-type: none"> <li>A study in Eswatini<sup>52</sup> reported training of CTSs in a 5-day theoretical workshop to enhance their capacity whilst task shifting of directly observed treatment (DOT) supervision and administration of intramuscular MDR-TB injections to lay health workers (LHWs)/ community treatment supporters (CTS) to improve access in rural areas.</li> </ul>
Diabetes	<ul style="list-style-type: none"> <li>A study conducted in Cameroon<sup>53</sup> trained non-physician clinicians (nurses) five times with each being a three-day modular training focusing on protocol-driven care for the prevention, diagnosis and treatment of hypertension and diabetes. Additionally, six-monthly one-day refresher courses were conducted with participants presenting case studies.</li> <li>In Kenya<sup>35</sup>, to prepare nurses for NCD service delivery in primary health care settings for hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell, they were trained for one week with didactics and clinical case scenarios.</li> </ul>
Mental health	<ul style="list-style-type: none"> <li>A study in South Africa<sup>19</sup> reported task sharing of mental health counselling to the non-specialist - facility-based counsellors (FBCs) with training complemented by highly structured supervision being strategies for supporting the implementation of task-shared mental health counselling.</li> <li>In a study conducted in Zimbabwe<sup>60</sup>, lay workers were trained for eight days on screening, monitoring and intervention delivery for common mental disorders (CMD).</li> <li>A study in Mozambique<sup>61</sup> reported task shifting of delivery of psychiatric care to psychiatric technicians following their undergoing a training programme that lasted for 30 months corresponding to 59.8% theoretical and practical lectures, 22.2% traineeship (curricular practice) and 18% integrated internship (last course semester).</li> <li>A study in South Africa<sup>42</sup> reported that community health workers undertook a five-day training to enhance their capacity to provide psychological treatment for perinatal depression to non-specialists.</li> </ul>

Health Services context	Details of in-service trainings
Pharmaceutical management	<ul style="list-style-type: none"> <li>• A study from Tanzania<sup>58</sup> reported training on supply with the national Integrated Logistic System (ILS) management was done for nurses and medical attendants following task shifting of pharmaceutical management.</li> </ul>

In-service trainings were reported to be conducted to enhance the capacity of lay nurse aides, health extension workers, community health workers, community midwife assistants, and community health extension workers to implement shifted or shared tasks relating to RMNCAH – related health services in Benin<sup>50</sup>, Ethiopia<sup>26</sup>, Madagascar<sup>55</sup>, Malawi<sup>40</sup> and Nigeria<sup>43</sup> respectively. In the studies from Benin<sup>50</sup>, Ethiopia<sup>26</sup>, Madagascar<sup>55</sup> and Malawi<sup>40</sup>, the duration of trainings varied from two to six days. In the study from Benin<sup>50</sup>, lay nurse aides were trained for three days to conduct counselling on maternal and newborn care. Health extension workers in Ethiopia<sup>26</sup> were trained for six days to enhance their capacity to provide long-acting contraceptives (implanon). The community health workers in Madagascar<sup>55</sup> were trained for three days to provide injectable contraceptives and the training of community midwife assistants (CMAs) in Malawi<sup>40</sup> to provide levonorgestrel (LNG) contraceptive implants was done in a two-day didactic session. Studies in Ethiopia<sup>26</sup>, Malawi<sup>40</sup> and Nigeria<sup>43</sup> reported the training to include practical sessions to enhance skills for quality service delivery. Additional dimensions reported in the studies were training to use job aids in Benin<sup>50</sup> and certification following passing of post-training exams in Madagascar<sup>55</sup>.

Twelve studies conducted in eight countries - Botswana<sup>51</sup>, Kenya<sup>48,37</sup>, Malawi<sup>49,54,25</sup>, Namibia<sup>56,31</sup>, Nigeria<sup>57</sup>, South African<sup>41</sup>, Swaziland<sup>30</sup> and Zambia<sup>59</sup> - reported the conduct of trainings to enhance capacities for TSTS implementation to improve access to HIV/AIDS care. The service areas reported to be task shifted for which trainings conducted included triaging<sup>25</sup> of HIV/AIDS patients, HIV testing and counselling<sup>51,49,31,41,59</sup>, and ART initiation<sup>30</sup>, treatment<sup>41,54,56,57</sup>, counselling<sup>30</sup> and support<sup>37</sup>. The reported duration of the trainings ranged from one day in Malawi<sup>25</sup> for laypersons to enhance their capacity to triage HIV/AIDS patients, to two days training of community health workers to provide interpersonal psychotherapy (IPT-G) for adolescent mothers living with HIV in Kenya<sup>37</sup>. The conduct of three-day training of lay counsellors, nurses and laboratory personnel to conduct HIV testing was reported in Zambia<sup>59</sup> and one-week trainings were conducted

for non-physician clinicians in Malawi<sup>49</sup> and nurses in Namibia<sup>56</sup> to provide ART services. In studies from Malawi, Health Surveillance Assistants (lay counsellors) were trained for three weeks to prepare them to implement HIV testing and counselling<sup>49</sup> and for five weeks to prepare them to provide antiretroviral therapy (ART) to stable patients<sup>54</sup>. The training approaches that were used included theoretical didactic training in Botswana<sup>51</sup> and Kenya<sup>37</sup>, and practical sessions in Kenya<sup>37</sup> and Namibia<sup>31</sup>.

#### 4.4.3.2 Onsite clinical supervision and mentoring

Sixteen reviewed studies<sup>25,29,30,32,33,35,43,44,48,49,52,54,55,56,61,62</sup> reported the provision of onsite clinical supervision to health workers that benefited from task shifting or sharing following in-service trainings to further improve their capacity. The details of the health services context, duration and beneficiary cadres of clinical supervision and mentoring are presented in Table 4.

To enhance the capacity of health workers to implement tasks shifted or shared relating to HIV/AIDS care, supervision and mentoring were reported in reviewed studies conducted in Kenya<sup>48</sup>, Malawi<sup>25,49,54</sup>, Namibia<sup>56</sup>, Swaziland<sup>30</sup>, Uganda<sup>32</sup>, and Zambia<sup>62</sup>. In the Kenyan<sup>48</sup> study, Community Care Coordinators underwent a two-month clinical mentoring, following didactic training on the delivery of medications and provision of follow-up care for people living with HIV/AIDS. In a study conducted in Malawi<sup>25</sup>, triaging of HIV/AIDS patients was task shifted to lay persons following a one-day training and two weeks of on-the-job mentoring by physicians. In the second study conducted in Malawi<sup>49</sup>, to prepare non-physician clinicians to take up the task of initiating ART, they undertook a two-week clinical attachment in an experienced site under the supervision and mentoring of medical officers, with successful health workers being certified for competence by the MOH. Equally, in another study in Malawi<sup>54</sup>, supportive supervision was conducted for four months to strengthen the capacity of HSAs to provide ART services. For the Namibian study<sup>56</sup>, to improve the capacity of nurses for task shifted ART delivery, in addition to receiving a one-week training, they also had another one week of applied clinical training in a facility and ongoing mentorship support from ART physician-mentors. A study in Swaziland<sup>30</sup> reported of lay counsellors and nurses being trained for two weeks to improve their capacity to take up counselling and ART initiation respectively, followed by a three-week practicum with mentoring. In the Uganda study<sup>32</sup>, where HIV care and

treatment was task shifted to mid-level providers (clinical officers, registered nurses, and registered midwives) they underwent clinical mentoring - eight hours a week of one-on-one mentorship, every six weeks over nine months. Lastly, peer educators, who had a shifted task of providing counselling, health education, and adherence support to people living with HIV in care were supervised and mentored by on-site and peer supervisors in a Zambian study<sup>62</sup>.

Clinical supervision and mentoring were also reported for eyecare, non-communicable diseases, tuberculosis, family planning, cervical cancer and mental health service delivery-related TSTS. A multi-country study<sup>33</sup> in Madagascar, Malawi and Rwanda reported the importance of proper supervision and mentoring for ophthalmic clinical officers tasked with providing primary eye care. In a study in Ghana<sup>29</sup>, to enhance the capacity of community health nurses and enrolled nurses to manage hypertension, they received onsite supervision. In Kenya<sup>35</sup>, to prepare nurses for non-communicable disease (NCD) service delivery in primary health care settings for hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell, they had on-site clinical officer supervision. A study in Eswatini<sup>52</sup> reported training and provision of on-the-job mentoring for community treatment supporters (CTS) whilst task shifting of directly observed treatment (DOT) supervision and administration of intramuscular multi-drug resistant tuberculosis (MDR-TB) injections to improve access in rural areas. Community health workers in Madagascar<sup>55</sup> who were tasked with the provision of injectable contraceptives were mentored and supervised by clinicians whilst they completed six observed injections. In a study in Nigeria<sup>43</sup>, where the provision of contraceptive implants was task shifted to community health extension workers, they underwent supervised insertions on actual clients. Another Nigerian study<sup>44</sup> reported conducting trainings and participatory supervision whilst task shifting the screening for cervical cancer using visual inspection with acetic acid to community health officers and community health extension workers. A study in Mozambique<sup>61</sup> reported task shifting of delivery of psychiatric care to psychiatric technicians following their undergoing a training programme that lasted for 30 months, corresponding to 59.8% lectures, 22.2% traineeship and 18% internship.

**Table 4: Key findings from reviewed studies**

First author (year)	Tasks shifted and/or shared	Beneficiary health workers	Key findings on health professions education strategy
Bemelmans 2010 <sup>38</sup>	HIV testing and counselling. Antiretroviral therapy (ART) initiations	Health Surveillance Assistants (HSAs) / lay counsellors, Clinical Officers, Medical Assistants, and nurses	HCT - 3-weeks' formal training with certification by the MOH. ART initiation - 1 week classroom training course, combined with a 2-week clinical attachment in an experienced ART site with successful participants certified for competence and regularly clinically supervised.
Labhardt 2010 <sup>76</sup>	Hypertension and diabetes care	non-physician clinicians (NPCs) - nurses	Training in hypertension and diabetes care comprised five three-day modular trainings on protocol-driven care focusing on prevention, diagnosis and treatment, and 6-monthly 1 day refresher courses with trainees presenting case studies. Regular supervision is based on a protocol by the district health committee.
Selke 2010 <sup>34</sup>	Delivery of medications and provision of follow-up care to patients on ART in the community with the support of an electronic decision tool, and 3 monthly visits to facilities as against the usual monthly visit.	People living with HIV/AIDS (PLWAs) as Community Care Coordinators (CCCs)	CCCs underwent structured didactic training, which included the use of a PDA. Decision support in the form of pre-programmed alerts was triggered if specified parameters were met. After the didactic training, each CCC underwent 2 months of clinical mentoring.
De Wet 2011 <sup>41</sup>	HIV counselling, drug readiness training, distribution of nutritional supplements, and capturing and updating electronic information.	Nurses and community health workers	CHWs received training on counselling and support, treatment adherence and drug resistance; and side effects of ARV medication, nutrition for ART patients, and patient monitoring. The study did not report on the duration of trainings.
Chibanda 2011 <sup>65</sup>	Depression and other common mental disorders (CMD) - screening and monitoring CMD and delivering the intervention	Lay workers (health promoters)	Trained lay workers for 8 days in screening and monitoring CMD and in delivering the intervention. They also underwent a practice session with clients focusing on problem-solving therapy. A peer-support group for lay workers was introduced for peer review with supportive supervision provided by a clinical psychologist, psychiatrist and nurse.

<b>First author (year)</b>	<b>Tasks shifted and/or shared</b>	<b>Beneficiary health workers</b>	<b>Key findings on health professions education strategy</b>
Jennings 2011 <sup>78</sup>	Counselling in maternal and newborn care.	Nurse-midwives and lay nurse aides	Trained for three days to use job aids with curricula focusing on care during pregnancy, birth preparedness, danger signs, clean delivery, and newborn care. The trainings included a description of the concept of task delegation, peer and group roleplaying, capacity building in interpersonal communication, and emphasis on quality of care.
Umar 2011 <sup>45</sup>	Consultation for HIV patients presenting for a routine refills and follow-up visits	Nurses	Training of nurses on integrated management of adolescent and adult illness, as well as on the principle and guidelines for the anti-retroviral therapy, after which their schedule in the clinic was broadened to include seeing HIV patients presenting for routine refill and follow-up visits.
Tweya 2012 <sup>39</sup>	Provision of antiretroviral therapy (ART) to stable patients	Health surveillance assistants (HSAs)	Training for an additional 5 weeks, using a designed curriculum based on the Malawi Ministry of Health's national ART guidelines. Additionally, supportive supervision and practical training experience was done for 4 months.
Hoke 2012 <sup>66</sup>	Injection (re-injection) and counselling of patients.	Community-based distribution (CBD) agents/ community health workers	3-day classroom training, supervision by clinicians and provision of job aids, including a DMPA guidebook on counselling and injection technique, and practicum of safe injection technique. To complete training successfully, the CBD workers had to pass a written test following training. Clinical mentoring was provided whilst each trainee completed six observed injections assessed by a supervisor/trainer using a competency-based checklist that included steps for counselling, screening, aspiration of the drug into the syringe, correct injection technique and infection control.
Born 2012 <sup>77</sup>	Provision of counselling, education talks, and adherence support to patients in HIV care.	Peer educators (PEs).	PEs received training in psychosocial counselling, behaviour change, HIV basics, treatment adherence, and positive living before starting work. They were also supervised by on-site ART nurses and a the Centre for Infectious Disease Research in Zambia (CIDRZ) peer supervisor.
Ledikwe 2013 <sup>51</sup>	HIV tests and related counselling at public health facilities	Lay Counsellors	In-service trainings conducted to provide skills for shared/shifted tasks.
Baine 2014 <sup>46</sup>	Surgical care, sexual and reproductive health, HIV/AIDS, tuberculosis DOTS therapy.	Clinical officers, nurses	Continuing medical education for health workers in service empowered health workers with more competencies (knowledge, skills and practices) required to provide improved services and others not previously offered.
O'Malley 2014 <sup>56</sup>	Antiretroviral Treatment Services	Nurses	One week of classroom training and one week of applied clinical training in a high-volume facility. Following the intensive two-week training, nurses were to receive ongoing

First author (year)	Tasks shifted and/or shared	Beneficiary health workers	Key findings on health professions education strategy
			mentorship support from one of these trained ART physician-mentors.
Andriamanjato 2014 <sup>33</sup>	Primary eye care	General primary health care (PHC) workers - ophthalmic clinical officers	Need for proper supervision and the existence of markers or criteria to inform management decisions.
Wiedenmayer 2015 <sup>58</sup>	Pharmaceutical management	Nurses and medical attendants	Training on supply with the national Integrated Logistic System (ILS) management
Mwangala 2015 <sup>59</sup>	HIV testing services	Lay counsellors, nurses and laboratory personnel	Three-day national HIV rapid testing training based on a curriculum
Chamberlain 2015 <sup>47</sup>	Emergency care services in a rural setting	Nurses	Two-year training program was conducted for nurses at a rural district hospital to become midlevel providers called Emergency Care Practitioners. Prior to the development of the Emergency Care Practitioner (ECP) programme, a needs assessment was conducted to describe the patient characteristics and provider skills needed to treat this patient population.
Charyeva 2015 <sup>43</sup>	Provision of Contraceptive Implants	Community Health Extension Workers	<p>Training for CHEWs was organized into three 7-day phases:</p> <ol style="list-style-type: none"> <li>1. Modular teaching/learning sessions</li> <li>2. Practicum sessions on implant insertions and removals on arm models</li> <li>3. Supervised insertions on actual clients.</li> </ol> <p>A Learner guide developed for the training was available as a supportive reference. At the end of the training sessions, the trainees and trainers jointly developed a 6-month post training supportive supervision plan.</p>
Gueye 2016 <sup>79</sup>	Provision of family planning services - long-acting reversible contraceptives (LARC), specifically implants and the intrauterine device.	Nurses, nonclinical family planning counsellors, and community health workers	On-site mentoring - two 5-day visits per facility.
Dos Santos 2016 <sup>61</sup>	Delivery of psychiatric care	Psychiatric Technicians	Trained in psychiatry and mental health in a 2930 hour course provided in 30 months, corresponding to 59.8% theoretical and practical lectures, 22.2% traineeship (curricular practice) and 18% integrated internship (last course semester)

<b>First author (year)</b>	<b>Tasks shifted and/or shared</b>	<b>Beneficiary health workers</b>	<b>Key findings on health professions education strategy</b>
Some 2016 <sup>35</sup>	Management of NCDs (hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell)	Nurses	Training on the five NCDs for one week with didactics and clinical case scenarios using structured clinical decision support protocols. Continuous on-site clinical officer supervision was provided and NCD protocols were available in the workplace for reference.
Agyapong 2016b <sup>64</sup>	Case detection and referral, and diagnosis and treatment of common psychiatric conditions	Community mental health workers (CMHWs)	Recommended need to review the pre- service curriculum for CMHWs and increase regular in-service training and formal supervision.
Landes 2017 <sup>25</sup>	Triaging of HIV/AIDS patients	Lay health cadre of expert patients (EPs)	A full-day workshop, a review session and on-the-job mentorship by the two physician trainers over two weeks. EPs were trained on how to categorize both adult and paediatric patients as emergency (i.e. life-threatening signs or symptoms needing immediate assessment by a clinician) and priority (i.e. non-life-threatening but still requiring urgent prioritization) cases.
Tilahun 2017 <sup>26</sup>	Provision of long-acting contraceptive (Implanon) family planning services	Health Extension Workers	6 days of in-class theoretical training, practical sessions simulating Implanon insertion and removal practice on arm models, and, finally, supervised clinical practicums with clients. Post-training follow-up/mentorship visits to health posts at least twice during the 3-month follow-up period.
Bolkan 2017 <sup>27</sup>	Surgical and obstetric emergencies	Associate clinicians/ community health officers (CHOs) and junior doctors	3-year surgical training programme - 24-month training (6 months basic training, 18 month rotation - 6 monthly), 12 month internship (6 months surgery and 6 months' obstetrics and gynaecology )
Farley 2017 <sup>28</sup>	Multidrug-resistant tuberculosis (MDR-TB) treatment	Clinical nurse practitioner (CNP) and a medical officer (MO).	Ancillary training and clinical mentorship.
Gyamfi 2017 <sup>29</sup>	Hypertension management and control	Community health nurses (CHNs) and enrolled nurses (ENs)	Training, onsite supervision by the study coordinators and periodic onsite booster training

<b>First author (year)</b>	<b>Tasks shifted and/or shared</b>	<b>Beneficiary health workers</b>	<b>Key findings on health professions education strategy</b>
Dlamini-Simelane 2017 <sup>30</sup>	HIV counselling by lay counsellors (predominantly PLHIV), initiation of patients on ART by nurses	Lay counsellors and nurses	Two weeks of classroom training on the theoretical aspects of HIV counselling were followed by 3 weeks of practicum providing HTC services to patients testing for HIV. Protocols were also availed to guide service provision.
Kaindjee-Tjituka 2017 <sup>31</sup>	Point-of-care (POC) CD4+ testing	Lay health workers and nurses	Theoretical and practical training.
Naikoba 2017 <sup>32</sup>	HIV care and treatment	Mid-level providers (MLPs) - clinical officers, registered nurses, and registered midwives	Clinical mentoring - 8 hours a week of one-on-one mentorship, every 6 weeks over a 9-month period.
Davis 2018 <sup>40</sup>	Long-acting reversible contraception (LARC) insertion (levonorgestrel (LNG) contraceptive implants)	Community Midwife Assistants (CMAs)	1-week LARC insertion course - two days of didactics and then three days of practical sessions in a government health centre.
Awolude 2018 <sup>44</sup>	Screen for cervical cancer using visual inspection with acetic acid	CHEWs and CHOs	Training and participatory supervision.
Sayed 2018 <sup>36</sup>	Fine-Needle Aspiration Biopsy Cytology and Bone Marrow Aspiration and Trepine Biopsy	Pathologists, Medical officers (MO), clinical officers (CO), and technologists	Curriculum development, training workshops, follow-up visit 6 weeks later to provide supervision and, where necessary, revision of parts of the training.
Millogo 2019 <sup>63</sup>	Community health workers (CHWs) to offer oral and injectable contraceptives to new users, auxiliary nurses and auxiliary midwives to provide implants and intrauterine devices.	Community health workers (CHWs), auxiliary nurses and auxiliary midwives	Capacity development and supportive supervision.

