Can the Midwives Service Scheme (MSS) present an effective and health systems strengthening response to the shortages in human resources for maternal health services in Nigeria?

AKUDO EZINNE IKPEAZU

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Abstract

The flagship Midwives Service Scheme (MSS) was introduced in 2009 as the first large-scale intervention to address rural retention of midwives in Nigeria. This was a multi-component intervention including financial incentives to midwives, provision of accommodation and systems level support, aiming to improve human resource capacity to provide quality services. This study explores how effectively the scheme's design and implementation drew on the health system's context, resources, needs and population preferences, and how it contributed to strengthening health systems at all levels.

To meet the objectives, 87 in-depth interviews and eight focus group discussions with policy-makers, implementers, midwives and community members were conducted in two Nigerian states and at the federal level. Drawing on a systems-thinking approach, the study developed a new framework examining the fit of the intervention with the local health system's context considering: i) leadership and commitment ii) policy and financing context iii) human resource management capacity, and iv) stakeholder participation. The framework informed the framing of the study and guided data collection; however, themes were identified and synthesised inductively.

The broad principles and features of the scheme were widely supported by program managers and policy-makers across the three health systems levels (local, state, federal). However, its design was based on federal level program managers' knowledge of maternal health and health worker issues, and limited recognition of the decentralised nature of the health system. Implementation was hampered by inadequate management and logistical capacity to deal with the complex design, poor absorptive capacity of states for the posted midwives, failure to provide continued supervision, and welfare issues that affected the midwives.

The MSS was successful in attracting midwives including those employed in the private sector due to the promised pay package and capacity building opportunities offered under it. Several factors affected motivation of midwives and impacted on midwife retention. These include low and unpaid salaries and incentives, housing difficulties and distance of housing from the facility, and travel costs and hardships incurred from commuting to the facility. Unmet career development priorities were an additional source of demotivation. The findings point to poor retention of midwives in both states. Retention was better among retired

midwives compared to other categories. Younger midwives were more mobile and exited the scheme mainly to the private sector. The MSS had the potential to bring about system-wide changes; however, weak implementation severely hampered its achievement of the intended outcomes and dampened the expectations of significant improvements in the health systems.

The findings underscore the importance of reflecting overall health systems structures and processes and local contextual factors, including local health workers' preferences in designing effective human resource retention schemes. The scheme is potentially replicable as a bundled package of interventions to improve access to skilled workers in rural communities in LMICs. Since decentralisation critically modifies the decision-making space, an inclusive process where sub-national actors participate in choosing policy options should be a prerequisite.

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I am grateful to Dr. Dina Balabanova, my supervisor, for the excellent support and guidance she gave me throughout the doctoral study and through this research. Without her encouragement through the difficult times, I may not have reached this point. I am also grateful for the support received from Dr. Melisa Martinez-Alvarez, in her two roles; first as advisory committee member and later as associate supervisor. Further I would like to thank my advisory committee for their very helpful advice.

This research would not have been possible without the research participants who spared their time to provide information, share their experiences or supported the fieldwork. Particularly, I thank Hajia Binta in the National Primary Health Care Development Agency (NPHCDA) for her invaluable assistance in providing linkages for the fieldwork.

Finally, I am grateful to my friends and family for their support and encouragement throughout this journey.

Integrating statements

The choice of the Doctor of Public Health (DrPH) degree was based on the opportunity it offered for strengthening public health leadership and policy analysis skills needed to contribute effectively at the upstream policy level in developing countries. Its three components: a taught component, organisational and policy analysis (OPA) project and thesis research project, provided these skills.

The taught component was undertaken within the first eight months and comprised of three core modules exclusive to the DrPH programme: Evidence-Based Public Health Practice (EBPHP) 1 and 2, and Leadership Management and Personal Development (LMPD). I also undertook three optional MSc modules. The EBPHP module introduced me to acquiring and evaluating evidence for policy-making. Two assignments helped to strengthen the knowledge gained. The first was a systematic review of the effectiveness of age-of-sale restrictions as an option for tobacco control among minors. The second was an agenda-setting exercise in which I developed an influencing strategy for improving availability of midwives in rural areas in Nigeria. This exercise was very useful when it came to deciding my thesis topic, as soon after its completion the Midwives Services Scheme in Nigeria was established. The LMPD module opened a whole new world of concepts I had previously not linked to public health management. In particular, the change management and leadership components helped me deconstruct previous organisational experiences from a theoretical perspective. Based on past work experiences, through the assignment, I was able to investigate how poor leadership and inadequate change management undermined policy change. The elective modules: economic evaluation, organisational management and health systems and their real-world application on a range of public health issues provided additional theoretical perspectives. It was particularly essential to understand the important dimensions of cost, and individual and group behaviour, and how these influence decision-making and prioritisation of resources for public health programmes. Thus, I was introduced to a new way of thinking about public health issues. The taught component provided the grounding to equip me to use sound evidence to support recommendations and was essential in preparing for the OPA project.

The objective of the OPA was to observe and analyse a public health organisation in order to understand how to develop such organisations to deliver on public health goals. Drawing on

the skills from the taught component, I undertook a six-month attachment with the Department of Health Planning and Research (DHPR) in the Federal Ministry of Health (FMoH) in Nigeria. Although I had worked in the public sector and thought I was familiar with the operations of FMoH, the OPA provided an opportunity of an insider-view of these operations and to learn about the organisation and management of an effective public health institution. In addition to meeting the overall goals of the OPA, the analysis was constructed to assist the host organisation evaluate its competence and ability to deliver on its goals of developing and implementing a new strategic health development plan which placed demands on the Department in terms of new roles, scope and depth of work. The experience gave me a better understanding of the organisational management concepts I had learned, and the use of evidence to inform policy and practice. It also allowed me acquire and practice new research skills. The 12,000-word OPA report was the final product of this experience.

The research project was the third and last of the three components. Since DrPH theses are oriented towards public health practice, it was appropriate to choose a topic relevant to my interest in upstream policy work and also relevant to public health concerns in Nigeria. Having worked in the Nigeria health sector, I knew there was a gap between investments in public health interventions resulting in discrepancies in how these inputs have been converted into results. From my experience working on various interventions, the gaps in availability of health workers required to deliver services in rural areas were all too evident. Although I had spent the immediate period prior to starting the DrPH working on HIV programmes, I chose to focus on the broader issues of human resources and health systems strengthening because of their cross-cutting nature and application. This focus was to allow the research to be of use in my current position and in other health sector programmes. Also, high-quality research relevant for policy-making in this area was rare. My thesis assesses a rural retention scheme for midwives and its contribution to strengthening health systems. The skills and experience gained through the OPA project strengthened my thesis research. Overall, pursuing the DrPH degree has given me a solid foundation in public health policy and enabled me to have a better understanding of public health leadership and management. I feel it has significantly influenced my approach to public health practice as experienced in my daily practice. In addition, the skills gained will enable me to design and undertake high-quality research, promoting evidence uptake.

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List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
BEOC	Basic Essential Obstetric Care
CDC	Community Development Committee
DHS	Demographic and Health Survey
EOC	Emergency Obstetric Care
EPOC	Effective Practices and Organization of Care
GAVI	Global Alliance for Vaccines and Immunization
GDP	Gross Domestic Product
GFTAM	Global Fund to Fight AIDS, Tuberculosis and Malaria
FGD	Focus Group Discussion
FGN	Federal Government of Nigeria
FP	Family Planning
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
HRM	Human Resources Management
HS	Health Systems
IDI	In-Depth Interview
IMCI	Integrated Management of Childhood Illnesses
IMNCH	Integrated Maternal, Neonatal and Child Health Strategy
LGA	Local Government Area (Authority)
LMICs	Low and middle income countries
LSHTM	London School of Hygiene and Tropical Medicine
LSS	Life Saving Skills
MDG	Millennium Development Goals
MM	Medium Mortality
MMR	Maternal Mortality Ratio
MNCH	Maternal Newborn and Child Health
MSS	Midwives Service Scheme
MTCT	Mother to Child Transmission of HIV
NDHS	National Demographic and Health Survey
NURHI	Nigerian Urban Reproductive Health Initiative