First author (year)	Tasks shifted and/or shared	Beneficiary health workers	Key findings on health professions education strategy
Peresu 2020 <sup>80</sup>	Directly observed treatment supervision and administration of intramuscular MDR-TB injections	Lay health workers (LHWs)/ community treatment supporter (CTS).	Training of CTSs comprises of a 5-day theoretical workshop and on-the-job learning.
Lund 2020 <sup>42</sup>	Psychological treatment for perinatal depression	Non-specialist community health workers	Five days of training by a clinical social worker in basic counselling and delivery of the intervention, and group-based supervision.
Jacobs 2021 <sup>19</sup>	Mental health counselling	Non-specialist - facility-based counsellors (FBCs)	Training complemented by highly structured supervision.
Yator 2021 <sup>37</sup>	Interpersonal psychotherapy for adolescent mothers living with HIV (IPT-G)	Community Health Workers (CHWs)	CHWs were invited to a two-day face to face training through lectures and role play.

#### 4.4.3.3 Periodic Supportive Supervision

Seven of the reviewed studies<sup>19,26,36,43,53,60,63</sup> reported the conduct of supportive supervision to improve the capacity of health workers to implement shifted or shared tasks. All the studies reported that the supervision was provided by the cadre of health workers with the primary responsibility of providing the shifted or shared tasks. The reviewed studies from Burkina Faso<sup>63</sup>, Cameroon<sup>53</sup>, Ethiopia<sup>26</sup>, Kenya<sup>36</sup>, Nigeria<sup>43</sup>, South Africa<sup>19</sup> and Zimbabwe<sup>60</sup> reported the conduct of supportive supervision for family planning, hypertension and diabetes care, and mental health service contexts. A study in Burkina Faso<sup>63</sup> reported supportive supervision being conducted to enhance the capacity of health workers to implement task shifting of provision of contraceptives by community health workers and implants and intrauterine devices by auxiliary midwives and nurses. In a study conducted in Cameroon<sup>53</sup>, following trainings to build capacity on hypertension and diabetes care, supportive supervisions using a predetermined protocol/ guideline was periodically conducted by the district health committee. In a study in Ethiopia<sup>26</sup> that reported the implementation of task sharing of the provision of long-acting contraceptive

(Implanon) family planning services to health extension workers, post-training follow-up mentorship visits were performed at least twice during the three-month follow-up period. In a Kenyan study<sup>36</sup>, in task sharing biopsy with pathologists, medical officers (MOs), clinical officers (COs), and technologists, after training workshops, follow-up visits were conducted six weeks later to provide supervision. In a study in Nigeria<sup>43</sup>, where the provision of contraceptive implants was task shifted to community health extension workers, there was a six-month post training supportive supervision mechanism to further enhance their capacity. A study in South Africa<sup>19</sup> reported task sharing of mental health counselling to non-specialist facility-based counsellors (FBCs) with training complemented by highly structured supervision strategies for supporting the implementation of task-shared mental health counselling. To enhance the capacity of lay workers to deliver common mental disorders services in Zimbabwe<sup>60</sup>, following trainings, supportive supervision was provided by psychologists, psychiatrists and nurses.

#### 4.4.3.4 Provision of job aids

Six studies conducted in the following seven countries reported the provision of job aids to enhance capacities for TSTS implementation - Benin<sup>50</sup>, Kenya<sup>35</sup>, Madagascar<sup>33,55</sup>, Malawi<sup>33</sup>, Nigeria<sup>43</sup>, Rwanda<sup>33</sup>, and Swaziland<sup>30</sup>. The health services contexts were maternal and child care, primary eye care, family planning, NCD and HIV/AIDS care. A study conducted to expand the role of existing lay nurse aides to conduct counselling in maternal and newborn care in Benin<sup>50</sup> showed that following training and the use of job aids, the services provided by them were non-inferior to those provided by nurses and midwives. In Madagascar<sup>55</sup>, community health workers were provided with job aids to guide their service provision of injectables to the community members. A multi-country study<sup>33</sup> in Madagascar, Malawi and Rwanda reported the importance of clear criteria or markers for informed management decisions for general primary health care workers (ophthalmic clinical officers) tasked with providing primary eye care. In a study in Nigeria<sup>43</sup>, where the provision of contraceptive implants was task shifted to community health extension workers; following training and mentoring, a trainee guide that was developed was available as a reference to guide service delivery. In Kenya<sup>35</sup>, to prepare nurses for NCD service delivery in primary health care settings for hypertension, diabetes mellitus type 2, epilepsy, asthma, and sickle cell, they were trained and provided with

structured NCD protocols and guidelines for reference during service delivery. In a study in Swaziland<sup>30</sup> following training and mentoring of lay counsellors (predominantly PLHIV) and nurses to provide HIV counselling and initiate ART respectively, they were provided with protocols to guide service provision.

#### 4.4.3.5 Pre-service education

Cumulatively, three reviewed studies reported the importance of revising the pre-service education curriculum to improve the capacity of beneficiary cadres to implement shared or shifted tasks<sup>64</sup> and pre-service training of health workers to enhance their capacity to implement shifted or shared tasks<sup>27,47</sup>. A Ghanaian study<sup>64</sup> on task shifting of case detection and referral, and diagnosis and treatment of common psychiatric conditions recommended a review of the pre-service curriculum for community mental health workers (CMHWs) to enhance their capacity. A study conducted in Sierra Leone<sup>27</sup> on task shifting of surgical and obstetric emergencies to associate clinicians/ community health officers (CHOs) and junior doctors implemented a pre-service training comprising a three-year surgical training programme. This comprised 24 months of training (six-month basic training, 18 months of rotation every six months), and a 12-month internship (six months of surgery and six months of obstetrics and gynaecology). In a study in Uganda<sup>47</sup> to improve the capacity of nurses to deliver acute emergency services, they undertook a two-year training program in a rural district hospital. The program was based on evidence from a needs assessment to ascertain the patient characteristics and provider skills needed to treat the patient population. Following the training, successful scholars became Emergency Care Practitioners.

## 4.5 DISCUSSION

This scoping review was conducted to synthesize evidence on the HPE strategies applied to enhance capacities for TSTS implementation in Africa. Thirty-eight studies conducted in 23 countries provided insights on the strategies implemented in various health services contexts, including general health, cancer screenings, RMNCAH, HIV/AIDS, emergency care, hypertension, tuberculosis, eye care, diabetes, mental health, and medicines.

Our findings show that in-service training was widely practised. The duration varied from two to six days for RMNCAH-related service delivery in Benin<sup>50</sup>, Ethiopia<sup>26</sup>, Madagascar<sup>55</sup>, Malawi<sup>40</sup> and Nigeria<sup>43</sup>, to one day for triaging in Malawi<sup>25</sup>, three days HIV testing in Zambia<sup>59</sup>, one-week ART service delivery in Malawi<sup>49</sup> and Namibia<sup>56</sup>, three weeks for HIV testing and counselling<sup>49</sup> and five weeks for ART service delivery in Malawi<sup>54</sup>. In-service training was conducted in some contexts following the development of context-specific curricula<sup>36,54,59</sup>. Additionally, periodic refresher/ booster training, following initial training, to strengthen the capacities of health workers to implement shifted or shared tasks was reported in Ghana<sup>29</sup> and Cameroon<sup>53</sup>. The conduct of in-service training is widely recommended to improve the knowledge of health workers on contemporary service provision approaches. Thus, their application in TSTS scenarios to enhance capacities is important and has been reported to lead to improved quality of services delivered<sup>29,39</sup> and good health outcomes for the population<sup>65</sup>. However, considering that in-service training requires monetary and time investments, there is a need to ensure that they are apposite to health service contexts and target health workers. Therefore, in practice, in-service training should be informed by a needs assessment and based on a contextual curriculum that ensures quality service delivery and improved health outcomes.

Onsite clinical supervision and mentoring, and periodic supportive supervision were the other HPE strategies applied, based on our findings. They were provided by the cadre of health workers with the primary responsibility of providing the shifted or shared tasks. The health services context where they were implemented includes HIV/AIDS, hypertension, tuberculosis, family planning, cervical cancer and mental health. These HPE strategies were reported to result in skills development and competence amongst beneficiary health workers<sup>25,32,47,66</sup>. This is consistent with studies that have indicated the importance of mentorship and supportive supervision in provider skill-building, job satisfaction, quality of care and positive health outcomes<sup>67-70</sup>. This is because it plays a key role in translating theoretical knowledge gained through didactic training into practice within health service contexts. Its implementation is recommended to be guided by a protocol and service guidelines metrics informed by contextual factors to guide performance<sup>67-69</sup>.

Our review presented the provision of job aids for the beneficiary health workers to further enhance their capacity to implement shared or shifted tasks in studies conducted in Benin<sup>50</sup>, Kenya<sup>35</sup>, Madagascar<sup>33,55</sup>, Malawi<sup>33</sup>, Nigeria<sup>43</sup>, Rwanda<sup>33</sup> and Swaziland<sup>30</sup>. The job aid used in a multi-country study was reported to have markers to guide management decisions, and the reported result of a job aid used in Benin was a measured non-inferior delivery of services by lay nurse aids when compared to cadre with primary responsibility<sup>50</sup>. The literature indicates the importance of job aids in enhancing knowledge and practices for service providers, thereby guiding health workers to deliver appropriate clinical care based on set standards<sup>71,72</sup>. They have also been demonstrated to be a low-cost approach to improving the retention of knowledge<sup>73</sup>. Job aids, which provide simple, often visual, and quick-reference demonstration of vital information, guide health workers in proper triaging, diagnosis and treatment within specific contexts and lead to improved health outcomes<sup>73,74</sup>. Because job aids are meant to be easily understood, in practice, they must be designed based on contextual protocols and guidelines, evaluated to ensure their relevance and effectiveness, and health workers should be trained on their content and use<sup>71,73</sup>.

The importance of pre-service education as an HPE strategy for enhancing the capacity of health workers to implement shifted or shared tasks was reported in three reviewed studies. The studies reported the need for revising the pre-service education curriculum to enhance the capacity of beneficiary cadres to implement shared or shifted tasks<sup>64</sup> and pre-service training of health workers to enhance their capacity to implement shifted or shared tasks<sup>27,47</sup>. Pre-service education within approved training institutions or health facilities and based on regulated and accredited pre-qualification programs for initial education before practice is recognised as critical in building the knowledge, competence and skills of health workers<sup>75</sup>. It presents a sustainable strategy for ensuring that beneficiary cadres of TSTS gain a comprehensive understanding of expectations and skills to deliver quality health services. However, it should be supplemented by in-service training and supportive supervision to be effective within health service contexts<sup>75</sup>. Additionally, needed equipment and practical demonstration facilities should be provided, and the curriculum and teaching methods should be periodically revised to meet the ever-evolving health service needs of the population and service provision models<sup>75</sup>.

Based on the findings of the review, the implementation of the aforementioned HPE strategies resulted in favourable results. They include improved knowledge, confidence and competence<sup>19,29,37,66</sup>, increased access to services<sup>38,47</sup>, expansion of health service delivery to other levels of the health system<sup>76</sup>, and reduced workload on select cadres following trained cadres taking on responsibilities<sup>41,51,77</sup>.

#### **4.5.1 Limitations**

This scoping review had some limitations. First, a quality appraisal of the studies included in this review was not done. However, this is in line with the scoping review method since it aims to map rather than appraise the evidence. Second, the included studies were only peer-reviewed journal articles. There is a likelihood that some evidence may have been available in grey literature. But, this was done to ensure that the studies included have some rigour. Third, the studies that met the inclusion criteria did not provide insights on the health professions' education strategies for task shifting and task sharing practices across all countries in Africa and the various health service settings. Lastly, we did not assess the efficacy of the strategies applied to enhance the capacity of health workers. We, therefore, recommend further studies to assess this. Despite these limitations, the study methodology and findings are potentially valuable for further investigations on interventions to enhance the capacity of the health workforce to deliver quality health services.

#### **4.6 CONCLUSION**

This scoping review provides insights into the HPE strategies implemented in various health services contexts to enhance the capacities of health workers to implement shifted or shared tasks. Scaling up HPE based on the evidence from this study will contribute immensely to enhancing the capacity of health workers in contexts where TSTS are being implemented or planned to provide quality health services based on the population's health needs.

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## CHAPTER 5: ARTICLE 3: BARRIERS, PROMOTERS, AND STRATEGIES FOR IMPROVING TASK SHIFTING AND TASK SHARING IMPLEMENTATION IN NIGERIA: QUALITATIVE PERSPECTIVES OF POLICYMAKERS

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The article has been submitted to the Journal of Public Health Policy and is currently under review for publication. This chapter is presented according to the guidelines of the journal (available at <http://www.palgrave.com/gp/journal/41271/authors/submission> )

Exceptions were, however, made in respect of margins, line-spacing, fonts and formatting of tables to conform with the guidelines of NWU and to ensure uniformity in thesis.

## 5.1 ABSTRACT

**Background:** Due to the protracted inequitable distribution of health workers, especially at the primary level, and the low stock and production rate of skilled health workforce, Nigeria developed the National Task Shifting and Task Sharing Policy. Following the development of the task shifting and sharing policy and strategy in Nigeria, implementation was promulgated at various levels with States adapting and implementing the national policy. The policy environment for task shifting and sharing varies widely with evidence on barriers to successful implementation, factors promoting successful implementation and strategies for improving implementation needed. This evidence will inform scale up and strengthening of implementation approaches as Nigeria strives to achieve the national goals.

**Methods:** An explorative descriptive research study approach was applied with 20 key informant interviews conducted to explore perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation.

**Results:** The barriers to effective implementation of task shifting and task sharing from our study were the persistent shortage of health workers, inter-cadre rivalry, perceived sub-optimal capacity of the beneficiary cadres of task shifting and task sharing, and lack of adequate equipment for delivery of needed services. The factors promoting the implementation of task shifting and task sharing were the availability of adapted policies, the political will of the health sector leadership, acceptance of tasks shifting and task sharing implementation by health workers, and the implementation of actions to improve knowledge and skills of health workers to implement shifted or shared tasks by various actors. The strategies to improve future task shifting and task sharing implementation includes improving staffing levels, scaling up trainings and periodic retraining, mentoring and supportive supervision, and improving evidence generation, use and dissemination.

**Conclusion:** Several factors influence the implementation of task shifting and task sharing and their identification and the implementation of relevant strategies are pertinent in achieving set objectives as well as national goals. In policy and practice, therefore, a proactive exploration of the contextual understanding, barriers to implementation,

enablers and learning from the performance of similar interventions is pertinent in shaping strategies for translating evidence to practice through an implementation framework. This should be done in collaboration with stakeholders to foster acceptance and participation.

**Keywords:** Nigeria, task shifting, task sharing, understanding, rationale, barriers, promoters, improving task shifting and task sharing.

## **5.2 BACKGROUND**

Africa is faced with several health workforce challenges that are impacting the functionality of the health system, the burden of disease trends and resulting in the high migration rates of health workers (1) (2). This trend is also evident in Nigeria where numerous health workforce challenges abound. These challenges have been attributed to several factors including weak capacities for human resources for health planning, low production of health workers, and high attrition rate of existing health workers. Other factors include inequitable distribution of the health workforce, poor mechanisms for employment and retention of health workers and high workloads (3-8).

Due to the protracted inequitable distribution of health workers, especially at the primary level of care (3), and the low stock and production rate of the skilled health workforce, Nigeria developed the National Task Shifting and Task Sharing Policy in 2014 (5) and updated it in 2018 (4). The policy has the goal of achieving universal health coverage by optimally utilizing the existing health workforce to deliver essential health services. It endorses the rational distribution of tasks from health workers with a longer duration of training to those with a shorter duration towards ensuring improved access to essential health services at primary healthcare centres (PHCC). The priority tasks approved for task shifting and sharing in the policy were family and reproductive health services, maternal and child health services, HIV/AIDS, tuberculosis, and malaria. The identification of these tasks as well as the formulation of strategies for achieving task shifting and sharing involved key stakeholders including professional regulatory bodies and associations, civil society organizations and partners (4). The professional regulatory bodies that were involved in the process were those that regulate the cadres of health workers normatively earmarked to provide health services at PHCC in the country.

Following the development of the task shifting and sharing policy and strategy in Nigeria, implementation was promulgated at various levels with 57% of the 36 States and the Federal Capital Territory adapting and implementing the national policy. Despite the implementation of the task shifting and sharing policy and strategy in these states, the policy environment for task shifting and sharing varies widely with evidence on barriers to successful implementation, factors promoting successful implementation and strategies for improving implementation needed. This evidence will inform the scale-up and strengthening of implementation approaches as Nigeria strives to achieve universal health coverage (11). This informed this study that explored the perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving implementation.

## **5.3 METHODS**

### **5.3.1 Study Design and Setting**

An explorative descriptive research study approach was applied with 20 key informant interviews conducted in Bauchi and Cross River States in Nigeria. The aim was to explore the perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation.

Bauchi and Cross River States were purposively selected for this study because they adapted the National task shifting and task sharing policy and plan into sub-national policies and plans in 2015 and have been implementing it. The target population in these states was policymakers in the ministries of health and primary health care agencies. This group was selected because they have the responsibility for policy formulation and/or implementation of task shifting and sharing. They can also provide rich information on their contextual perspectives on the barriers and promoters of task shifting and task sharing in Nigeria, and strategies for improving the implementation of task shifting and sharing based on their experiences in policy formulation and implementation.

### **5.3.2 Sampling Process**

We applied purposive and snowball sampling techniques (9) in selecting a sample of policymakers in Bauchi and Cross River States. Applying these sampling techniques enabled the investigators to recruit respondents that provided rich information and perspectives on barriers and enablers of task shifting and task sharing as well as providing recommendations for improving its implementation, based on their experiences in policy formulation, planning and implementation. The sampling process was guided by inclusion and exclusion criteria. The inclusion criteria were policymakers (irrespective of health worker category) who are fluent in English Language with the responsibility for policy formulation and/or implementation in Bauchi and Cross River States, and with two or more years of experience in the implementation of the policy. Respondents were excluded if they were policymakers who were not responsible for policy formulation and/or implementation, had less than two years of experience in the implementation of the policy or who refused to participate.

### **5.3.3 Data Collection**

A semi-structured interview guide was developed after a review of the literature by the investigators (SCO and CDC) who are trained qualitative investigators and have experience in the design, conduct, analysis, and reporting of qualitative studies. The semi-structured interviews were conducted by one investigator (SCO) to ensure consistency in questioning and immersion in the data collection process. The guide explored the understanding of task shifting and task sharing, the rationale for task shifting and task sharing, barriers to effective implementation of task shifting and task sharing, factors promoting the implementation of task shifting and task sharing, and strategies for enhancing task shifting and task sharing practice. Probing for detailed descriptions and perspectives was undertaken to gain rich descriptions and allow for flexibility to elaborate on views and perceptions towards providing reach qualitative data (10). The interview sessions lasted between 30 to 60 minutes. All interviews were conducted in English, with information collected through two recognized qualitative data collection methods - field notes and audio records (11). The interviewing process was terminated when data saturation was attained.

#### **5.3.4 Data Analysis**

The audio recordings and notes were transcribed verbatim, anonymized and analysed using the thematic analysis approach (12, 13) with the Nvivo 12 Pro software by the investigators. SCO and CDC ensured that the transcribed information was the same as the audio recording by listening to the audio and reviewing the transcripts. Afterwards, they independently inductively coded the transcripts to identify themes and perspectives on the identified themes. Also, verbatim excerpts to illustrate the perspectives were extracted. The identified themes and perspectives were jointly discussed and a consensus was reached. The themes and perspectives were presented to the participants from Bauchi State (BAU) and Cross River State (CRS) who validated the presented information.

#### **5.3.5 Trustworthiness**

This study applied various measures to ensure trustworthiness. The study process is thoroughly described with insights provided on the processes followed while conducting the study; including the study participants and design, and the processes followed in analysing collected data; with the findings reinforced by citing excerpts. Other methods employed to achieve trustworthiness include prolonged engagement in data collection by one investigator (SCO), use of probes to clarify the interpretations drawn from information obtained, and audio taping and verbatim transcription of recordings. Respondents were also requested to confirm if understandings of information obtained from them correctly present their views.