PHC	Primary Health Care
PPFN	Planned Parenthood Federation of Nigeria
PPP	Purchasing Power Parity
PRRINN-MCH	Partnership for Revival of Immunization in Northern Nigeria
SSA	Sub-Saharan Africa
TWG	Technical Working Group
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
US	United States of America
VDC	Village Development Committee
VHM	Very High Mortality
WDC	Ward Development Committee
WHO	World Health Organization

Chapter1: Introduction

1.1 Rationale for the study

Maternal and child health are central to national and international health improvement strategies because of the unmet health needs of pregnant women and children across most regions of the world. Global commitment to improving maternal health has been demonstrated in its inclusion in development strategies[1] [1-3] in the past two decades. Since the Millennium Development Goals (MDGs) were adopted as the framework for global development priorities, global maternal deaths have declined by 45% between 1990 and 2013 from 523,000 to 303,000 annually[4]. Despite these positive global trends, experts suggest that of all the MDGs the least achievement was made towards Goal 5: every day in 2015 about 830 women across the globe died due to complications during pregnancy and childbirth[4]. When considering the progress made over the last two decades, extreme differences remain across regions and countries. The highest rates of maternal deaths are in low and middle income countries (LMICs), with 62% of the maternal deaths taking place in sub-Saharan Africa (SSA) in 2013[5]. By the end of 2015, many SSA countries failed to reach MDG 5; only 52% of deliveries were attended by skilled personnel and only half of women received the recommended minimum four antenatal care visits[6]. The United Nations reaffirms the need for greater commitment to reduce maternal mortality. Thus, maternal health remains a priority in the post-2015 development agenda. The Sustainable Development Goals (SDGs) commit to promoting good health and wellbeing with two specific targets directly relevant to maternal health: by 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 and ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes [6].

Maternal mortality, as it is today, is considered a reflection of inequality as it is more inequitably spread across the globe than newborn or child mortality[7-10]. Compared with women in developed countries with a 1 in 3,700 risk, the lifetime risk of death from complications of pregnancy and delivery for a women in SSA is 1 in 38[11] making the

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[1] Improve maternal health. Target 5a; reduce by three-quarters between 1990 and 2015, the maternal mortality ratio. 5b; Achieve by 2015, universal access to reproductive health. 1. United Nations Development Programme, *Millennium Development Goals*. 2000, United Nations: New York.

reduction of maternal mortality a priority for countries in SSA[12-14]. World Health Organization (WHO) estimates show that Nigeria is one of the 15 leading contributors to the maternal death burden in SSA. In 2013, about 30% of global maternal deaths were concentrated in India and Nigeria alone[5]. In Nigeria, every year, 545 out of 100,000 women still die in pregnancy or complications associated with childbirth[15]. Compared to its estimated 2% of the world's population, Nigeria accounts for a disproportionate 14% of the global deaths worldwide. A Nigerian woman has a 1 in 31 lifetime risk of dying in pregnancy or childbirth. This burden is disproportionate, given that Nigeria has the highest GDP in SSA[16], compared to other countries within the region with lower GDPs where the risk is 1 in 38[17]. Due to slow progress in improving maternal health in Nigeria, in 2013 MDG Goal 5 was selected for the application of the MDG Acceleration Framework (MAF) developed by the United Nations[18].

1.1.1 The global Maternal and Child Health (MCH) debate: current status

Over time, several strategies have been employed to reduce maternal morbidity and mortality, some of which have been embodied in high-profile global initiatives such as the Safe Motherhood movement of the eighties, the Countdown to 2015 Maternal, Newborn and Child Survival initiative and the Partnership for Maternal, Newborn and Child Health in 2005[19-21], and more recently the launch of the Global Strategy for Women's, Children's and Adolescent's Health in 2016[22]. Many valuable lessons have been learned regarding program development and implementation. In the 1990s, major efforts were focused on providing care for obstetric emergencies and making them available at district or lower level[23]. Using this approach, the Prevention of Maternal Mortality (PMM) Network implementation experience in Nigeria, Ghana and Sierra Leone showed the value of a multidisciplinary approach. This includes addressing interlinked health and social barriers to seeking care, beyond a focus only on barriers to emergency care[23].