#### **5.3.6 Ethics Approval**

This study was approved by North-West University Health Research Ethics Committee (NWU-00099-22-A1, 31 August 2022) and the National Health Research Ethics Committee (NHREC) of the Nigeria Federal Ministry of Health (NHREC/01/01/2007-30/06/2022). Permission was obtained from the leadership of the State Primary Health Care Development Agencies in Bauchi and Cross River States. All participants were informed of the objective and methodology of the study, using a participant information sheet, and they signed informed consent forms.

## 5.4 RESULTS

### 5.4.1 Understanding of Task Shifting and Task Sharing and Its Rationale

Before exploring the barriers and promoters of task shifting and task sharing, and strategies for enhancing task shifting and task sharing practice, all the participants responded to questions on their understanding of the meaning of task shifting and task sharing and its rationale. The respondents reported task shifting and task sharing to mean the transfer or allocation of duties, assignments, or activities from highly skilled cadres to lower-skilled cadres in instances where they are inadequate or no health workers to provide the services.

*“Task shifting is a process of delegating work or task from a highly qualified health personnel to a less qualified health workers.”* CRS Policy maker 10

*“... the transfer of certain knowledge or know-how from one specialist to someone who was not formally trained on that particular activity...”* BAU Policy maker 5

In responding to questions on the rationale for task shifting and task sharing, the policymakers presented the rationale to shift or share tasks to the shortage of health workers for quality service delivery in the primary level of care. Further insight was provided that the shortage of health workers was particular for nurses and midwives, and it impacts negatively on the delivery of maternal and child health services. Thus, task shifting and task sharing were also reported to aim at reducing maternal and child mortality.

*“...in the rural area it (task shifting and task sharing) helps and reduces death like the maternal mortality and infant mortality.”* CRS Policy maker 10

*“Task shifting and task sharing ...helps us to reduce the morbidity and mortality of women and newborns.”* BAU Policy maker 8

Some respondents reported that the implementation of task shifting and task sharing was geared towards ensuring that available health workers can provide health services in instances of both non-availability of certain cadres and absence from work. They further indicated that this practice ensures the availability of a variety of services, improves the

health-seeking behaviour of the catchment population, and increases service utilization towards the achievement of universal health coverage.

*“I think what the task shifting and task sharing intends to achieve is to increase utilization of services by making hands available at all times to attend to clients”.*

BAU Policy maker 6

*“To ensure the availability of health care workers to attend to patients anytime they come into the facility”.* CRS Policy maker 7

The respondents also reported that prior to the development and implementation of the State task shifting and task sharing policies, its informal practice was widespread in primary level facilities, due to the absence of highly skilled health worker cadres (doctors, nurses, midwives, laboratory specialists, and pharmacists) and high workload at this level.

## **5.4.2 Barriers to Effective Implementation of Task Shifting and Task Sharing**

### **5.4.2.1 Persistent shortage of health workers**

Respondents reported that the persistent shortage of health workers in the States, especially at service delivery points, hampers the implementation of task shifting and task sharing. They highlighted that some health facilities do not have adequate staffing levels to implement shifts and provide health services in line with the tasks shifted or shared. This, according to them, results in the high workloads experienced by those available.

*“...the shortage of staff also causes the lack of implementation of task shifting... Because if a health worker is alone in a facility, who would they shift or share tasks with? And we have seen a situation generally in the country and specifically my experience where wards are closed due to shortage of staff in the facility.”* CRS Policy maker 9.

*“...the issue of inadequacy of these frontline health workers. The facilities do not have enough and so those available are overworked.”* BAU Policy maker 1

*“The workload is high; it is too much for the few that were trained to implement the tasks shifted or shared...”* BAU Policy maker 9

Another perspective offered in relation to health worker shortages was in relation to the non-availability of experienced health workers to provide mentoring support to beneficiary cadres of task shifting and task sharing.

*“Inadequate personnel to go there to provide on-the-job support to ensure that whatever was the training they had, they actually reinforced it to do the right thing.”* CRS Policy maker 3

#### 5.4.2.2 Inter-cadre rivalry

All policy makers reported the influence of rivalry amongst the various cadres of health workers as a major barrier. According to the respondents, this rivalry is based on the view of the higher-skilled cadres that the lower-skilled cadres who are benefitting from the task shifting and task sharing practice were being trained to take over their jobs and make them irrelevant in service delivery.

*“Even at this point, I am aware that they do not want to hear of the task shifting because they believe it has taken some of their role, duties and responsibilities and given them to the CHEWS. And if that policy is allowed to continue then it means that they will be rendered redundant, so they are opposed to the task shifting policy.”* CRS Policy maker 1

*“Some professionals feel threatened and are still adamant that they would not shift or share their tasks, because their work and their profession will be taken over by another cadre.”* CRS Policy maker 9

*“There is rivalry because those people who have the knowledge think that government is training another cadre who is taking up their job. Despite the fact that they know they are not taking over the job but helping to some extent.”* BAU Policy maker 9

The respondents indicated that this rivalry is impeding the rapid implementation of task shifting and task sharing in States, with health worker categories protecting their

professional practice scopes and not being willing to shift or share tasks that could be implemented by other cadres.

*“...there’s conflict between cadres and this issue delays task shifting and task sharing implementation.”* CRS Policy maker 5

#### 5.4.2.3 Perception on capacity of providers

All respondents reported the perception that the capacity of the beneficiary cadres of task shifting and task sharing is sub-optimal to deliver health services to quality. This was reported to result in resistance in supporting its implementation and a key barrier at policy and strategy formulation, as well as during implementation.

*“...people are against task shifting because of this issue of taking the job for nurses. Some wonder whether the CHEWS, for example, will really be able to handle tasks the way say a doctor or a nurse would...”* CRS Policy maker 1

*“Some health workers have raised concerns on the capacity of the trained cadres to provide services to quality and this is affecting their willingness to allow task shifting to be applied.”* BAU Policy maker 2

#### 5.4.2.4 Lack of adequate equipment

Most respondents reported the non-availability of the medical equipment needed for delivery of shared or shifted tasks at service delivery points. They reported it as barrier affecting the apposite implementation of task shifting and task sharing.

*“...if the equipment that the health workers are supposed to use in delivering services according to the tasks that are shifted to them are available, it will be helpful. We go around and hear them complain that they do not have certain equipment in the health facilities, and this hinders their ability to deliver as expected.”* CRS Policy maker 1

### **5.4.3 Factors Promoting the Implementation of Task Shifting and Task Sharing**

#### 5.4.3.1 Availability of policy

Policymakers acknowledged that the availability of State task shifting and task sharing policy adapted from the national one was the primary enabler of task shifting and task

sharing implementation. They stated that without the State policy, which was based on contextual needs, it would have not been possible to implement task shifting and task sharing.

*“...the task shifting policy which ... we are implementing in the state, which is one of the things that has enabled the task shifting to take place.”* CRS Policy maker 1

*“...the policy of task shifting and task sharing is the number one enabler because you cannot implement without a policy and the strategy.”* CRS Policy maker 9

*“One of the most important factors that promoted implementation of task shifting and task sharing is the availability of State’s policy. You cannot implement task shifting and task sharing without a policy to back the activities.”* BAU Policy maker 10

According to the respondents, the implementation of the State policy and strategy has impacted positively as access to skilled health workers and health service utilization has improved.

*“For me, I think we have increased the pool of service providers with this policy. We have a large pool, a larger pool of providers out there in the system. And because there's a larger pool of providers, utilisation has improved. The clients are more satisfied, because they come out and they are not disappointed. They see somebody close to them to attend to them.”* CRS Policy maker 3

*“With the implementation of this policy, we have a large pool of service providers in the system and utilization of health services has improved. The clients are more satisfied because when they visit a facility close to them, they see health workers who attend to them.”* BAU Policy maker 6

#### 5.4.3.2 Political will

Besides the availability of State policies and strategies on task shifting and task sharing, the political will of the health sector leadership was also stated as a key enabler. The respondents reported that the existing governance mechanisms in the States promote

task shifting and task sharing, and provide resources to implement and monitor implementation.

*“There is an enabling environment provided by the primary health care agency in the headquarters... that favours the implementation of the task shifting policy. Even in terms of monitoring of the implementation. The agency has been promoting and supporting implementation of task shifting and task sharing.”* CRS Policy maker 1

*“...the political will by the government of the day, because without the political will, it would have been difficult to implement the policy in the State ...”* CRS Policy maker 8

#### 5.4.3.3 Acceptance of task shifting and task sharing implementation

The role of the acceptance of task shifting and task sharing, by the primary and beneficiary cadres as an enabler for task shifting and task sharing implementation in the States, were reported by the participants.

*“The health workers accepted the importance of sharing and shifting tasks and this really helped in ensuring that government was able to implement across the State.”* BAU Policy maker 8

The respondents stated that the cadres with the primary responsibility of tasks being shared or shifted expressed their willingness to the concept and demonstrated it by supporting the conduct of planned activities, including policy development, capacity building and on-the-job mentoring.

*“The willingness of the health workers to accept the task shifting policy also helped because they are the ones to implement, and they supported carrying out planned activities.”* CRS Policy maker 9

Also, the beneficiary cadres also expressed willingness to learn in order to meet the needs of the population and achieve the goals of the task shifting and task sharing policy.

*“The cadres trained to implement shared or shifted tasks were also willing to take up additional work because they are happy to meet the needs of their clients where they work.”* CRS Policy maker 2

#### 5.4.3.4 Improvement in knowledge and skills

Respondents indicated that improvement in the knowledge and skills of the beneficiary cadres of tasks shifting and tasks sharing was a factor that enabled its implementation. They provided insights on actions taken to improve the knowledge and skills of the health workers to include convening and co-creating activities, obtaining support to implement planned activities from partners, and conducting trainings, supportive supervision and on-the-job mentoring for trained health workers.

*“We had various planning meetings. And then we had to search for funding from partners to see how they could help us to train because the question from the planning meeting was how do we go about it? So, we sourced for support from partners and some came in and supported several activities.”* CRS Policy maker 3

*“...training and intensive supervision by experienced health workers has enabled implementation of task shifting and sharing.”* BAU Policy maker 6

*“To build their skill we do on-the-job training. When we go for monitoring and supportive supervision visits, we correct them where they need to be corrected.”*  
BAU Policy maker 7

### **5.4.4 Strategies for improving task shifting and task sharing practice**

#### 5.4.4.1 Improve staffing levels

All respondents indicated the importance of improving the staffing levels at health facilities through employment as a vital strategy for improving task shifting and task sharing implementation. This was reported to be important to ensure continuity of quality service provision due to absences or exit from public service of health workers whose knowledge and skills have been improved.

*“The facilities need more health workers so that in case if somebody is not around, another person who is also trained who can provide services is available.”* Bauchi Policy maker 8

*“We need more staff, more hands to work, you see every month people are retiring, even those whose capacity have been built, and this reduces the number of available hands.”* Bauchi Policy maker 10

One participant emphasised the importance of the focus on employment of additional health workers being focused on the cadres whose primary tasks are being shifted or shared to increase their availability.

*“...since the original motivation for task shifting and task sharing is to bridge the gap caused by health worker shortage, government should employ health workers. Especially nurses because the CHEWs are already in larger numbers and constitute the majority of the health workforce.”* CRS Policy maker 1

#### 5.4.4.2 Scale up training of health workers to improve knowledge

The respondents reported the importance of conducting trainings and retraining using national training manuals to improve knowledge of the beneficiary cadres to deliver quality health services. They also reported that this is pertinent in increasing proportion of trained health workers, and the access of the population to competent health workers.

*“There should be trainings and re-trainings to ensure that frontline health workers have the needed knowledge and skills.”* CRS Policy maker 9

*“More health workers should be trained, like when they did the training, it was two staffs that were here. After some months, one of them was posted to another facility. If you can train more persons, it will be better”.* CRS Policy maker 4

*“For me, I think a retraining will help. It's not just good to go to sleep and say they have been trained, they are dealing with clients and some of these areas are very*

*technical. So, a retraining of them will actually go a long way to reinforcing their knowledge.”* CRS Policy maker 3

#### 5.4.4.3 Improve skills through mentoring and supervision

In addition to trainings, most respondents specified the importance of mentoring and coaching to enhance the skills of the cadres benefiting from task shifting and task sharing roles.

*“What we call “on-the-job training” after the classroom training of the frontline health worker is very important in building their capacity better. When you impart the knowledge ..., some of them do not know how to use the equipment in the facility. But through coaching and mentoring they learn and become experts.”* BAU Policy maker 1

The respondents also indicated that supportive supervision is vital in assessing whether the trained health workers gained knowledge and skills, and in enhancing the skills of health workers to implement shared and shifted tasks.

*“...after their trainings, you carry out post-training supervision to see how competent and proficient they are in the knowledge and skills that was transferred to them.”* BAU Policy maker 4

One respondent shared the practice in place of using checklists during supportive supervisory visits and highlighted that this practice was an important strategy for scaling up task shifting and task sharing implementation.

*“And after the training ...we're not stopping there, we need to supervise, so checklists were developed to assist the states and partners to carry out supportive supervision.”* CRS Policy maker 3

Another respondent also shared insight on the practice of ensuring that the supportive supervision is conducted by experienced members of the cadre whose primary tasks are being shifted or shared.

*“Adequate supervision by the higher cadres is needed to ensure that tasks shared or shifted to lower level cadres are conducted properly at service delivery points.”*

BAU Policy maker 6

#### 5.4.4.4 Improve evidence generation and dissemination

Beyond implementing task shifting and task sharing to meet contextual needs, the importance of investing in data and evidence generation and dissemination was emphasised. Most participants suggested that task shifting and task sharing practice has improved access to health services but indicated that mechanisms for data generation, monitoring, evaluation, and dissemination are still sub-optimal. Thus, they stated that to improve future implementation in task shifting and task sharing, efforts should be directed at improving evidence generation, use and dissemination.

*“There is a lot that has been achieved with task shifting and task sharing interventions, but it is not well captured, there is no valid and reliable data system. This is an area that needs to be improved”.* BAU Policy maker 4

*“Another plan that was not well done was using data to show that this task shifting policy has made a difference in the system. The M&E needs to be improved. The M&E staff should be trained, tools should be developed, and data collection and collation processes should be in place.”* CRS Policy maker 3

## 5.5 DISCUSSION

This study applied a qualitative approach to explore the perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving future task shifting and task sharing implementation. To gain a contextual understanding of task shifting and task sharing and the rationale for its implementation, we asked the 20 respondents to provide insights. The respondents were policy makers from Bauchi and Cross River States in Nigeria.

Our finding reports the understanding of task shifting and task sharing to be the transfer of duties, assignments, or activities from highly skilled cadres to lower skilled cadres due

to the shortage of health workers and efforts to improve access to skilled health workers by health service users. The reported understanding is consistent with the national policy (4, 5) and definition by WHO (14). The reported rationale of its implementation is to address the shortage of health workers to deliver health services is also consistent with the findings of other studies in Nigeria (15, 16, 17) and in some countries in Africa (18). A key perspective from this study is the secondary effect of improved access to health services enhancing health seeking behaviour.

The reported barriers to effective implementation of task shifting and task sharing from our study were the persistent shortage of health workers, inter-cadre rivalry, the perceived sub-optimal capacity of the beneficiary cadres of task shifting and task sharing, and lack of adequate equipment for delivery of needed services. The shortage of health workers, especially at the primary level of care in Nigeria, has been reported (16, 17, 19-22) and it is also suggested to result in high workloads (21, 22) and influence attraction and retention of health workers (19, 20, 23). Health workers protecting their professional space was also a reported barrier and this has also been reported in Uganda (24). Beyond this being to preserve professional scopes of practice and remain relevant, it may also be due to the perceived limited capacity of the beneficiary cadres of shifted or shared tasks to implement them. Addressing this requires concerted advocacy on the importance and benefits of task shifting and sharing, with assurances of continued professional relevance for the primary cadres, and actions to enhance the capacities of beneficiary cadres. These should be augmented with actions to ensure equipment are accessible and working conditions are conducive for the delivery of quality health services and achievement of the task shifting and sharing policy goals.

We also found that the factors promoting the implementation of task shifting and task sharing were the availability of a national policy that was adapted to the contextual needs of the States, and the political will of the health sector leaders to implement the policy and monitor the implementation process. The other enablers were the acceptance of task shifting and task sharing implementation by the primary and beneficiary cadres and the implementation of actions to improve the knowledge and skills of health workers to

implement shifted or shared tasks by various actors. Policies and strategies that are informed by contextual evidence on the health workforce situation are critical in achieving universal health coverage (25). However, policies, strategies and interventions can only achieve set goals with strong political will (20, 26), and stakeholder ownership and participation (27), with pertinent capacity enhancements done when needed. The role of knowledge and skills enhancement in facilitating task shifting and task sharing implementation was also reported in Uganda (28) and it is an important action in ensuring the goals of the policy are achieved. This is because, in most instances, the expectation on the beneficiary cadres is to engage in tasks above and beyond their training and scope of practice.

In the literature, several strategies are required to improve the implementation of task shifting and task sharing. They include the availability of required equipment (29), training (29), mentoring (30, 31), supportive supervision (32, 33), and provision of job aids (34, 35). Our findings reported the importance of investments to improve staffing levels, scaling up trainings and periodic retraining to improve knowledge, mentoring, coaching and supportive supervision, and improving data and evidence generation, use and dissemination. Whilst most of our findings highlight actions already in the literature, the importance of data and evidence generation and use has not been highlighted previously, and this is often neglected in policy and practice. Our study indicated its importance in tracking policy implementation and achievements, how task shifting and task sharing are impacting the health system, and the dynamics in access to health services. These are pertinent in tracking performance and evidence-based planning.

### **5.5.1 Implications for Practice**

Considering the protracted shortage, inequitable distribution, low production of health workers and increasing demand for service delivery, task shifting and sharing are widely practised and recommended in many settings (24, 36). Addressing these is needed to ensure the achievement of health sector goals, to attract and retain health workers, and to ensure that interventions to enhance health workforce performance, including task shifting and task sharing, achieves their goals and objectives. In policy and practice, a

pre-emptive exploration of the contextual understanding of task shifting and task sharing, its rationale, barriers to successful implementation and potential enablers is vital. Additionally, learning from other similar interventions on strategies to improve performance is critical. These are essential in shaping strategies for translating evidence to task shifting and task sharing practice through implementation frameworks. This should be done in partnership with relevant stakeholders, with actions to ensure shared understanding and value should be implemented as needed to ensure acceptance and participation. Also imperative is consensus on the implementation modalities with a focus on joint planning, implementation, review, and evidence generation and use.

### **5.5.2 Limitations**

We applied measures to ensure the trustworthiness of the study, thus, our study design and process are transferrable, and the findings are credible. However, our study has some limitations. Our using a qualitative approach and focus on two States in Nigeria hinders the generalizability of our findings. Nonetheless, our study provides credible insights based on the experience of Bauchi and Cross River States in implementing task shifting and task sharing in Nigeria.

## **5.6 CONCLUSION**

This study explored the perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation. Based on the study findings, we conclude that several factors influence the implementation of task shifting and task sharing and their identification and the implementation of relevant strategies are pertinent in achieving set objectives as well as national goals. In policy and practice, therefore, a proactive exploration of the contextual understanding, barriers to implementation, enablers and learning from the performance of similar interventions is pertinent. This should be done in collaboration with stakeholders to foster acceptance and participation.

## Declarations

### Competing interests

The authors declare that they have no competing interests.

### Ethics approval and consent to participate

This study was approved by North-West University Health Research Ethics Committee (NWU-00099-22-A1, 31 August 2022) and the National Health Research Ethics Committee (NHREC) of the Nigeria Federal Ministry of Health (NHREC/01/01/2007-30/06/2022). Permission was obtained from the leadership of the State Primary Health Care Development Agencies in Bauchi and Cross River States. All participants were informed of the objective and methodology of the study, using a participant information sheet, and they also signed informed consent forms.

### Consent for publication

Not applicable

### Availability of data and material

Data and materials are available on request.

### Authors' contributions

Conception and design of the study: SCO, CDC; Data collection: SCO; Data analysis: SCO, CDC; Drafting the article: SCO; Critical revision of the article: CDC. All authors have read and agreed to the published version of the manuscript.

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## CHAPTER 6: ARTICLE 4: OPTIMIZING THE ROLES OF HEALTH WORKERS TO IMPROVE ACCESS TO HEALTH SERVICES IN AFRICA: AN IMPLEMENTATION FRAMEWORK FOR TASK SHIFTING AND SHARING FOR POLICY AND PRACTICE

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The article has been submitted to BMC Health Services Research and is currently under review for publication. This chapter is presented according to the guidelines of the journal (available at [BMC Health Services Research | Submission guidelines \(biomedcentral.com\)](https://www.biomedcentral.com/bmc-health-services-research)).

Exceptions were, however, made in respect of margins, line-spacing, fonts and formatting of tables to conform with the guidelines of NWU and to ensure uniformity in thesis.

## 6.1 ABSTRACT

**Background:** Globally, countries are taking actions to ensure that their population have improved access to people-centred and integrated health services. Attaining this requires improved access to health workers at all levels of health service delivery and equitably distributed by geographical location. Due to the persistent health worker shortages, countries have resorted to implementing task shifting and task sharing in various settings to utilize existing health workers optimally to improve access to health services. There are deliberations on the need for an implementation framework to guide the adoption and operationalization of task shifting and task sharing as a key strategy for utilizing the existing health workforce optimally towards the achievement of universal health coverage (UHC). The objective of this study was to develop an implementation framework for task shifting and task sharing for policy and practice in Africa.

**Methods:** A sequential multi-method research design supported by scoping reviews, and qualitative descriptive study was employed in this study. The evidence generated was synthesized into an implementation framework that was evaluated for applicability in Africa by 36 subject matter experts.

**Results:** The implementation framework for task shifting and task sharing has three core components – context, implementation strategies and intended change. The implementation strategies comprise iterative actions in the development, translation, and sustainment phases to achieve an intended change. The implementation strategies in the framework include mapping and engagement of stakeholders, generating evidence, development, implementation and review of a road map (or action plan) and national and/or sub-national policies and strategies, education of health workers using manuals, job aids, curriculum and clinical guidelines, and monitoring, evaluation, reviews and learning.

**Conclusion:** The implementation framework for task shifting and task sharing in Africa serves as a guide on actions needed to achieve national, regional and global goals based on contextual evidence. The framework illustrates the rationale and the role of a combination of factors (enablers and barriers) in influencing the implementation of task shifting and task sharing in Africa.

**Keywords:** Implementation framework, task shifting, task sharing, Africa, health services, health workers

## 6.2 INTRODUCTION

Globally, countries are taking actions to ensure that their populations have improved access to people-centred and integrated health services [1]. Accomplishing this is vital in realizing universal health coverage (UHC) which is a target of the sustainable development goals (SDG) [2]. Attaining this requires improved access to a suitable skill-mix of health workers that are qualified, skilled and competent at all levels of health service delivery and equitably distributed by geographical location [3]. However, slow progress is being made in this regard due to prevalent global health worker shortages, which was projected to be 15 million by 2020 and 18 million by 2030 based on current trends [4]. For Africa, the projected shortfall is more than 5 million and it contributes significantly to the projected global shortfall [4].

To ameliorate the impact of these shortages, countries have resorted to implementing task shifting and task sharing in various settings to utilize existing health workers optimally to improve access to health services, including expanding the delivery of services within certain contexts [5, 6]. In Africa, task shifting and task sharing have been implemented in various health services context including hypertension, tuberculosis, reproductive, maternal and newborn health, child and adolescent health, HIV/AIDS, tuberculosis, and mental health [7-11]. To enhance the capacities of health workers to deliver shifted or shared tasks, various health professions' education strategies have been applied, including pre-service and in-service education, clinical mentoring, episodic supportive supervision, and provision of job aids [12-14].

With the extensive application of task shifting and task sharing, there are deliberations on the need for an implementation framework to guide the adoption and operationalization of task shifting and task sharing as a key strategy for utilizing the existing health workforce optimally towards the achievement of UHC. In addition, there remains a gap between evidence on task shifting and task sharing research and its practice, and this is contributing to slow attainment of the objectives. The development of frameworks is

recommended to fill this gap as they guide the translation of evidence into practice to facilitate maximal utilization of health research in policy and practice by policymakers rather than the current trend of using political ideologies [15, 16]. Specifically, implementation frameworks are being promoted considering that it provides for steps or process or stages of implementation, areas or levels of influence and the elements of factors/ determinants i.e., barriers and promoters of practice, strategies/approaches to mitigate the impact of the factors and implement the best practice, and evaluations/ assessment of impact [17, 18]. The objective of this study was to develop an implementation framework for task shifting and task sharing for policy and practice in Africa.

## **6.3 METHODS**

### **6.3.1 Study Design**

A sequential multi-method research design supported by scoping reviews and a qualitative descriptive study was employed in this study. There were four key phases before the dissemination of the study findings. These phases were informed by steps for framework design and development [19]. In phase 1, a scoping review was conducted to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa, and the health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa. In phase 2, a qualitative study exploring the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria was conducted. Subsequently, evidence generated from the scoping review, and the qualitative explorative-descriptive study was synthesized and used to design and develop an implementation framework (phase 3). In phase 4, subject matter experts evaluated the applicability of the framework in Africa.

### **6.3.2 Data Collection and Analysis**

#### **6.3.2.1 Scoping reviews**

Two scoping reviews were conducted using the enhanced Arksey and O'Malley's framework for scoping reviews [20, 21]. Each scoping review was conducted in five steps:

1) identify research questions, 2) identify appropriate studies, 3) select relevant studies, 4) extract and chart data and 5) summarise and report results. The scoping reviews focused on answering the following questions: (1) What are the documented rationales for task shifting and task sharing, and the scope of tasks shifted or shared to improve access of the population to health services in Africa? and (2) What health professions' education strategies have been applied to enhance health workers' capacities for task shifting and task sharing in Africa? PubMed, Scopus and CINAHL bibliographic databases were searched to obtain peer-reviewed papers, specifically quantitative, qualitative, and mixed-methods studies, as well as review and perspective papers on task shifting or sharing for integrated health service delivery. A data matrix was used to extract data from studies applying the thematic analysis approach [22, 23]. The reviews were reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Guidelines Extension for Scoping Review reporting standards [22, 23].

#### 6.3.2.2 Qualitative study

An explorative descriptive qualitative study exploring perceptions of policymakers on barriers and promoters of task shifting and sharing, and strategies for improving task shifting and task sharing implementation in Nigeria was conducted. Purposive and snowball sampling techniques [24] were applied in selecting a sample of 20 policymakers in Bauchi and Cross River States. The purposeful sampling targeted stakeholders involved in policy formulation and/or implementation at sub-national levels. Bauchi and Cross River States were purposively selected for this study because of their experience in adapting and implementing task shifting and task sharing policies. Key informant in-person interviews were conducted using a semi-structured interview guide with data collected using field note-taking and audio recording. The audio-recorded information was transcribed verbatim and analysed using the thematic analysis approach [25, 26] with the Nvivo 12 Pro software.

#### 6.3.2.3 Develop and evaluate the implementation framework

The findings of the scoping reviews and the qualitative study were synthesized [27] into an implementation framework. The target population for the evaluation phase were subject matter experts on task shifting and sharing in Africa purposefully selected based

on the publications obtained during the scoping review process and the policymakers interviewed in Nigeria during the qualitative phase. Thirty-six (36) subject matter experts were purposefully selected for the evaluation of the implementation framework using a template exploring their views on context, applicability and how the framework can be improved. The template was peer-reviewed by experts in implementation research and scholars in teaching and learning. The experts were sent an online invitation with those willing to participate indicating their informed consent by clicking on a link to a QuestionPro form where the template had been uploaded. The completed templates were analysed by comparing suggestions and synthesizing the views into the final implementation framework.

## **6.4 RESULTS**

### **6.4.1 Scoping Review On Rationale and Scope Of Task Shifting And Task Sharing Implementation In Africa**

Sixty-one papers were included in the final review. The rationale for task shifting and task sharing were shortages in health workers, ensuring optimal use of current health workers and expanding access to health services. The shortage of health workers was marked in rural areas and by levels of health care service delivery and these also informed the need to expand health services. The scope of tasks shifted and/or shared in 23 countries included maternal and child health, surgical care, medicines management, sexual and reproductive health, communicable diseases (tuberculosis and HIV/AIDS), NCD (hypertension, diabetes, mental health, and eyecare), surgical care, medicines management and emergency care. The scoping review is presented in Chapter 3.

### **6.4.2 Scoping Review On Health Professions' Education Strategies for Enhancing Capacity for Task Shifting and Task Sharing Implementation In Africa**

Thirty-eight studies from 23 countries were included in the study. The health professions' education strategies implemented were education (pre-service and in-service), clinical supervision and mentoring, supportive supervision, and providing job aides. The health services contexts where these strategies were applied included various health services

contexts, including general health, cancer screenings, reproductive, maternal, newborn, child and adolescent health, HIV/AIDS, emergency care, hypertension, tuberculosis, eye care, diabetes, mental health, and medicines. The findings indicate the importance of education based on curriculum and job aids in improving competence of health workers, and the need for their being informed by a needs assessment. Furthermore, clinical supervision and mentoring, and supportive supervision should be informed by protocols and service guidelines based on contextual characteristics. The scoping review is contained in Chapter 4.

### **6.4.3 Qualitative Study On Barriers, Promoters, And Strategies for Improving Task Shifting and Task Sharing Implementation**

Addressing the shortage of health workers to deliver health services was reported as the rationale for task shifting and task sharing implementation in Nigeria. Persistent shortages of health workers, inter-cadre rivalry, the perceived sub-optimal capacity of the beneficiary cadres for task shifting and task sharing, and lack of adequate equipment for delivery of needed services were reported as barriers to effective implementation of task shifting and task sharing. The availability of adapted policies, the political will of the health sector leadership, acceptance of task shifting and task sharing implementation by health workers, and the implementation of actions to improve competence of health workers to implement shifted or shared tasks by various actors were the suggested factors promoting the implementation of task shifting and task sharing. Strategies for improving future task shifting and task sharing implementation were improving staffing levels, scaling up trainings and periodic retraining, mentoring and supportive supervision, and improving evidence generation, use and dissemination. The qualitative study is found in Chapter 5.

### **6.4.4 Implementation Framework for Task Shifting and Task Sharing In Africa**

The findings of the scoping reviews and the qualitative study were synthesized (Table 1) into an implementation framework. The findings of the scoping review in Africa provided evidence of the contextual factors (scope, rationale and intended goal for task shifting and task sharing) in Africa.

Evidence from the qualitative study provided insights on the barriers and promoters of practice, as well as strategies to enhancing task shifting and sharing implementation. The framework was subjected to expert review by a purposeful sample of experts on task shifting and sharing in Africa to gain perspectives on its applicability in their context. The demographic information of the experts is presented in Table 2 and a summary of the responses is presented in Table 3.

**Table 1: Synthesis of implementation framework constructs based on scoping reviews and qualitative study findings**

Implementation framework constructs	Scoping review – Rationale and scope	Scoping review – Health professions education strategies	Qualitative study
<b>Context</b>			
Population needs	The shortage of health workers to meet the health needs of a population is a key rationale for task shifting and task sharing. Other key rationales are to utilize the existing health workers optimally to meet the health service utilization needs and to expand access of a target population to health services.	The provision of training (in-service and pre-service) clinical supervision and mentoring, supportive supervision and job aids were to meet the health needs of target populations.	Policymakers reported the rationale for task shifting and task sharing to be the shortage of health workers to deliver quality health services to the population, ensure the availability of a range of health services, improve the health-seeking behaviour of the catchment population, and increase service utilization towards the achievement of universal health coverage.
<b>Implementation strategies</b>			
Generate evidence	Evidence on the populations' health needs is pertinent in planning for the scope of tasks to be shifted or shared. Evidence on the needs to inform scope and competencies is needed to inform the development of training materials, manuals, protocols and aids.	The development of capacity-building materials was informed by evidence from a needs assessment to ascertain the target population/ patient characteristics and provide skills needed to meet populations' health needs.	Generating contextual evidence on understanding, barriers to implementation, enablers of task shifting and task sharing, and learning from the performance of similar interventions is pertinent in evidence-based planning toward ensuring shared understanding and value.
Map and engage stakeholders	Stakeholders are vital in the planning and implementation of task shifting and task sharing.	Stakeholders were mapped and their views were ascertained on the adequacy of trainings and supervision for shifted/shared tasks.	Inter-cadre rivalry was reported as a barrier to task shifting and task sharing implementation with inadequate knowledge of its importance.

Implementation framework constructs	Scoping review – Rationale and scope	Scoping review – Health professions education strategies	Qualitative study
Develop, implement and review roadmap	Studies in countries reported the implementation of activities in stages to ensure beneficiary health workers implemented the scope of tasks shifted or shared.	Studies reported the implementation of activities sequentially to enhance the capacities of beneficiary health workers to implement shifted or shared tasks.	The acceptance of task shifting and task sharing implementation by the primary and beneficiary cadres following their involvement in the planning and implementation processes was reported as a facilitator for task shifting and task sharing implementation.
Develop, implement and review national/sub-national policies and strategies	Implementation of task shifting and task sharing was based on contextual health policy direction and strategy for service delivery.	The capacity building of health workers was informed by a broader national/ subnational strategy to apply task shifting or sharing.	The availability of a national policy that was adapted to the contextual needs of the States, and the political will of the health sector leaders to implement the policy and monitor the implementation process were reported as facilitators of task shifting and task sharing.
Inservice training	Health worker cadres that benefitted from task shifting and task sharing were trained on the scopes of tasks shifted or shared.	Inservice training of health workers to enhance their capacity to implement shifted or shared tasks.	Enhancement of knowledge and skills through in-service training was reported as a facilitator and an important strategy for future task shifting and task sharing implementation.
Clinical supervision and mentoring		Onsite clinical supervision to health workers that benefited from task shifting or sharing following trainings to further improve their capacity.	The importance of experienced health workers providing mentoring support to beneficiary cadres of task shifting and task sharing was reported to improve knowledge and skills.
Supportive supervision		Periodic supportive supervision was conducted to improve the capacity of health workers to implement shifted or shared tasks.	Improvement in the knowledge and skills of the beneficiary cadres of task shifting and task sharing through supportive supervision was reported to enable its implementation.

<b>Implementation framework constructs</b>	<b>Scoping review – Rationale and scope</b>	<b>Scoping review – Health professions education strategies</b>	<b>Qualitative study</b>
Training Manual		Studies reported the provision of a training manual/ learner's guide that was developed for use in trainings and as a supportive reference to guide service delivery.	The use of national training manuals for trainings and retraining was reported as a vital strategy in practice.
Job aids		Studies reported the provision of job aids to serve as a quick reference and enhance capacities for task shifting and task sharing implementation	
Booster/ refresher trainings		The conduct of periodic refresher/ booster training following initial training to strengthen the capacities of health workers to implement shifted or shared tasks was reported in reviewed studies.	The conduct of retraining was reported as vital in enhancing the knowledge and skills of health workers to deliver shifted and shared tasks.
Preservice education		The importance of revising the pre-service education curriculum to enhance the capacity of beneficiary cadres to implement shared or shifted tasks and preservice training of health workers to enhance their capacity to implement shifted or shared tasks were reported in studies.	
Regulation		Studies reported some cadres had to pass professional competency exams and be certified following trainings to implement shifted or shared tasks.	
Service guidelines		Service protocols/guidelines were developed and provided to beneficiary cadres for reference during service delivery.	
Monitoring, evaluation, review and learning	Studies reported monitoring, evaluating and reviewing the implementation of task shifting and task sharing and using learnings to improve future implementation of activities including trainings, manuals etc.		The importance of investing in data and evidence generation and dissemination was reported as important in tracking the performance of policy and strategy, and evidence-based planning and implementation.

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<b>Implementation framework constructs</b>	<b>Scoping review – Rationale and scope</b>	<b>Scoping review – Health professions education strategies</b>	<b>Qualitative study</b>
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**Intended change**

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Expected outcome	Task shifting and task sharing were implemented to improve health outcomes through improved access to health services.
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**Table 2: Demographic characteristics of the subject matter experts**

Characteristics	Number	Percent
<b>Gender</b>		
Male	27	75%
Female	9	25%
<b>Age</b>		
Under 18	0	0%
18-24	0	0%
25-34	4	11%
35-44	19	53%
45-54	8	22%
55 and above	5	14%
<b>Highest level of education</b>		
Associates degree	1	3%
Bachelors degree	2	6%
Masters degree	23	64%
Doctoral degree	10	28%
<b>Country of residence</b>		
Congo	3	8%
Côte d'Ivoire	1	3%
Ethiopia	1	3%
Ghana	1	3%
Kenya	5	14%
Liberia	1	3%
Nigeria	13	36%
Rwanda	2	6%
Switzerland	2	6%
Thailand	1	3%
Uganda	2	6%
United States	1	3%
Zambia	1	3%
Zimbabwe	2	6%
<b>Years of experience in health services policy, planning or research in Africa</b>		
Less than 5 years	1	3%
5-10 years	8	22%
11 - 20 years	21	58%
Above 20 years	6	17%

**Table 3: Summary of responses from subject matter experts**

Evaluation domain	Summary of responses by respondents
Context	Yes. The framework is bound by context so I believe contextual factors are considered across implementation strategies. SME, Kenya
	Yes, it does. The framework addresses the HRH life cycle of HRH in my context starting out with interventions in pre-service and strategies in adapting those already engaged in-service. SME, Nigeria
	Yes. I have reviewed the framework and I feel that it is relevant in addressing the human resource shortage in health in Africa. The task shifting as it were, is geared towards maximizing the available health human resources. SME, Kenya
	Yes, it does. The use of contextual needs and evidence to inform the development and translation phases. The framework also addresses the missing elements of institutionalization and implementation of actions in Africa. SME, Nigeria
	Yes, it does because it might help in formalizing the task shifting and task sharing in countries by handling it in a comprehensive manner rather than just at the programmatic level of priority programmes. SME, Zambia
Applicability	Yes, but will still require more contextualization in each country and even localities in a country. SME, Zimbabwe
	This framework is well-articulated and comprehensive and has implications for reforming health policies for practice. SME, Thailand
	The framework is easy to understand and applicable in most African contexts. SME, Nigeria
	The framework is suitable for task shifting and sharing in Africa. SME, Nigeria
	Very applicable in light of shortages in the numbers, diversity and ranges of human resources for health in Africa. SME, Uganda
	This framework is very practical and should be easy to implement in practice. SME, Ethiopia
The framework design will use evidence through an iterative process to inform strategy development aligned to the contextual issues. This will ensure that actions are targeted to where they are needed and would have the greatest impact on service delivery, quality, efficiency gains and overall health improvement of the population. SME, Nigeria	
The implementation framework has the potential to increase the pool of skilled health workers attending primary health care in hard-to-reach communities. With the population increase in Africa and the dearth of skilled health workers exacerbated by health workers' migration, this framework will be instrumental in achieving universal health coverage. In Nigeria, there is already a demand for the implementation of the TSTS policy, so the framework is applicable. SME, Nigeria	
The framework provided practical steps and activities that promote the implementation of task shifting and sharing policies and therefore seems widely applicable. SME, United States	

Evaluation domain	Summary of responses by respondents
	<p>The framework is very applicable in the practice as it takes into consideration all the elements of an implementation framework and particularly the context at every stage. Signifying Africa's contextualization and adaptability. SME, Nigeria</p> <p>The context provides the information where the task shifting and task sharing are to be done and further gives room for the understanding and development of the population's needs. On the above premise, the rest of the framework is brought in simultaneously or concurrently. It is very similar to the established tabular Theory of Change but is very specific to the task it hopes to solve, which is task sharing and shifting. The framework is applicable as it is impressively easy to understand and use. A point in case, this is my first time seeing it, and in less than 5 minutes I can explain what it means and how it should be used. SME, Nigeria</p>
Revisions to improve the framework	<p>I was thinking you could add short internships as part of the framework unless this is already captured as part of the practicum. SME, Thailand</p> <p>Integration into existing Continuing Professional Development Programs (CPD) to enhance lifelong learning and improvement. SME, Liberia</p> <p>Strong monitoring and evaluation of the implementation framework's expected outcomes are needed to improve the framework. SME, Nigeria</p> <p>Framework seems great and can be applied where the policy space accepts. SME, Uganda</p> <p>The framework is comprehensive. The implementation strategies should also include how to obtain the government's commitment to financing the actions and interventions. SME, Nigeria</p> <p>Here are some aspects that could be added to improve the framework: Standardization of training and certification: There is a need to standardize the training and certification of health workers involved in task shifting and task sharing to ensure that they have the necessary skills and knowledge to perform their roles effectively. This could be achieved through the development of standardized curricula, training materials, and certification processes. SME, Rwanda</p>