The Safe Motherhood Initiative was established in 1987 in response to the high level of maternal morbidity and mortality in less developed countries. Ten years after its inception, it provoked significant debate because of its failure to meet its initial objective of reducing maternal deaths by half within a decade[24, 25]. The major weakness was seen to be the absence of a clear strategic focus because it encompassed a broad range of interventions from family planning, antenatal care, essential obstetric care, primary health care to equity for women[25].

Further experience supported the view that while better care of obstetric emergencies is critical, it is insufficient[26], therefore strategies need to address not only the clinical causes of maternal death but the structural reasons they are not addressed within the health system[27]. Despite a debate on where and with whom a woman should deliver, the importance of skilled attendance at birth has been well established[28-30]. Furthermore, the role of the overall health system in supporting maternal health care[31] and the complementary role of maternal health services in health systems strengthening efforts is well understood. Indeed, there is increasing clarity on the significance of maternal mortality as a 'tracer condition' closely reflecting health systems performance[32] and it has been proposed for use as an indicator for accessible and functional health services[33].

There are three common areas of debate regarding the diverse range of strategies currently being used to address maternal mortality. The first is whether to address demand side issues, which aim at increasing the demand for effective care, such as community mobilisation strategies and training of Traditional Birth Attendants (TBAs)[34-36] or improve supply through interventions that improve quality and availability of services within the formal health sector. The second is whether to focus on primary preventive approaches like family planning[37], antenatal care[38, 39] and increasing the proportion of deliveries with skilled care versus interventions seeking to reduce acute obstetric complications implicated in the majority of maternal deaths[40]. The third is whether to use focused strategies like post-abortion and post-partum care or broad-based approaches most of which focus on broad health systems improvements that enable safe motherhood and equity interventions. The WHO's Making Pregnancy Safer (MPS) is one example of the second approach[41]. Most recently, the Global Strategy for Women's and Children's Health attempts to bring together the lessons of the past decades by setting out key areas for urgent action, taking a broad-based approach; access to comprehensive integrated interventions and services, including family-planning information and services, antenatal, newborn and postnatal care, emergency obstetric and newborn care, skilled care during childbirth at appropriate facilities, safe abortion services (when abortion is not prohibited by law), and the prevention of HIV and other sexually transmitted infections[42].

There is now a critical mass of evidence on what interventions are effective and many countries have achieved remarkable progress implementing these. Many of these advances have been associated with political will rather than increased funding. Thus, Malaysia and Sri Lanka succeeded in achieving rapid and sustained reductions in maternal mortality over two

decades despite modest investments in maternal health of less than 0.5% of their GDP[43]. Their strategies changed over time, from initial emphasis on birth and death registration to focusing on expanding services and improving quality of services, and employment of trained midwives working within a well-regulated environment. This was accompanied with near-universal coverage with free and accessible services[44]. A key message from these experiences is that strategies were adopted incrementally, relying on functioning health systems enabling their delivery, and involving adaptation to address local conditions contributing to maternal mortality[45]. Despite ongoing efforts and country-level commitments expressed in policy documents, poor maternal health outcomes remain a feature of many LMIC such as Nigeria. Global comparative analyses suggest that among the 75 Countdown[2] countries, which accounted for 98% of all maternal deaths worldwide, only a minority reached MDG 5[46, 47]. The slow progress is explained by first, insufficient attention and priority aimed at implementation of maternal health services at country level[48], thus coverage of cost-effective interventions has been low[3], and second, low capacity to address both supply and demand side issues at community and health facility levels[48]. AbouZahr et al.[49] also argued that inadequate health information and management systems are important contributors to poor health outcomes which are often overlooked .