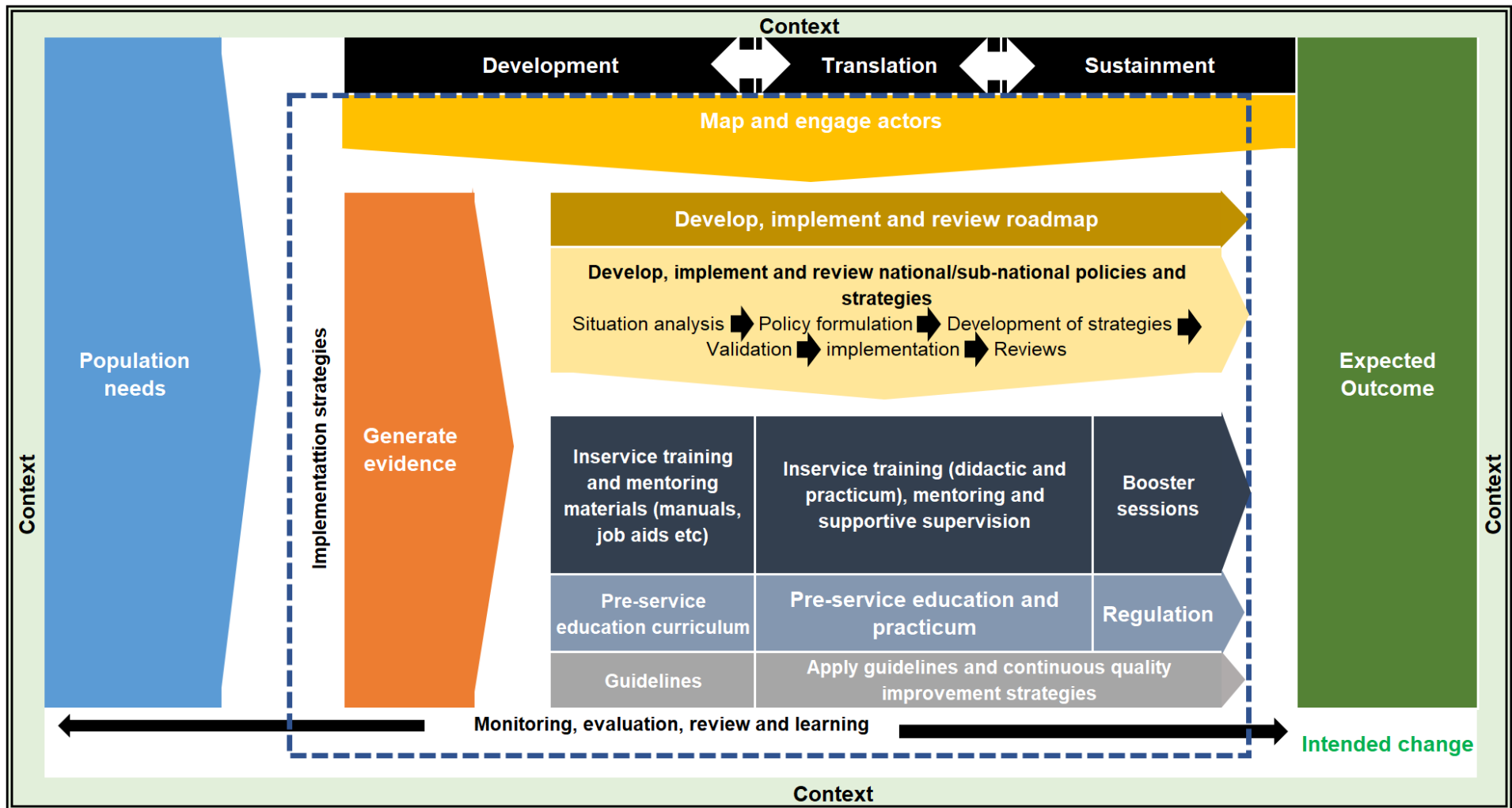


Figure 1: Implementation framework for task shifting and task sharing in Africa

The post-evaluation implementation framework for task shifting and task sharing in Africa is presented in Figure 1. The core phases of the framework are the development, translation, and sustainment phases, and the core components were intended change, context, and implementation strategies [18]. This framework illustrates the rationale and the role of a combination of factors (enablers and barriers) in influencing the implementation of task shifting and task sharing in Africa towards achieving set national goals. Details on the components and phases are presented below.

### Core component 1 - Context

The context focuses on the group of dynamic situational factors or variables that determine or influence the success or otherwise of interventions or approaches towards achieving the intended change (expected outcome) [18, 28]. Therefore, because the context is an essential aspect for consideration at all stages of implementation as they shape the achievement of the intended results, an understanding of the variables is imperative at every stage.

In health service delivery, the context shapes the population's health needs which informs the leadership and governance actions to ensure that the population accesses quality health services based on demography, socioeconomic factors, and disease epidemiology. This informed the context being a critical component of the implementation framework. Thus, generating evidence on the contextual factors or variables is vital in ensuring that contextual strategies are implemented to achieve set outcomes and the setting of the expected outcome considers the contextual characteristics.

### Core component 2 - Implementation strategies

The implementation strategies refer to interventions or actions, that are based on the needs, and focus towards achieving the intended change (expected outcome). The implementation strategies ultimately result in the intended change and need to be informed by contextual factors, tailored to fit contextual needs, and be based on contemporary evidence, and rigorous [18, 28].

In the task shifting and task sharing implementation framework, the interventions/ actions are presented in three (3) phases – development, translation and sustainment – as proposed by Huybrechts et al [18]. These phases are iterative and their adaptation should be based on contextual factors, including barriers and enablers. Its implementation should be informed by guiding principles that include clearly identifying and postulating the actions/ interventions, rationale, target, actors, temporality and planned results/ outcome [28].

### Development phase

The actions in this phase are preliminary and exploratory but are critical for successful implementation towards sustainability and resilience [18]. They focus on ensuring relevant stakeholders are identified and engaged, a consensus is reached on acceptance of intervention and intended activities, and evidence on contextual variables, including current knowledge, attitudes and practices, are generated for use in the next phase.

Mapping and commencing the engagement of stakeholders in the development phase is vital as it provides insight into the intention to adopt task shifting and task sharing. The mapping should focus on the power, interests and influence of health policymakers, health planners, health worker cadres with service delivery responsibilities in the planned setting, educators, regulatory bodies and professional associations for these cadres, other ministries that have roles in service delivery and health worker management and training etc., within the context. In addition to the mapping, the identified stakeholders should be engaged appropriately, with delegates obtained to form part of the core team to guide and/or lead the implementation process.

Generating evidence on the situation is a vital strategy and the engaged stakeholders should play a huge role in this. The contextual evidence generation process aims to explore and understand the contextual knowledge, attitude, and practices, assess the readiness of the stakeholders and planned setting for the planned intervention. The exploration should also gain understanding on likely barriers and enablers of the task shifting and task sharing implementation and seek to learn from existing interventions to

develop bespoke and innovative strategies. Furthermore, the evidence generation actions should also include a situation analysis to inform the development of contextual task shifting and task sharing policies and strategies at national or sub-national levels, with clear tasks being shifted or shared, and relevant service delivery clinical guidelines. Information on tasks being shifted or shared, based on consensus with stakeholders including educators, will guide the needs assessment and training programme (manual, job aids etc.) and pre-service curriculum development processes [29].

Based on evidence generated and the consensus of stakeholders to implement task shifting and task sharing, a roadmap or action plan should be developed. Roadmap would be developed by stakeholders and should have specific, measurable, achievable, realistic and time-bound objectives, outputs, targets and activities with specified responsible persons and timelines. The monitoring, evaluation, review and learning specifics should also be specified. The activities in the roadmap should cover periodic evidence generation actions, advocacy and communication, task shifting and task sharing policy, strategy and clinical guidelines development, implementation modalities and review, in-service and pre-service programme development, training, retraining, and regulation processes. The roadmap should be costed to show the level of investment needed and approved by relevant national authorities to ensure political commitment in its implementation.

The development of in-service training programmes and materials, pre-service curriculum and clinical guidelines should also be initiated at this phase. Depending on consensus by the core implementation team and timelines set in the contextual roadmap, these can either be completed at this phase or in the translation phase. They should be informed by evidence generated on contextual factors, align to the regulatory provisions, and tailored to the needs of the population, and the service providers based on shifted or shared tasks.

### Translation phase

This translation phase focuses on transforming the evidence to practice by integrating the policies, strategies and approaches from the development phase into routine practice in

target settings, and monitoring their effect [18, 30]. This is aimed at achieving the intended change by applying actions tailored to the contextual needs, and where necessary, making evidence- based modifications.

The implementation framework proposes the continuous engagement of stakeholders during this phase to ensure buy in and smooth implementation of strategies based on the road map developed in the previous phase. Evidence-based national and/or subnational policies and strategies, with monitoring, evaluation, review and learning plans, should be developed and validated with their implementation started. They are vital in fostering an enabling environment for task shifting and task sharing implementation.

The finalization and/or roll-out of the in-service training programmes and pre-service curricula for cadres of focus, and application of continuous quality improvement measures should be conducted in this phase. The in-service trainings, with didactic and practicum sessions, should be targeted at the health service providers to enhance their capacities to implement shifted or shared tasks. They should be based on the finalized clinical guidelines specifying the tasks, with relevant training manuals and job aids provided. Also, mentoring, clinical supervision and supportive supervision by experienced health workers should be instituted based on pre-defined protocols. For the pre-service training, the contextual curricula for relevant cadres should be rolled out with practicum also incorporated to enhance their skills. Regulation practices for the cadres of focus should also be enhanced to ensure that accreditation mechanisms incorporate measures for ensuring needed educators, infrastructure and equipment are in place.

### *Sustainment phase*

The focus of the sustainment phase is to sustain and institutionalize strategies from the development phase to maintain the intended change. This ensures that continuous improvement is institutionalized, with pertinent actions becoming a part of daily practice [18].

The engagement and views of the stakeholders is vital in this phase as they provide insights on how practice has fared based on the status of the monitoring indicators in the translation phase. They are also vital in the review and evaluation processes in the roadmap, and the policies, strategies and guidelines, as well as the in-service and pre-service education. These review and evaluation processes are vital in designing contextual continuous improvement strategies that are pertinent for sustainment and institutionalization upon implementation.

The conduct of booster sessions of in-service trainings for health workers is another important action in this phase. This ensures that contemporary knowledge is disseminated, and skills are further enhanced. This also applies to continuous clinical mentorship and periodic supportive supervision. For pre-service education, strengthening practicum experiences based on contemporary trends and regulation ensures that graduates have the requisite skills to deliver health services on graduation.

### Core component 3 - Intended Change

The intended change refers to the consciously planned innovation, change and/or result (output, outcome or impact) expected based on interventions implemented to achieve the set objective(s)[18, 31]. In the proposed framework, the intended change is the expected outcome of the task shifting and sharing practice. Several expected outcomes have been suggested in various contexts, including optimal utilization of existing health workers for delivery of quality health services within particular settings [9, 32-34] [35-37] and expanding access to select health services to other levels of care and geographical locations [38] [8] [39] [40].

## **6.5 DISCUSSION**

This study presented an implementation framework for task shifting and task sharing based on findings of studies in Africa. To develop the framework, a sequential multi-method research design was applied in phases. Two scoping reviews were conducted to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa, and the health professions' education strategies applied to enhance capacities for task

shifting and task sharing implementation in Africa. A qualitative study exploring the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria was also conducted. The evidence generated from the scoping reviews and the qualitative study was synthesized into an implementation framework that was expertly reviewed by subject matter experts who evaluated the applicability of the framework in Africa. We opine that this implementation framework is applicable in other contexts based on the rigour employed during its development.

Implementation frameworks to guide actions aimed at achieving national, regional and global goals are vital in bridging the gap that exists between research evidence and public health practice [41]. They are also essential in facilitating the apposite use of health research findings in policy and practice by policymakers, and health managers, thereby reducing the use of personal ideas in solving health sector issues [15, 16]. For task shifting and task sharing, considering its widespread application and ongoing expansion of the scopes of practice of some cadres of health workers, an implementation framework, based on contemporary evidence which is adaptable, is vital in ensuring actions can be taken within a short space of time to ensure goals are achieved.

This study, to the best of the authors' knowledge, is the first study that has attempted to develop an implementation framework for task shifting and task sharing based on findings within the African context, which faces numerous health workforce and service delivery challenges. This study, therefore, provides an imperative implementation framework that can be adapted to other service delivery practices in various settings. The framework is quite comprehensive and highlights the core components to be considered and provides a chronological iterative guide of factors to be considered and phased strategies that should be applied to initiate relevant processes and generate contextual evidence, translate evidence into policy and practice, and implement health systems strategies to sustain practice and intended change.

A core component of the proposed implementation framework is the context (or setting). In policy and practice, the context plays a role in making sure that interventions are fit-

for-purpose, and are successful [18]. The importance of assessing context for strategies to be successful, address inequalities, and use the findings to improve policy and practice is evident in the literature [18, 42, 43]. Considering that the context shapes the health needs of a population in the development and emergency contexts [44, 45], its exploration is important in ensuring that planned objectives are achieved. Therefore, taking the context into consideration is critical in the implementation of task shifting and task sharing, across all phases and in all actions. For policy and practice, evidence on the contextual factors should be obtained and used in developing and implementing tailored strategies to achieve expected outcomes

The second core component of the framework, the implementation strategies, presents iterative actions in three phases (development, translation, and sustainment) that are aimed at achieving the intended change (expected outcome) that is based on the contextual objective of the task shifting and sharing practice. The strategies in the framework include mapping and engagement of stakeholders, generating evidence on contextual factors, and development, implementation and review of a road map (or action plan) and national and/or sub-national policies and strategies. Others include the education of health workers using context-based manuals, job aids, curriculum and guidelines, regulation of practice and education, and monitoring, evaluation, review and learning.

Identification and engagement of all relevant stakeholders are important for the successful delivery of any intervention as their involvement is vital in ensuring ownership, political will and active participation [46, 47]. Considering the aforementioned, this strategy is recommended in all phases of the framework. Also, evidence generation on contextual factors is indicated to inform the policy and strategy to ensure enabling environment and political will [48, 49]. Evidence is also crucial in the shaping of health worker education materials and strategies apposite for quality training and service delivery [8, 50]. Other suggested strategies, including clinical mentoring periodic supportive supervision, and provision of training manuals, clinical guidelines and job aids have been reported in other studies as important [10, 51-55]. The continuous holistic monitoring, evaluation, review and learning process is essential in ensuring agreed

actions are being taken, targets are being met, course-correction strategies are implemented on time and the intended change is attained [56, 57].

### **6.5.1 Implications for Policy and Practice**

The implementation framework for task shifting and task sharing in Africa, which is adaptable to other contexts, provides a critical path for undertaking actions to achieve set objectives with contextual evidence translated into practice. The implementation framework leans strongly on context as it is a critical aspect of programmes and interventions. This study further portrays its importance in all stages of task shifting and task sharing implementation and practice. Thus, its understanding and use in tailoring task shifting and task sharing policy directions, strategies and practice actions are essential. The role of the various contextual stakeholders, within and outside the health sector, in achieving the aforementioned was also evident from this study and is also vital in policy, strategy and guideline development, implementation and review. Other evidence from this study is the importance of generating contextual evidence and using them to apply a wide array of approaches to improve the knowledge and skills of existing and future health workers to deliver integrated, people-centred health services within particular contexts. To track progress and ensure set objectives are achieved, monitoring, evaluation, reviews and learning, must be a strong part of the planning, development and implementation stages.

### **6.5.2 Limitations**

Despite this study and the implementation framework being novel, we acknowledge some limitations. The scoping reviews focused on peer-reviewed literature and we may have missed the task shifting and task sharing practices that are documented elsewhere. Also, whilst the scoping review focused on three databases, studies that are available in other databases may have been missed. The qualitative study setting was Nigeria with Africa being large and its health service contexts being diverse. Perhaps, a multi-country approach to the qualitative component would have unravelled a wider array of contextual factors. Whilst we advocate for further research in other countries, we feel that the scoping reviews provided substantial insight into contextual factors that apply in other countries in Africa.

## **6.6 CONCLUSION**

The implementation framework for task shifting and task sharing in Africa serves as a guide on actions needed to achieve national, regional and global goals based on contextual evidence. The framework has three core components – context, implementation strategies and intended change. The implementation strategies comprise iterative actions in the development, translation, and sustainment phases to achieve an intended change. The implementation strategies in the framework include mapping and engagement of stakeholders, generating evidence, development, implementation and review of a road map (or action plan) and national and/or sub-national policies and strategies, education of health workers using manuals, job aids, curriculum and clinical guidelines, and monitoring, evaluation, reviews and learning.

### **Data availability**

The datasets generated and/or analysed during this study are available from the corresponding author on reasonable request.

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### **Ethics declarations**

Ethics approval and consent to participate:

The North-West University Health Research Ethics Committee (NWU-00099-22-A1, 31 August 2022) approved this study. The qualitative component was approved by the National Health Research Ethics Committee (NHREC) of Nigeria's Federal Ministry of Health (NHREC/01/01/2007-30/06/2022). Informed consent was obtained from all study respondents.

### **Consent for publication**

Not applicable.

### **Competing interests**

The authors declare no conflict of interest.

## **CHAPTER 7: SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS**

### **7.1 INTRODUCTION**

Globally, countries are making pertinent investments to attain their health sector goals geared towards achieving UHC and the SDGs. Vital to achieving these goals is improved access to qualified, skilled and motivated health workers contributing enormously to the functionality and resilience of the health system (WHO, 2006). In countries where health workforce challenges persist, the health system performance is suboptimal, and health outcomes are poor.

This is the case in most countries in Africa where the prevalent health workforce issues are reported to contribute to the prevailing health indices (Ahmat, Okoroafor, Asamani, et al., 2022; Ahmat, Okoroafor, Kazanga, et al., 2022). An estimated 18 million extra health workers are needed to achieve the needed coverage for health services for the realization of UHC by 2030 (WHO, 2016a, 2016b), mainly due to the size of the population and the ensuing need for health services needs (WHO, 2016a). With the density of doctors, nurses and midwives per 1,000 population being projected at 1.55, there remains a large gap to attain the SDG index threshold of 4.45 health workers per 1,000 population (WHO, 2016a). Access of Africa's population to people-centred and integrated health services is about 32% (WHO, 2018) with reported barriers including poor access to health workers, lack of medicines, technologies and vaccines, and high out-of-pocket payment for health services (WHO, 2018).

To efficiently use existing health workers to improve access to health services, task shifting and task sharing have been implemented in many African countries, albeit not always evidence based (Orkin et al., 2021; WHO, 2007, 2012). Some countries developed and applied policies and guidelines to inform task shifting and task sharing.

These processes vary from country to country because there is no context – specific evidence based task shifting and sharing implementation frameworks to guide the processes.

Implementation frameworks to guide actions aimed at achieving national, regional and global goals are vital in bridging the gap that exists between research evidence and public health practice. They are also essential in facilitating the apposite use of health research findings in policy and practice by policymakers, and health managers, thereby reducing the use of personal ideas in solving health sector issues. For task shifting and task sharing, considering its widespread application and ongoing expansion of the scopes of practice of some cadres of health workers, an implementation framework, based on contemporary evidence which is adaptable, is vital in ensuring actions can be taken within a short space of time to ensure goals are achieved.

This study sought to develop an implementation framework for task shifting and task sharing towards evidence-based optimization of health workers' roles for improved access to health services in Africa. The specific objectives were:

- **Objective 1:** Synthesize evidence on rationale and scope of task shifting and task sharing in Africa.
- **Objective 2:** Synthesize evidence on health professions' education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa.
- **Objective 3:** Explore the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria.
- **Objective 4:** Develop an implementation framework for task shifting and task sharing for policy and practice in Africa.

A sequential multimethod research design (Hunter & Brewer, 2015) consisting of four phases was employed in this study. In phase 1, a scoping review was conducted to generate needed evidence on rationale and scope of task shifting and task sharing in Africa and the health professions education strategies applied to enhance capacities for

task shifting and task sharing implementation in Africa. In phase 2, a qualitative study exploring the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria was conducted. Subsequently, evidence generated from the scoping review, and the qualitative explorative-descriptive study was used to inform the design and development of an implementation framework in phase 3. In phase 4, 36 subject matter experts, and policy makers reviewed the applicability of the framework in Africa and based on their feedback, the framework was revised and finalized.

This chapter presents this study's general summary and conclusion. The implications and limitations of the study, and recommendations ensues.

## **7.2 SUMMARY**

A summary of the various chapters of this thesis is presented in this section, with a focus on the key findings, in relation to the study objectives.

**Chapter 1** of this thesis, **overview and introduction**, highlighted the global goal of the health sector in countries which is to achieve UHC and the SDGs, by ensuring access to people-centred and integrated health services. The chapter indicated the importance of the health workforce in achieving these goals (see Chapter 1, section 1.1). The state of the health workforce in Africa Region in relation to the density by countries and the health workforce challenges was also presented (see Chapter 1, section 1.2.1). Furthermore, the level of access and the challenges of Africa's population and the challenges to accessing health services, and what informed the application of task shifting and task sharing as an approach to optimally utilizing existing health workers to improve access to health services were presented (see Chapter 1, section 1.2.2). Also highlighted was an overview of task shifting and task sharing and context of task shifting and task sharing implementation in Nigeria for improved primary healthcare service delivery (see Chapter 1, section 1.2.2) as well as the primary healthcare workforce in Nigeria (including their roles and responsibilities) and their health professions education (see Chapter 1, section 1.2.3). The statement of problem with the rationale for the study (see Chapter 1, section 1.3), the aim and objectives of the study (see Chapter 1, section 1.4), and a brief on the

research design and methodology (see Chapter 1, section 1.7) and ethical considerations (see Chapter 1, section 1.8) were also outlined.

In **Chapter 2, research design and methodology**, the research paradigm, methodology and design were comprehensively described (see Chapter 2, section 2.2 and 2.3). Also described are approaches for ensuring quality and rigor, and the ethical considerations (see Chapter 2, section 2.4 and 2.5).

The study's specific objectives were addressed in Chapter 3, 4, 5 and 6 through research articles which are submitted for publication in peer-reviewed scientific journals.

**Chapter 3** presented the first article, "*Task shifting and task sharing implementation in Africa: A scoping review on rationale and scope*", accepted and published in [Healthcare](#) journal, with an impact factor of 3.160. This article addressed the specific objective 1 which sought to synthesize evidence on rationale and scope of task shifting and task sharing in Africa, and answered the research question 'What are the documented rationales for task shifting and task sharing, and the scope of tasks shifted or shared to improve access of the population to health services in Africa'?

The scoping review presented in this article synthesized evidence on the rationale and scope for task shifting and task sharing in Africa. Sixty-one peer-reviewed papers from PubMed, Scopus, CINAHL bibliographic databases that met the eligibility criteria were thematically analysed.

The rationales for task shifting and task sharing were health worker shortages, the need to optimally utilize existing health workers and the need to expand access to health services. Health worker shortages were reported for physicians, nurses, midwives, surgical specialists, eye care specialists, pharmaceutical staff, emergency care practitioners, psychiatrists, psychologists, and pathologists. The shortages were reported to be evident by the level of care and geographical location. The second rationale of optimally utilizing exiting health workers was evident in a bid to reduce workloads on some cadres, reduce waiting time, improve health outcomes at no additional cost. The rationale on expanding access to health services was apparent in instances where services were

extended to other levels of care and geographical locations. The setting was in instances where the primary cadres responsible for the service delivery are not typically available.

The scope of tasks shifted or shared varied in communicable diseases (HIV/AIDS, and tuberculosis), NCD (hypertension, diabetes, mental health, and eyecare), maternal and child health, sexual and reproductive health, surgical care, medicines management and emergency care health services contexts. These contexts contribute to the high morbidity and mortality burden in Africa and some of these contexts have received a substantial investment in recent years.

This article concluded that task shifting and task sharing are widely implemented in Africa due to various rationales and across various health services contexts. To guide implementation, the health needs of the populations should be used to guide the capacity building. This is to ensure that they have the required knowledge, skills, competence and job aids to ensure quality service delivery.

**Chapter 4** presented the second article, “*Health professions education strategies for enhancing capacity for task shifting and task sharing implementation in Africa: a scoping review*”, accepted for publication in [The Journal of Continuing Education in the Health Professions](#), with an impact factor of 2.190. This article addressed the specific objective 2 which sought to synthesize evidence on health professions education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa, and answered the research question ‘What health professions education strategies have been applied to enhance capacities for task shifting and task sharing implementation in Africa?’

The scoping review presented in this article synthesized evidence on health professions education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa. Thirty-eight peer-reviewed papers from PubMed, Scopus, CINAHL bibliographic databases that met the eligibility criteria were thematically analysed.

The application of health professions education strategies was reported in various contexts across 23 countries including general health, cancer screenings, reproductive,

maternal, newborn, child and adolescent health, HIV/AIDS, emergency care, hypertension, tuberculosis, eye care, diabetes, mental health, and medicines. The health professions education strategies employed in these countries and contexts were in-service training, onsite clinical supervision and mentoring, periodic supportive supervision, provision of job aides and preservice education. Inservice training was widely practiced with its conduct being guided by context-specific curriculum, and booster trainings conducted within predetermined timelines to enhance knowledge and skills. Onsite clinical supervision and mentoring, and periodic supportive supervision were also conducted to for skills development and competence improvement amongst beneficiary health workers. This was often conducted by the cadres with primary responsibilities. Job aids were also developed and used in task shifting and sharing contexts to enhancing knowledge and practices based on set clinical guidelines. The preservice education of beneficiary cadres using a curriculum is essential in enhancing capacity to implement shared or shifted tasks.

This article concluded that applying the health professions education strategies from this study will enhance the capacity of health workers to implement shifted or shared tasks and contribute towards the provision of quality health services.

**Chapter 5** presented the third article, “*Barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria: qualitative perspectives of policymakers*”, under consideration for publication in [Journal of Public Health Policy](#), with an impact factor of 3.526. This article addressed the specific objective 3 which sought to explore the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria, and answered the research question ‘What are the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria’?

This explorative descriptive qualitative study described the perceptions of policy makers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation in Nigeria. Purposive and snowball sampling techniques were employed in selecting 20 policymakers in Bauchi and

Cross River States. In-person key informant interviews were conducted using a semi-structured interview guide that explored the understanding of task shifting and task sharing, the rationale for task shifting and task sharing, barriers to effective implementation of task shifting and task sharing, factors promoting the implementation of task shifting and task sharing, and strategies for enhancing task shifting and task sharing practice. A thematic analysis approach was applied to analyse the data using the Nvivo 12 Pro software.

The understanding of task shifting and task sharing aligned with the national policy, and the rationale of its implementation; to address the shortage of health workers to deliver health services, also aligned with the findings of other studies in Nigeria and Africa. The barriers of task shifting and task sharing implementation were the persistent shortage of health workers, inter-cadre rivalry, the perceived sub-optimal capacity of the beneficiary cadres of task shifting and task sharing, and lack of adequate equipment for delivery of needed services. The factors promoting task shifting and task sharing implementation were availability of policy, political will, acceptance of task shifting and task sharing implementation, and improvement in knowledge and skills. The strategies for improving task shifting and task sharing practice included includes improving health worker staffing levels, scale-up of trainings and periodic retraining, mentoring and supportive supervision, and enhancing evidence generation, use and dissemination.

This article concluded that considering that numerous factors impact the implementation of task shifting and task sharing, their pre-emptive exploration is pertinent in policy and practice.

**Chapter 6** presented the fourth article, “*Optimizing the roles of health workers to improve access to health services in Africa: an implementation framework for task shifting and sharing for policy and practice*”, under consideration for publication in [BMC Health Services Research](#) journal, with an impact factor of 2.908. This article addressed the specific objective 4 which sought to develop an implementation framework for task shifting and task sharing for policy and practice in Africa, and answered the research question ‘What framework can guide the implementation of task shifting and task sharing in Africa?’

An implementation framework for task shifting and task sharing was synthesized based on the findings of the scoping reviews and the qualitative study. The implementation framework was evaluated by thirty-six (36) subject matter experts on task shifting and sharing in Africa who were selected purposefully.

The implementation framework for task shifting and task sharing in Africa comprises of three core components (context, implementation strategies and intended change) and development, translation, and sustainment phases. Generating evidence on the contextual factors is vital in ensuring that task shifting and task sharing strategies achieve set outcomes and guides the setting the expected. The implementation strategies for task shifting and task sharing are in three iterative phases – development, translation and sustainment. Actions in the development phase focuses on ensuring relevant stakeholders are identified and engaged, consensus is reached on acceptance of intervention and intended activities, evidence on contextual variables, including current knowledge, attitudes and practices, are generated for use in the next phase. The translation phase focuses on transforming the evidence to practice by integrating the policies, strategies and approaches from the development phase into routine practice, and monitoring their effect. The actions in the sustainment phase aims to sustain and institutionalize strategies towards maintaining the intended change which is the expected outcome of the task shifting and sharing practice.

This article concluded that implementation framework for task shifting and task sharing in Africa serves as a guide on actions needed to achieve national, regional and global goals based on contextual evidence. The framework illustrates the rationale and the role of a combination of factors (enablers and barriers) in influencing the implementation of task shifting and task sharing in Africa.

### **7.3 OVERALL CONCLUSION**

The papers presented in Chapters 3 to 6 of this thesis aimed to develop an implementation framework for task shifting and task sharing towards evidence-based optimization of health workers' roles for improved access to health services in Africa. This

section draws the main conclusions for the specific research objectives and highlights how they were achieved.

### **7.3.1 Research Objective 1: Synthesize Evidence On Rationale and Scope of Task Shifting and Task Sharing in Africa**

To achieve this objective, a scoping review was conducted to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa. This objective was fully achieved in article 1 presented in Chapter 3. Based on the synthesized evidence, it was evident that the practice of task shifting and task sharing was widespread in Africa in several health services contexts, due to various reasons. Its practice however, should be tailored to the health needs of the population, and capacity building actions should ensure that health workers have the knowledge and skills to meet the populations' health needs.

### **7.3.2 Research Objective 2: Synthesize Evidence On Health Professions Education Strategies Applied to Enhance Capacities for Task Shifting and Task Sharing Implementation in Africa**

To achieve this objective, a scoping review was conducted to synthesize evidence on the health professions education strategies applied to enhance capacities for task shifting and sharing implementation in Africa. This objective was fully achieved in article 2 presented in Chapter 4. To enhance the capacities of health workers to implement task shifting and task sharing, several complementary strategies are needed. Using evidence from this study, the health professions education should be scaled up to enhance the capacity of health workers in contexts where task shifting and sharing are being implemented or planned for implementation.

### **7.3.3 Research Objective 3: Explore The Perceptions of Policymakers On the Barriers, Promoters, And Strategies for Improving Task Shifting and Task Sharing Implementation in Nigeria.**

To achieve this objective, a qualitative study was conducted to explore the perceptions of policymakers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria. This objective was fully achieved in article 3 presented in Chapter 5. The study showed that several factors serve as barriers or promoters of task shifting and task sharing implementation, and their understanding is vital for a successful implementation. Similarly, understanding contextual strategies for

ensuring that the implementation of task shifting and task sharing is successful, including by learning from ongoing programs, is critical in shaping implementation modalities and actions.

#### **7.3.4 Research Objective 4: Develop an Implementation Framework for Task Shifting and Task Sharing for Policy and Practice in Africa.**

To achieve this objective, evidence generated from the studies conducted to achieve objectives one, two and three was synthesized into an implementation framework that was subsequently evaluated for applicability in Africa by subject matter experts, and finalized. This objective was fully achieved in article 4 presented in Chapter 6. The implementation framework consisted of three core components and development, translation, and sustainment phases. The implementation framework illustrated the role of a combination of factors that influences the implementation of task shifting and task sharing in Africa. also, the framework provides guidance on actions necessary for achieving the goal of task shifting and task sharing based on evidence on the context.

### **7.4 CONTRIBUTIONS OF THE STUDY**

This section highlights the contributions of this study in theory, policy and practice for task shifting and task sharing in Africa based on the drawn conclusions.

#### **7.4.1 Contribution to Theory**

The application of a sequential multimethod research design in phases supported by a scoping review, and qualitative explorative descriptive study employed in this study has contributed to the application of multimethod research designs. The approach used is unique in ensuring that quantitative and qualitative approaches are used to gain needed evidence. The resulting framework in applying this approach for task shifting and task sharing can be applied for other interventions. and ethics review, gatekeeper permissions and other components of the research process.

This study is the first to synthesize evidence on the rationale and scope of tasks that have been shifted or shared within the Africa context. It, therefore, contributes to theory for task shifting and sharing by providing detailed insights on the rationale across several countries in Africa as well as the scopes within different health services contexts as detailed in Chapter 3.

The health professions education strategies synthesized in Chapter 4 is novel and portrays the health professions education strategies employed across several health services contexts within countries in Africa. The synthesis of these strategies also contributes to task shifting and task sharing theory.

#### **7.4.2 Contribution to Policy and Practice**

This study highlights that the implementation of task shifting and task sharing should be based on contextual population's health needs. Therefore, a pre-emptive robust evidence generation to understand the rationale, potential barriers to successful implementation and enablers, and to learn from other similar ongoing interventions is pertinent. Also essential is a multi-sector stakeholder consensus on the implementation modalities focusing on planning, implementation, review, and evidence generation and use. These actions in practice are critical in ensuring that policies, strategies, and interventions achieve intended outcomes. Likewise, evidence on scope and competencies should be documented (Chamberlain et al., 2015) and inform the capacity building actions and the development of needed job aids (Dlamini-Simelane & Moyer, 2017; Some et al., 2016). These practice actions should ultimately contribute to achievement of policies aimed at health systems resilience and ensuring universal access to qualified, skilled and motivated health workers that are equitable distributed (Nuzzo et al., 2019; WHO, 2020).

Similarly, the implementation of health professions education strategies unraveled in this study are vital improving capacity of health workers in practice towards achieving policy goals. The strategies were reported to improve knowledge, confidence and competence (Hoke et al., 2012) (Gyamfi et al., 2017) (Jacobs et al., 2021) (Yator et al., 2021), increase access to services (Bemelmans et al., 2010) (Chamberlain et al., 2015), expand service delivery to other levels of the health system (Labhardt et al., 2010), and reduce workload (De Wet et al., 2011) (Born et al., 2012) (Ledikwe et al., 2013).

The implementation framework for task shifting and task sharing in Africa is adaptable with a strong underpinning context. It provides a critical path for undertaking actions to achieve set health service delivery goals in practice. Its understanding and application in

tailoring task shifting and task sharing policy directions, strategies and practice actions will ensure achievement of goals and ultimately, improved health outcomes.

## **7.5 LIMITATIONS OF THE STUDY**

Although each article presented in Chapters 3, 4, 5 and 6 has a section that highlighted limitations, a summary of the limitations is presented here.

The findings on rationale, scope and health professions education strategies for task shifting and task sharing in Africa presented in Chapter 3 and 4 may not provide a comprehensive view. This is because the scoping reviews was based on peer-reviewed literature that met a set of criteria from three databases. Hence the possibility of evidence that are not published in the peer review literature or did not meet the inclusion criteria being omitted in this review.

For the qualitative study presented in Chapter 5, although we applied measures to ensure trustworthiness of the findings, the use of a qualitative method and the study setting of two States in Nigeria may hamper the generalizability of the findings. However, rich information on understanding, barriers, enablers and strategies for improving implementation was obtained and presented. These findings were also pertinent in the framing of the implementation framework.

Lastly, the subject matter experts that reviewed the implementation framework were purposefully selected. Perhaps, the sampling approach may have omitted other experts that would have provided pertinent perspectives on the context, applicability and components that may have improved the implementation framework.

## **7.6 RECOMMENDATIONS**

### **7.6.1 Further Research**

Whilst this study offers a wealth of insights and is a novel approach to task shifting and task sharing in the African context which is adaptable to other contexts, within the African context, there are potential areas for further research.

- I. There is a need to apply the implementation framework in practice and assess its effectiveness and explore efficiency options. The application would generate evidence to enhance use of the implementation framework.
- II. Further research on the potential indicators for tracking the various core components based on existing health information systems in the countries is also recommended. This will potentially enhance monitoring, evaluation and learning in countries for evidence-based implementation of task shifting and task sharing.
- III. This study did not assess the efficacy of the health professions education strategies applied to enhance the capacity of the health workers. This is recommended for further research as this will allow countries to learn from other experiences during implementation.
- IV. Exploration of the contextual barriers, enablers and strategies for enhancing implementation of task shifting and task sharing in formal and informal settings is also needed to further enrich the literature.

#### **7.6.2 Task Shifting and Task Sharing Implementation**

- I. Evidence from this study highlights the importance of applying a logical implementation approach underpinned on context to ensure the intended outcome is achieved.
- II. Of particular importance is for the implementation to be guided by the populations' needs and actioned by a multi-sectoral team of stakeholders pertinent within the contexts.
- III. Also pertinent is the need to proactively explore the contextual understanding, barriers to implementation, enablers and learning from performance of similar interventions. Again, this should be actioned by a team of stakeholders with consensus reached on the implementation modalities with a focus on joint planning, implementation, review, and evidence generation and use.
- IV. To ensure the capacity building of beneficiary cadres is adequate to deliver the needed services, several health professions education strategies should be employed. In-service training, onsite clinical supervision and mentoring, periodic supportive supervision, provision of job aides and preservice education were evident strategies in the literature.