1.1.2 The challenge of health systems

A health systems approach is regarded as *sine qua non* for achieving maternal mortality reduction targets[31, 50-55]. However, evidence points strongly to health systems that are too fragile and too fragmented to deliver the volume and quality of services to those in need[56, 57]. Yet the health systems of the most burdened countries remain insufficiently resourced[56, 58]. Beyond the additional investments required, a strong case has been made for more efficient use of the limited resources available[59, 60].

The most important constraints faced by health systems in reducing maternal mortality in LMIC relate to human resources, financing, drugs and medical supplies systems[43, 61], and in the generation and use of data[57]. Availability and access to skilled care is judged to be central

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[2] Countdown to 2015, a collaboration among individuals and institutions, aims to stimulate country action to improve maternal, newborn, and child health, by tracking coverage for interventions needed to attain MDGs 4 and 5. The Countdown to 2015 initiative currently defines a list of 75 priority countries with 95% of the global burden of reproductive, maternal, newborn, and child health (RMNCH).

because the interventions with the greatest effect on maternal mortality are critically dependent on people with skills, to a higher extent than on technology and commodities[62]. Authors have also highlighted that the extent to which a skilled attendant can perform is dependent on the strength of the health system within which they operate[31]. Consequently, for interventions to work, a broad-based approach, which addresses multiple issues in the health systems as well as programmatic concerns, in particular improved access to emergency obstetric care, is required[63-66]. For example, a study in the Philippines demonstrated how the positive synergistic effects of increased technical and financial investments across multiple health systems functions lead to maternal health improvements[67].

Evidence demonstrates that addressing maternal mortality requires investment in a range of different health systems areas (building blocks). In the real world, understanding the health system and the policies required to strengthen it in terms of the distinct building blocks poses considerable challenges. Strengthening health systems is complex, expensive, and likely to take many years to achieve and may be influenced by a large range of unpredictable factors[68]. These challenges are highlighted by the systems thinking approach which conceptualises health systems as complex systems and emphasises that the whole is greater than the sum of its individual components[69]. Therefore it offers a more holistic perspective to complex problems in complex systems[70]. Furthermore, the interconnectedness and dependence of the components means that changes in one element will have effects throughout the system and vice versa, with the cycle of change and response continuing indefinitely or until a major disruption in systems or context[52]. This identifies the need to have interventions that are directly aimed to influence the outcome of interest but with potential effects on other (supportive) systems elements. Thus, the Ghana Community Health Program (CHP) combined a health systems approach focused on deployment of nurses to village locations with existing services. A trial of the CHP showed up to 40% reductions in maternal mortality in areas where nurses were deployed compared to areas relying on existing services alone[71]. Similarly, a systematic review of the impact of health systems strengthening efforts on maternal mortality in Rwanda showed that between 2000 and 2010 significant improvements in skilled attendance, institutional deliveries and contraceptive prevalence were attributable to increases in the skilled health workforce, performance-based financing, access to community-based health insurance, and improved leadership and governance[72]. Experiences of Burkina Faso, Cambodia, Indonesia and Morocco with strengthening health systems in support of maternal, newborn and child health over two decades showed that four lines of action

contributed to improved maternal health outcomes: extension of the network of health facilities for improved access and uptake of facility deliveries, scale up of skilled birth attendants, reduction of financial barriers to access and efforts to improve quality of care[50]. While these focused on specific building blocks, the benefits of the 'bundle' implementation were reaped across the whole system.