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## ANNEXES

### ANNEX A: SCIENTIFIC COMMITTEE APPROVAL



#### Recommendation of the HPEd Scientific Committee to the NWU-HREC

<b>Scientific Committee</b>	<b>Name</b>	Health Professions Education Scientific Committee	<b>Discipline</b>	Health Professions Education
	<b>Research Entity</b>	CHPE	<b>Contact Person</b>	Paula Jardim
	<b>Faculty</b>	Health Sciences	<b>E-mail</b>	Paula.jardim@nwu.ac.za
<b>Title of the study:</b> Development of an implementation framework for task shifting and sharing in Africa				
<b>Researchers involved in the study:</b> Promotor: Dr Christmal Christmals PhD Student: Sunny C OKOROAFOR (44725973)				
<b>Executive summary of the research:</b>				
<p>Background: Achieving universal health coverage (UHC) in 2030 is one of the targets (Target 3.8) of the United Nations Agenda for Sustainable Development (WB, 2021). UHC emphasizes on improving access to health services that are people-centred and integrated, and delivered along the life course. This requires a well-trained, skilled, and motivated health workforce at all levels of the health system but is hampered by a widespread shortage due increasing population, and outbreaks of diseases (WHO, 2006). This necessitates strategies for optimally utilizing existing health workers to improve access to health services (WHO, 2016a). Task shifting and task sharing has been proposed as an approach to efficiently utilize existing health workers to ensure improved access to health services (WHO 2016b). The shortage of some essential cadres of the health workforce is very acute and systemic that if the services they provide is not transferred or shared with other health workers, the life of the population will be at risk. Transferring or sharing the tasks of a cadre of health workforce to or with another cadre is termed task shifting and sharing respectively (Orkin et al. 2021).</p> <p>Currently, there are ongoing deliberations in Africa on the need for a framework to guide the adoption and operationalization of task shifting and task sharing as a key strategy for optimally utilizing the existing health workforce towards the achievement of universal health coverage (UHC). Yet, there remains a lack of information on context-specific evidence to support the development of the framework, hence the need to generate evidence on task shifting and task sharing in Africa.</p> <p>This proposed study will seek to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa, and explore the perceptions on barriers and promoters of task shifting task sharing in Nigeria. This evidence will be applied in developing an implementation framework for task shifting and task sharing for policy and practice, including educational reforms, in Nigeria.</p> <p>Methods: A multimethod research design will be adopted for the proposed study to allow for the use of different and complementary research methods to address the research objectives. The objectives are: 1) synthesize evidence on rationale and scope of task shifting and task sharing in Africa, 2) synthesize evidence on health professions education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa, 3) explore the perceptions of policymakers, health managers and health workers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria, and 4) develop an implementation framework for task shifting and task sharing for policy and practice in Africa.</p> <p>A scoping review on: (a) the rationale for task shifting and task sharing towards improved access of the population to health services in Africa, (b) the scope of tasks that have been shifted or shared to improve access of the population to health services in Africa, and (c) the health professions education strategies applied to enhance capacities for task shifting and task sharing implementation in Africa, will be conducted to achieve objectives 1 and 2. For objective 3, a qualitative explorative descriptive study will be conducted to explore the barriers and promoters to implementing task shifting and task sharing in Nigeria, and strategies for improving task shifting and task sharing implementation. Based on the findings of the scoping review and the qualitative and quantitative studies, an implementation framework will be proposed (objective 4). The framework will be synthesized based on findings of objectives 1, 2, and 3. It will illustrate the rationale and the role of a combination</p>				

	<p>of factors (enablers and barriers) in influencing the implementation of task shifting and task sharing in Africa. The framework will be reviewed by subject matter experts, and policymakers before it is finalized and disseminated.</p> <p>Expected outcome: This study will provide a framework for implementing task shifting and task sharing towards improving access to skilled and competent health workers in Africa. Four publications may be produced from the study. A thesis will be submitted to the Faculty of Health Sciences of the North-West University, Potchefstroom in fulfilment of the requirements for the degree Doctor of Philosophy in Health Sciences (Health Professions Education)</p>		
<b>Potential risk level for human participants:</b>	No risk	<input type="checkbox"/>	<p>Motivate: The study explores the perceptions of policymakers, health managers, and health workers on the barriers, promoters, and strategies for improving task shifting and task sharing implementation in Africa. Although participants will be asked to share their thought, the topic is not considered controversial. The participants are not considered as vulnerable and little potential for discomfort or inconvenience on the part of the participant is expected.</p>
	Minimal risk	<input checked="" type="checkbox"/>	
	Medium risk	<input type="checkbox"/>	
	High risk	<input type="checkbox"/>	
<b>Potential risk level for children and incapacitated adults:</b>	No risk	<input type="checkbox"/>	<p>Motivate: Not applicable</p>
	No more than minimal risk of harm	<input type="checkbox"/>	
	Greater than minimal risk with the prospect of direct benefit	<input type="checkbox"/>	
	Greater than minimal risk with no direct benefit	<input type="checkbox"/>	
<b>Recommendation for the ethics committee</b>	Expedited review	<input type="checkbox"/>	<p>Motivate: Research involves humans</p>
	Full review	<input checked="" type="checkbox"/>	
	Exempted from review	<input type="checkbox"/>	
<b>Any additional comments</b>	<p>Motivate: None</p>		
<b>Committee members present during the review</b>	<b>Members present</b>		
	Dr Esme Jansen v Vuuren		
	Dr Yolande Heymans (Chair)		
	Nombulelo Zenani		
	Dr Issie Jacobs		
	<a href="#">Click here to enter name.</a>		
<a href="#">Click here to enter name.</a>			
<b>Date of review</b>	2022/05/05		



Signature of Chairperson  
Date: 2022/05/05



Signature of Research Director  
Date: 2022/05/27

## ANNEX B: ETHICS APPROVAL – NWU HEALTH RESEARCH ETHICS COMMITTEE (NWU-HREC)



Private Bag X1290, Potchefstroom  
South Africa 2520

Tel: 086 016 9698  
Web: <http://www.nwu.ac.za/>

**North-West University Health Research Ethics Committee (NWU-HREC)**

Tel: 018 299-1206  
Email: [Ethics-HRECAppl@nwu.ac.za](mailto:Ethics-HRECAppl@nwu.ac.za) (for human studies)

31 August 2022

### ETHICS APPROVAL LETTER OF STUDY

Based on approval by the North-West University Health Research Ethics Committee (NWU-HREC) on 31/08/2022, the NWU-HREC hereby approves your study as indicated below. This implies that the NWU-HREC grants its permission that, provided the general and specific conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

<b>Study title: Development of an implementation framework for task shifting and task sharing in Africa</b>			
<b>Principal Investigator/Study Supervisor/Researcher: Dr CD Christmals</b>			
<b>Student: SC Okoroafor - 44725973</b>			
<b>Ethics number:</b>	<b>N</b>	<b>W</b>	<b>U</b>
	<b>-</b>	<b>0</b>	<b>0</b>
	<b>0</b>	<b>9</b>	<b>9</b>
	<b>-</b>	<b>2</b>	<b>2</b>
	<b>-</b>	<b>A</b>	<b>1</b>
	Institution	Study Number	Year
	Status		
	Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation		
<b>Application Type: Single study</b>	<b>Risk:</b>	<b>Minimal</b>	
<b>Commencement date: 31/08/2022</b>			
<b>Expiry date: 31/08/2023</b>			
<b>Approval of the study is provided for a year, after which continuation of the study is dependent on receipt and review of an annual monitoring report and the concomitant issuing of a letter of continuation. Monitoring reports are due at the end of August annually until completion of the study.</b>			

**General conditions:**

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- The principal investigator/study supervisor/researcher must report in the prescribed format to the NWU-HREC:
  - Annually on the monitoring of the study, whereby a letter of continuation will be provided annually, and upon completion of the study; and
  - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the principal investigator/study supervisor/researcher must apply for approval of these amendments at the NWU-HREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.
- Annually a number of studies may be randomly selected for active monitoring.
- The date of approval indicates the first date that the study may be started.
- In the interest of ethical responsibility, the NWU-HREC reserves the right to:
  - request access to any information or data at any time during the course or after completion of the study;

- to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;
- withdraw or postpone approval if:
  - any unethical principles or practices of the study are revealed or suspected;
  - it becomes apparent that any relevant information was withheld from the NWU-HREC or that information has been false or misrepresented;
  - submission of the annual monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and/or
  - new institutional rules, national legislation or international conventions deem it necessary.
- NWU-HREC can be contacted for further information via [Ethics-HRECApply@nwu.ac.za](mailto:Ethics-HRECApply@nwu.ac.za) or 018 299 1206

**Special conditions of the research approval due to the COVID-19 pandemic:**

**Please note:** Due to the nature of the study i.e. (face-to-face collection of qualitative data via semi-structured interviews from key informants and experts in Nigeria), this study will be able to proceed during the current alert level, following receipt of the approval letter. No additional COVID-19 restrictions have been placed on the study other than that indicated under the COVID-19 risk mitigation strategy as indicated in the application. The researcher must, however, ensure that before proceeding with the study that all research team members have reviewed the North-West University COVID-19 Occupational Health and Safety Standard Operating Procedure.

**Special in process conditions of the research for approval (if applicable):**

- a. Please provide the NWU-HREC with a copy of the implementation framework, for review and approval, before undertaking Phase 4 of the study.

As the study progresses the aforementioned conditions should be submitted to [Ethics-HRECProcess@nwu.ac.za](mailto:Ethics-HRECProcess@nwu.ac.za) with a cover letter with a specific subject title indicating "Outstanding documents for approval: NWU-XXXXX-XX-XX." The letter should include the title of the approved study, the names of the researchers involved, that the documents are being submitted as part of the conditions of the approval set by the NWU-HREC, the nature of the document i.e. which condition is being fulfilled and any further explanation to clarify the submission.

The *e-mail*, to which you attach the documents that you send, should have a *specific subject line* indicating the nature of the submission e.g. "Outstanding documents for approval: NWU-XXXXX-XX-XX". The e-mail should indicate the nature of the document being sent. This submission will be handled via the expedited process.

The NWU-HREC would like to remain at your service and wishes you well with your study. Please do not hesitate to contact the NWU-HREC for any further enquiries or requests for assistance.

Yours sincerely,



Chairperson NWU-HREC

Current details: (23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5.4 Templates\9.1.5.4.2\_NWU-HREC\_EAL.docm  
20 August 2019  
File Reference: 9.1.5.4.2



Prof CD Christmals  
Health Professions Education  
CHPEd

Private Bag X6001, Potchefstroom  
South Africa 2520

Tel: 018 299-1111/2222  
Web: <http://www.nwu.ac.za>

**Health Sciences Ethics Office for Research,  
Training and Support**

**North-West University Health Research Ethics  
Committee (NWU-HREC)**

Tel: 018-299 2092  
Email: [wayne.towers@nwu.ac.za](mailto:wayne.towers@nwu.ac.za)

3 March 2023

Dear Prof Christmals

## **APPROVAL OF DOCUMENTS SUBMITTED DURING THE PROGRESS OF THE STUDY**

**Ethics number: NWU-00099-22-A1**

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the North-West University Health Research Ethics Committee (NWU-HREC).

**Study title: Development of an implementation framework for task shifting and task sharing in Africa**

**Study leader: Prof CD Christmals**

**Student: SC Okoroafor - 44725973**

**Application type: Single study**

**Risk level: Minimal**

You are kindly informed that the documentation related to the in-process requirement (as indicated below), as was submitted to the NWU-HREC, as indicated in your approval letter, was reviewed by the designated reviewers:


- a. A copy of the implementation framework, for review and approval, before undertaking Phase 4 of the study.

The reviewers have indicated that the submitted document is acceptable and that you as the researcher can proceed with implementing the aforementioned documentation in your approved project, if you are able to proceed with your research under the current alert level (please see comment regarding the continuation of the research below). It should, however, be noted that the following documentation is still outstanding:

- a. A copy of the goodwill permission letter from the leadership of the State Primary Health Care Development Agencies in Bauchi and Cross River States, granting access to the potential participants to be included in the study.

We wish you the best as you conduct your research. If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at [Ethics-HRECApply@nwu.ac.za](mailto:Ethics-HRECApply@nwu.ac.za).

Yours sincerely

  
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by Wayne  
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Date: 2023.03.03  
15:18:38 +02'00'

Head of Health Sciences Ethics Office for Research, Training and Support

Current details: (23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5.3 Letters Templates\9.1.5.4.1\_In-Progress\_Approval\_Letter\_HREC.docm  
30 April 2018  
File reference: 9.1.5.4.1

## ANNEX C: ETHICS APPROVAL – FEDERAL MINISTRY OF HEALTH NATIONAL HEALTH RESEARCH ETHICS COMMITTEE



**National Health Research Ethics Committee  
of Nigeria (NHREC)**

Promoting Highest Ethical and Scientific Standards  
for Health Research in Nigeria



Federal Ministry of Health

NHREC Protocol Number NHREC/01/01/2007-09/06/2022  
NHREC Approval Number NHREC/01/01/2007-30/06/2022  
Date: 30 June, 2022

**Re: Development of implementation Framework for Task Shifting and Task Sharing in Africa**

Health Research Ethics Committee (HREC) assigned number: NHREC/01/01/2007

Name of Principal Investigator: Dr Sunny Okoroafor  
Address of Principal Investigator: World Health Organization  
UN house plot  
617/618, Central Area District  
Abuja  
Email: [sunnyokoroafor@yahoo.com](mailto:sunnyokoroafor@yahoo.com)  
Tel: +234837476449, +2348131736273

Date of receipt of valid application: 09/06/2022

Date when the final determination of research was made: 30-06-2022

**Notice of Expedited Committee Review and Approval**

This is to inform you that the research described in the submitted protocol, consent form, advertisement and other participant information materials have been reviewed and *given expedited committee approval by the National Health Research Ethics Committee.*

This approval dates from 30/06/2022 to 29/06/2023. If there is a delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study.* In multiyear research, endeavour to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.

*The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code.*

*The HREC reserves the right to conduct a compliance visit to your research site without previous notification.*

Signed

**Professor Zubairu Iliyasu MBBS (UniMaid), MPH (Glasg.), PhD (Shef.), FWACP, FMCPH, FFPH(UK)  
Chairman, National Health Research Ethics Committee of Nigeria (NHREC)**

Department of Health Planning, Research & Statistics  
Federal Ministry of Health  
11<sup>th</sup> Floor, Federal Secretariat Complex Phase III  
Ahmadu Bello Way, Abuja

Tel: +234-09-523-8367  
E-mail: [chairman@nhrec.net](mailto:chairman@nhrec.net), [secretary@nhrec.net](mailto:secretary@nhrec.net),  
[deskofficer@nhrec.net](mailto:deskofficer@nhrec.net),  
URL: <http://www.nhrec.net>,

## ANNEX D: PERMISSION LETTERS FROM BAUCHI AND CROSS RIVER STATES



### GOVERNMENT OF BAUCHI STATE MINISTRY OF HEALTH

Bello Kirfi Road, Off Murtala Mohammed Way,  
P.M.B. 065, Bauchi

E-mail: bauchismoh@gmail.com

Reference.....MOH/GEN/S/1409/I.....

Date.....30<sup>th</sup> June, 2022.....

PROTOCOL REG. NO: BSMOH/REC/050/2022  
PROTOCOL APPROVAL NO: NREC/03/11/19B/2021/50  
PROTOCOL APPROVAL DATE NO: June 2022 TO May 2023

Sunny C. Okoroafor,  
World Health Organization (WHO).


#### ETHICAL CLEARANCE FOR SUBMITTED PROTOCOL:

**“Development of an Implementation framework for Task shifting and Task sharing in Africa,”**

The Bauchi State Health Research Ethics Committee (HREC) under the State Ministry of Health has received the above named protocol for Ethical Clearance and approval in line with the guidelines set by the Committee. The protocol was reviewed and the Committee noted that the research falls under the Low Risk Category which does not entails clinical trials or any invasive procedures.

2. Consequently, the Committee has granted expedited approval for the research to be conducted within the stipulated timeframe above. However, you should share with us your workplan clearly indicating the start date, where and when to visit the research site(s) and **also the final results of your findings**

3. The Committee requires you to comply with all Institutional Guidelines, Rules and Regulations and with the Tenets and Code of the National Health Research Ethics Committee including that all adverse events are reported promptly to the Committee. **No changes are permitted in the research without prior approval by the Committee** except in circumstances outlined in the Code. The Committee reserves the right to conduct compliance visit to your research site at short notice.

  
(Nuru Yakubu Umar)  
For: Hon. Commissioner.



Government Of Cross River State, Nigeria



CRSPHCDA  
Depo Road  
Esuk Utan  
Calabar

CRSPHCDA/ADM/74/V.1/86

29<sup>th</sup> June, 2022

**Mr. Sunny C. Okoroafor**  
North-West University  
Potchefstroom  
South Africa

Dear Dr. Sunny,

**RE: APPROVAL TO CONDUCT A STUDY TITLED – DEVELOPMENT OF AN IMPLEMENTATION FRAMEWORK FOR TASK SHIFTING AND SHARING IN AFRICA**

With respect to your request for permission to conduct a qualitative study on the **Perception of Policy Makers on barriers, promoters and strategies for improving task shifting and task sharing implementation in Nigeria** a component of your PhD study titled – **Development of an implementation framework for task shifting and sharing in Africa**, I am writing to convey our approval.

We look forward to the findings of the study as it would be a useful evidence for policy and practice in Cross River State.

Yours sincerely

**DR. JANET EKPENYONG**  
DIRECTOR GENERAL, CRSPHCDA

## **ANNEX E: INVITATION LETTER TO POLICYMAKERS TO PARTICIPATE IN THE QUALITATIVE STUDY WITH THE INFORMATION SHEET FORM**

*[Name and details of policymaker]*

### **INVITATION TO PARTICIPATE IN A QUALITATIVE STUDY ON THE PERCEPTION OF POLICYMAKERS ON TASK SHIFTING AND SHARING IN NIGERIA**

Sir/Madam,

I am writing to invite you to participate in a qualitative study with the objective of exploring the perceptions of policy on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation. This study is part of my PhD study in North-West University, South Africa. The findings from this study will contribute to developing a framework for implementing task shifting and task sharing towards improving access to skilled and competent health workers in Nigeria, which will be adaptable across Africa.

This study has been reviewed and approved by the North - West University Health Research Ethics Committee (NWU-HREC) and the National Health Research Ethics Committee (NHREC) of the Federal Ministry of Health. The State Primary Health Care Development Agency has also granted permission to conduct this study.

Please review the information sheet below for more details on the study. If you require any clarifications, please feel free to contact me.

If you wish to participate in this study, please contact Mr. Agbons Oaiya at [bonkhi@yahoo.com](mailto:bonkhi@yahoo.com). He is an independent person supporting the study and he will share with you the informed consent form and support in obtaining your consent to participate in the study.

Many thanks for your anticipated kind response.

Yours faithfully,

**Sunny C Okoroafor**

Mobile: +234 (0) 8037476449

Email: [sunnyokoroafor@yahoo.com](mailto:sunnyokoroafor@yahoo.com)

## **INFORMATION SHEET ON QUALITATIVE STUDY**

**TITLE OF THE RESEARCH STUDY:** barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation in Nigeria

**ETHICS REFERENCE NUMBERS:**

**PRINCIPAL INVESTIGATOR:** Dr. Christmals Christmal Dela

**POSTGRADUATE STUDENT:** Dr. Sunny C Okoroafor

**ADDRESS:** Faculty of Health Sciences, North-West University, Potchefstroom  
South Africa 2520

**CONTACT NUMBER:** +234 8037476449

### **1.1. What is this research study all about?**

- We plan to explore the perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation. The findings from this study will contribute to developing a framework for implementing task shifting and task sharing towards improving access to skilled and competent health workers in Nigeria, and the framework will be adaptable across Africa.
- This study will be conducted in a place of your choice that ensures privacy and will be done by an experienced health researcher trained in qualitative research. 16 participants will be included in this study.

### **2.1. Why have you been invited to participate?**

- You have been invited to be part of this research because you are a policymaker involved in policy development and/or implementation.

### **3.1. What will be expected of you?**

- If you wish to participate in this study, please contact Mr. Agbons Oaiya at [bonkhi@yahoo.com](mailto:bonkhi@yahoo.com). He is an independent person supporting the study and he will share with you the informed consent form and support in obtaining your consent to participate in the study.
- Upon receipt of your consent, an interview will be conducted during which you will be expected to respond to questions on barriers and promoters to implementing task shifting and task sharing in Nigeria, and strategies for improving task shifting and task sharing implementation in Nigeria. Participating in this interview will take about 60 minutes.

### **4.1. Will you gain anything from taking part in this research?**

- There will be no direct gains for you for taking part in the study, as you will not be offered or receive material or financial benefits for participating in this study.

**5.1. Are there risks involved in you taking part in this research and what will be done to prevent them?**

- Participation in this study poses a minimal risk threshold and there is no anticipated harm or discomfort.

**6.1. How will we protect your confidentiality and who will see your findings?**

- Your anonymity will be protected by presenting any information you share with us using pseudonyms that cannot be used to identify you. Your privacy will be respected by ensuring that your personal information is not available and the interview is conducted in a private space of your choice. Your results will be kept confidential by not divulging any personal information obtained during the interviewing process to a third party. Only the researchers will be able to look at your findings. Findings will be kept safe by locking hard copies in locked cupboards in the Centre for Health Professions Education and electronic data will be password protected. As soon as data has been transcribed it will be deleted from the recorders. Data will be stored in the Centre for Health Professions Education for 5 years and destroyed afterwards based on NWU guidelines.

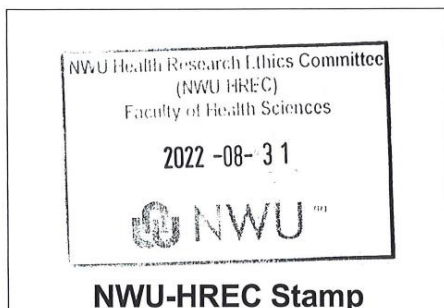
**7.1. How will you know about the results of this research?**

- We will give you the results of this research when the data has been analysed and published by June 2023.

## ANNEX F: NWU-HREC STAMPED INFORMED CONSENT FORM



Private Bag X1290, Potchefstroom  
South Africa 2520  
Tel: +2718 299-1111/2222  
Fax: +2718 299-4910  
Web: <http://www.nwu.ac.za>



### INFORMED CONSENT FORM FOR ALL RESPONDENTS OF QUALITATIVE STUDY

**TITLE OF THE RESEARCH STUDY:** Perceptions of policymakers on barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria

**ETHICS REFERENCE NUMBERS:** NWU-00099-22-A1

**PRINCIPAL INVESTIGATOR:** Dr. Christmals Christmal Dela

**POSTGRADUATE STUDENT:** Dr. Sunny C Okoroafor

**ADDRESS:** Faculty of Health Sciences, North-West University, Potchefstroom South Africa 2520

**CONTACT NUMBER:** +234 8037476449

You are being invited to take part in a **research study** that forms part of my PhD in Health Sciences with Health professions education. Please take some time to read the information presented here, which will explain the details of this study. Please ask the researcher or person explaining the research to you any questions about any part of this study that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research is about and how you might be involved. Also, your participation is **entirely voluntary**, and you are free to say no to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part now.

This study has been approved by the **NWU-Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00099-22-A1)** and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

**What is this research study all about?**

- *We plan to explore the perceptions of policymakers on barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria. The findings from this study will contribute to developing a framework for implementing task shifting and task sharing towards improving access to skilled and competent health workers in Nigeria, which will be adaptable across Africa.*
- *This study will be conducted in a place of your choice that ensures privacy, will be audiotaped and be led by an experienced health researcher trained in qualitative research. 16 participants will be included in this study.*

**Why have you been invited to participate?**

- *You have been invited to be part of this research because you are a policymaker. You will unfortunately not be able to take part in this research if you decline to be interviewed.*

**What will be expected of you?**

- *You will be expected to respond to questions on barriers and promoters to implementing task shifting and task sharing in Nigeria, and strategies for improving task shifting and task sharing implementation in Nigeria. Participating in this interview will take about 60 minutes.*

**Will you gain anything from taking part in this research?**

- *There will be no direct gains for you for taking part in the study, as you will not be offered or receive material or financial benefits for participating in this study.*

**Are there risks involved in you taking part in this research and what will be done to prevent them?**

- *Participation in this study poses a minimal risk threshold and there is no anticipated harm or discomfort.*
- *The possible risk of being uncomfortable to share your views due to the recording of interviews is anticipated. Your participation is voluntary and information shared will be anonymised and kept confidential. This will ensure they cannot be traced back to you.*
- *The possible risk of your views not being anonymous is also anticipated. The information you present which are relevant to the study will be presented in the final report as quotes using pseudonyms.*
- *We also anticipate the of contracting COVID- 19. The relevant COVID-19 protocols will be maintained. This will be done despite the risk on contracting the disease being very minimal in the country.*
- *Generally, there are more gains for you in joining this study than there are risks. The indirect benefit to participants is that the findings of the study is expected to*

*contribute to improving access to integrated health services when the recommendations are applied in policy and practice.*

**How will we protect your confidentiality and who will see your findings?**

- *Your anonymity will be protected by presenting any information you share with us using pseudonyms that cannot be used to identify you. Your privacy will be respected by ensuring that your personal information is not available and the interview is conducted in a private space of your choice. Your results will be kept confidential by not divulging any personal information obtained during the interviewing process to a third party. Only the researchers will be able to look at your findings. Findings will be kept safe by locking hard copies in locked cupboards in the Centre for Health Professions Education and for electronic data it will be password protected. As soon as data has been transcribed it will be deleted from the recorders. Data will be stored in the Centre for Health Professions Education for 5 years and destroyed afterwards based on NWU guidelines.*

**How will you know about the results of this research?**

- We will give you the results of this research when the data has been analysed and published by June 2023.

**Will you be paid to take part in this study and are there any costs for you?**

This study is funded by the investigator. You will not be paid to take part in the study and your choice to participate is voluntary. You had no travel expenses and will not be refunded for traveling. There will thus be no costs involved for you, if you do take part in this study.

**Is there anything else that you should know or do?**

- You can contact **Dr. Sunny C Okoroafor** at **+2348037476449** if you have any further questions or have any problems.
- You can also contact the NWU-Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or [carolien.vanzyl@nwu.ac.za](mailto:carolien.vanzyl@nwu.ac.za) if you have any concerns that were not answered about the research or if you have complaints about the research.
- You will receive a copy of this information and consent form for your own purposes.

**Declaration by participant**

**By signing below, I ..... agree to take part in the research study titled:** Perceptions of health service delivery stakeholders on barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria

I declare that:

- I have read this information/it was explained to me by a trusted person in a language with which I am fluent and comfortable.
- The research was clearly explained to me.
- I have had a chance to ask questions to both the person getting the consent from me, as well as the researcher and all my questions have been answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be handled in a negative way if I do so.
- I may be asked to leave the study before it has finished, if the researcher feels it is in the best interest, or if I do not follow the study plan, as agreed to.

Signed at (*place*) ..... on (*date*) ..... 20....

.....  
**Signature of participant**

**Declaration by person obtaining consent**

I (*name*) ..... declare that:

- I clearly and in detail explained the information in this document to  
.....
- I did/did not use an interpreter.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (*place*) ..... on (*date*) ..... 20....

.....  
**Signature of person obtaining consent**

**Declaration by researcher**

I (*name*) ..... declare that:

- I explained the information in this document to .....
- I did not use an interpreter
- I encouraged him/her to ask questions and took adequate time to answer them or I was available should he/she want to ask any further questions.
- The informed consent was obtained by an independent person.
- I am satisfied that he/she adequately understands all aspects of the research, as described above.
- I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (*place*) ..... on (*date*) ..... 20....

.....  
**Signature of researcher**

Current details: (23239522) G:\My Drive\9\_ Research and Postgraduate Education\9.1.5.6 Forms\HREC\9.1.5.6\_NWU-HREC\_ICF\_Template\_Feb2019.docm  
7 February 2019

File reference: 9.1.5.6

## ANNEX G: KEY INFORMANT SEMI-STRUCTURED INTERVIEW GUIDE

*[read informed consent form]*

<b>Interviewee Code</b>	
<b>Ministry/ Department/ Agency /Health Facility</b>	
<b>Cadre</b>	
<b>State</b>	

1. What is your understanding of task sharing and task shifting within the context of health service delivery?
2. From your understanding [of task shifting and task sharing,] what are they intended to achieve?
3. What are the probable barriers to effective implementation of task shifting and task sharing? [**List suggested barriers and probe for detailed descriptions and perspectives on how they affect task shifting and task sharing**]
4. In your opinion, what are some of the factors promoting the implementation of task shifting and task sharing in the primary health facilities in the state? [**Make a list of the factors suggested and probe for detailed descriptions and perspectives on how the factors affect task shifting and task sharing**]
5. To improve access to quality health services, what criteria/ benchmark should inform task sharing and task shifting?
6. In what ways do you think task shifting and task sharing practice could be improved in primary level facilities? [Probe to obtain a detailed description of each strategy proposed]
7. Question for frontline health workers only. What tasks do you currently perform which are beyond your traditional scope of professional practice? In what ways did you develop the skills needed to perform these tasks? [Probe to obtain a detailed description for each method]
8. What else would you like to add?

## **ANNEX H: ONLINE EXPERT REVIEW INVITATION LETTER, INFORMATION SHEET, INFORMED CONSENT AND FORM FOR EVALUATION OF IMPLEMENTATION FRAMEWORK**

### **SECTION A: INVITATION, INFORMATION AND INFORMED CONSENT**

#### **Invitation**

I am writing to invite you to expertly review an implementation framework for task shifting and task sharing.

#### **Introduction**

This study has been approved by the NWU-Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU NWU-00099-22-A1, 31 August 2022) and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

**Voluntary participation:** Participants are recruited on a voluntary basis. If you feel uncomfortable and do not wish to participate, please do not proceed after reading this consent form.

#### **Background of study**

Currently, there are ongoing deliberations in Africa, especially in Nigeria, on the need for a framework to guide the adoption and operationalization of task shifting and task sharing as a key strategy for optimally utilizing the existing health workforce towards the achievement of universal health coverage (UHC).

A study was conducted to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa, explore the perceptions on barriers and promoters of task shifting and task sharing in Nigeria, and describe the factors associated with the

implementation of task shifting and task sharing in Nigeria, including basic and additional health professions education.

Evidence from the above was applied in developing an implementation framework for task shifting and task sharing for policy and practice, including educational reforms in Nigeria, which is adaptable for Africa.

**Why have you been invited to participate?**

You have been invited to be part of this research because you are a subject matter expert/policy maker. You will unfortunately not be able to take part in this research if you decline to be interviewed.

**Confidentiality:** This tool does not capture any personal information that can be used to trace the information provided back to you.

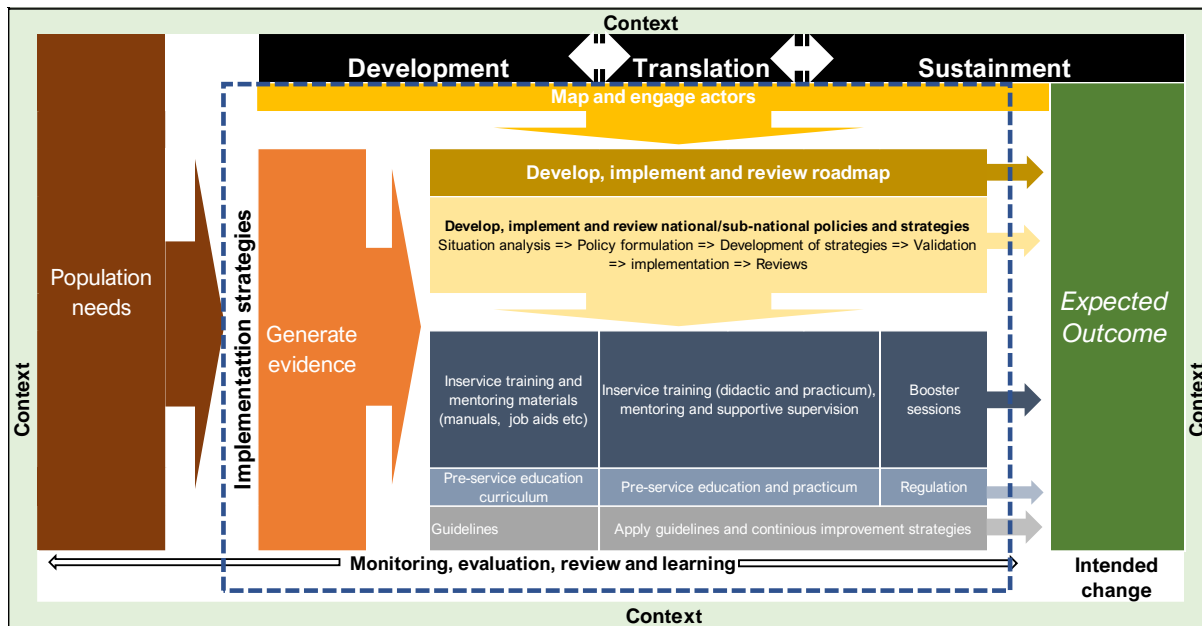
**Risks:** Your participation is not anticipated to cause you any harm

**Costs:** Your participation is at no financial cost.

**Proof of Consent:** By clicking on the link below that leads to the review form, you are providing your consent and voluntarily participating in this study.

[CLICK HERE TO PROCEED TO REVIEW FORM](#)

**SECTION B: IMPLEMENTATION FRAMEWORK FOR TASK SHIFTING AND TASK SHARING**



### SECTION C: IMPLEMENTATION FRAMEWORK REVIEW FORM

1.	Does the implementation framework address relevant <b>Context</b> information for Africa/ Nigeria?
2.	Provide your opinion on the <b>Applicability</b> of this framework in practice or otherwise?
3.	What aspects need to be added to improve the framework

**ANNEX I: PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS  
AND META-ANALYSES EXTENSION FOR SCOPING REVIEWS (PRISMA-  
SCR) CHECKLIST**

<b>SECTION</b>	<b>ITEM</b>	<b>PRISMA-ScR CHECKLIST ITEM</b>	<b>REPORTED ON PAGE #</b>
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2, 3
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	3
<b>METHODS</b>			
Protocol registration	and 5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	-
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	4
Information sources	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	4
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	3
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	4
Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from	4

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
		investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	3
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	-
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	4,5



Review

## Task Shifting and Task Sharing Implementation in Africa: A Scoping Review on Rationale and Scope

Sunny C. Okoroafor <sup>1,2</sup> and Christmal Dela Christmals <sup>2,\*</sup>

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**Abstract:** Numerous studies have reported task shifting and task sharing due to various reasons and with varied scopes of health services, either task-shifted or -shared. However, very few studies have mapped the evidence on task shifting and task sharing. We conducted a scoping review to synthesize evidence on the rationale and scope of task shifting and task sharing in Africa. We identified peer-reviewed papers from PubMed, Scopus, and CINAHL bibliographic databases. Studies that met the eligibility criteria were charted to document data on the rationale for task shifting and task sharing, and the scope of tasks shifted or shared in Africa. The charted data were thematically analyzed. Sixty-one studies met the eligibility criteria, with fifty-three providing insights on the rationale and scope of task shifting and task sharing, and seven on the scope and one on rationale, respectively. The rationales for task shifting and task sharing were health worker shortages, to optimally utilize existing health workers, and to expand access to health services. The scope of health services shifted or shared in 23 countries were HIV/AIDS, tuberculosis, hypertension, diabetes, mental health, eyecare, maternal and child health, sexual and reproductive health, surgical care, medicines' management, and emergency care. Task shifting and task sharing are widely implemented in Africa across various health services contexts towards ensuring access to health services.

**Keywords:** task shifting; task sharing; rationale; scope; health service delivery; optimal utilization of health workers; access to health services



**Citation:** Okoroafor, S.C.; Christmals, C.D. Task Shifting and Task Sharing Implementation in Africa: A Scoping Review on Rationale and Scope.

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### 1. Introduction

Task shifting and task sharing are being implemented in several countries to efficiently utilize existing health workers to improve the access of the population to quality health services. Access of populations to quality healthcare is essential in achieving Universal Health Coverage (UHC) and the health and health-related Sustainable Development Goals (SDG) [1–3]. Task shifting is defined by the World Health Organization (WHO) as “the rational redistribution of tasks among health workforce teams”, from trained and qualified health workers to other health workers with shorter training duration to maximize the available health workforce [2]. In task shifting, tasks are delegated or transferred, and in task sharing, tasks are delivered collaboratively by different staff categories [3]. This approach is implemented in many countries globally, including Africa, where there remains a persistent health workforce shortage and deficient access to healthcare [4,5].

Africa faces numerous health workforce challenges that are contributing to the health indices and systems' performance of countries in the continent [6]. These challenges are also impacting negatively on the functionality and the resilience of the health system [7,8], and the attainment of key population outcomes [9]. These challenges, which are quite broad and have contextual specificities, include weak health and health workforce leadership, governance and stewardship mechanisms, and management systems, as well as poor regulation, and evidence generation and use mechanisms [6,10]. Furthermore, there is a

## ANNEX K: EVIDENCE OF ARTICLE 2 ACCEPTED

### ← Submissions in Production

Page: 1 of 1 (1 total submissions)

Results per page 10 ▾

Action	Manuscript Number	Article Title	Production Status	Initial Date Submitted	Final Decision Date
Correspondence Send E-mail	JCEHP-22-0375R1	Health professions education strategies for enhancing capacity for task shifting and task sharing implementation in Africa: a scoping review	In Production	Nov 30 2022 7:27AM	Apr 18 2023 12:24PM

### ← Submissions with an Editorial Office Decision for Author

Page: 1 of 1 (1 total completed submissions)

Results per page 10 ▾

Action	Manuscript Number	Title	Initial Date Submitted	Status Date	Current Status	Date Final Disposition Set	Final Disposition
Action Links	JCEHP-22-0375	Health professions education strategies for enhancing capacity for task shifting and task sharing implementation in Africa: a scoping review	Nov 30 2022 7:27AM	May 4 2023 2:14PM	Completed Accept	May 4 2023 2:14PM	Accept

## ANNEX L: EVIDENCE OF ARTICLE 3 UNDER PEER REVIEW

### Journal of Public Health Policy


#### Barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria: qualitative perspectives of policymakers

--Manuscript Draft--

<b>Manuscript Number:</b>	JPHP-D-23-00054
<b>Full Title:</b>	Barriers, promoters, and strategies for improving task shifting and task sharing implementation in Nigeria: qualitative perspectives of policymakers
<b>Article Type:</b>	Original Article
<b>Funding Information:</b>	
<b>Abstract:</b>	Nigeria developed the National Task Shifting and Task Sharing Policy due to the protracted inequitable distribution of health workers, especially at the primary level of care, and the low stock and production rate of skilled health workforce. Following its development, implementation was promulgated at various levels with States adapting and implementing the national policy. The policy environment for task shifting and sharing varies widely with evidence on barriers to successful implementation, factors promoting successful implementation and strategies for improving implementation needed to guide scaleup. An explorative descriptive research study approach was applied with 20 key informant interviews conducted to explore perceptions of policymakers on barriers and promoters of task shifting and sharing in Nigeria, and strategies for improving task shifting and task sharing implementation. The barriers to effective implementation of task shifting and task sharing from our study were the persistent shortage of health workers, inter-cadre rivalry, perceived sub-optimal capacity of the beneficiary cadres of task shifting and task sharing, and lack of adequate equipment for delivery of needed services. The factors promoting the implementation of task shifting and task sharing were the availability of adapted policies, the political will of the health sector leadership, acceptance of tasks shifting and task sharing implementation by health workers, and the implementation of actions to improve knowledge and skills of health workers to implement shifted or shared tasks by various actors. The strategies to improve future task shifting and task sharing implementation includes improving staffing levels, scaling up trainings and periodic retraining, mentoring and supportive supervision, and improving evidence generation, use and dissemination. In policy and practice, a proactive exploration of the contextual understanding, barriers to implementation, enablers and learning from the performance of similar interventions is pertinent in shaping strategies for translating evidence to task shifting and task sharing practice.
<b>Corresponding Author:</b>	Sunny C Okoroafor World Health Organization Country Office for Uganda UGANDA
<b>Corresponding Author Secondary Information:</b>	
<b>Corresponding Author's Institution:</b>	World Health Organization Country Office for Uganda
<b>Corresponding Author's Secondary Institution:</b>	
<b>First Author:</b>	Sunny C Okoroafor
<b>First Author Secondary Information:</b>	
<b>Order of Authors:</b>	Sunny C Okoroafor Christmal Dela Christmals, PhD

# ANNEX M: EVIDENCE OF ARTICLE 4 UNDER PEER-REVIEW

https://submission.springernature.com/submission-details/0e9dc366-dd39-4deb-9161-d9bef76... A 🔍 ⭐ ⚙️

 | BMC Health Services Research [My account](#) ▾

## Optimizing the roles of health workers to improve access to health services in Africa: an imple...

**CURRENT STATUS**

**Your submission has passed the technical checks and is now in peer review**

We will now find the most suitable editor to manage the next steps of your submission. If your submission is successful, they will invite reviewers to peer review your work. This process can take a few weeks.

We will email [sunnykoroafor@yahoo.com](mailto:sunnykoroafor@yahoo.com) if there are any revisions you need to make.

**Need help?**

If you have any questions about this submission, you can [email the Editorial Office](#).

For general enquiries, please look at our [support information](#).

**Progress so far** [Show history](#)

- Submission received
- Initial technical check
- Peer review

**Your submission**

Title  
Optimizing the roles of health workers to improve access to health services in Africa: an implementation framework for task shifting and sharing for policy and practice

Type  
Research

Journal  
BMC Health Services Research

Submission ID  
0e9dc366-dd39-4deb-9161-d9bef76f3a70

## ANNEX N: LANGUAGE EDITING CERTIFICATE

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*Catherine A. Bell*

P O Box 489  
Strathavon  
2031  
Tel: 082 558 2912

### CERTIFICATE OF EDITING

To whom it may concern:

This letter confirms that the thesis detailed below was edited for English language grammar, language, spelling and punctuation.

**Date:** 21 March 2023

**Description:** Development of an implementation framework for task shifting and task sharing in Africa

**Chapters:** 1-6 only

**Thesis Author:** Sunny C Okoroafor

**Institution:** Centre for Health Professions Education, North-West University

*C. A. Bell*

## ANNEX O: PLAGIARISM CHECK – SUMMARY OF TURNITIN REPORT

44725973:SC\_Okoroafor\_4472573\_Final\_thesis.pdf

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### ORIGINALITY REPORT

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