1.1.3 Midwives as key driver of improved outcomes

There is a reasonable high level of agreement among maternal and public health experts that proven and cost-effective interventions required to reduce maternal deaths are known and relatively simple[73]. There is also consensus that these can only be delivered effectively by a skilled birth attendant (SBA)[74]. SBAs have been defined as an accredited health professional who has been educated and trained to be proficient in managing normal (uncomplicated) pregnancies, childbearing and the immediate post-natal period and in the identification, management and referral of complications in women and newborns[75]. SBAs are expected to have had training to attend deliveries both in the mainstream health system and outside the health facilities, with midwives being the most common type of SBAs. However, often the traditional birth attendants are not counted as SBA even where they have been trained. Experiences from Botswana, Malaysia, Sri Lanka and Tunisia indicate that increasing the proportion of births attended by skilled personnel has been associated with significant success in reducing maternal deaths from several thousands to less than 100 per 100,000 live births[50]. A technical consultation held to review the lessons from a decade of Safe Motherhood Initiative implementation concluded that the presence of a health worker with midwifery skills is one of the most critical interventions to making motherhood safe[76, 77]. Midwives are therefore considered the most important cadre that can be scaled up to ensure effective care at the time of birth[78]. However, high levels of skilled care by midwives can only be achieved where they are adequately and equitably distributed[79-81]. The acute shortage of health workers including midwives, especially in rural areas where the needs for health care are greatest, is well documented as a major challenge in delivering cost-effective interventions to improve maternal survival[82].

Estimates indicate that an additional 350,000 midwives are required to improve coverage of maternity care[83] as part of the 4.3 million global health worker shortage[58, 84]. Consistent with Hart's 'inverse care law'[85], population groups with the greatest need for health care reside in

rural and remote areas where attracting and retaining skilled workers remains difficult[82, 86]. Unfortunately, health workforce planning and management continues to rank low on the agenda of many countries[87]. Health worker shortages in turn have a crucial impact on overall health systems performance[58, 87-94].

The main challenge remains that of matching demand with supply of midwives. Midwives are diverse and have different profiles, including: individuals employed in the health sector, those who are unemployed but seek employment in the sector, and those who are employed in sectors other than health or who decide to leave the sector[95]. Other challenges relate to the lack of training, poor distribution (in particular, urban-concentration), attracting and retaining midwives in rural locations[96-98]. To address these challenges, several strategies such as educational, financial, and regulatory have been implemented within different contexts[99-102]. A central question is that of what works and in what context given the uncertainties about which investments have the potential to achieve the desired goals[99, 103, 104].

1.1.4 Improving maternal health in Nigeria

Historically, improving maternal health outcomes has been a priority for the Government of Nigeria (GoN) in the past two decades, demonstrated through the adoption of several initiatives and policies (five between 2001 and 2009) that address maternal health. Despite these efforts, progress has been slow with the challenges of midwife shortages, mal-distribution and poor retention in rural areas, exacerbated by weak and fragmented health systems[105]. For instance, only 39% of births were attended by SBAs in 2013[106]. Up to a fifth of the women gave birth alone without the assistance of even a relative[106, 107]. In light of this, the MSS was introduced in 2009. The MSS aimed at improving access to midwives through a multi-component intervention, which includes financial incentives to improve rural retention of midwives. As well, it provides systems-level support to improve midwives' capacity to provide essential and close-to-community services.

This study examines the MSS to obtain evidence on whether the scheme has been effective and has contributed to strengthening the health system (at all levels), and what factors enabled or hampered its implementation. It also seeks to provide a practical framework to guide evaluation of rural retention interventions in LMICs from a health systems perspective in LMICs. Although there is extensive literature on strategies for retention of health workers

in underserved and rural areas, very few comprehensive assessments of the success of these have been conducted, especially in LMICs. Significant contributions have been made through systematic reviews of such interventions in high-income countries[99-102], but not enough studies have examined rural retention of health workers in the context of health systems strengthening in LMIC. This study recognises the need to improve health systems performance through improving midwife retention and the potential contribution of the MSS as the first large-scale intervention to address rural retention of midwives in Nigeria.

1.2   Thesis structure

This thesis is organised into eight chapters. After this introduction, Chapter 2 reviews the literature on policy options and theoretical approaches to the design of interventions and schemes for addressing human resource shortages, and frameworks and theories for understanding how and why such interventions work or do not work. It also describes developing country experiences in implementing similar interventions.

Chapter 3 describes the methodology used in the research, including the data sources and analytical methods. Building on the literature review, it presents a new conceptual framework to aid the understanding of the functioning and results of the MSS, providing detailed explanations for each of the components.

Chapter 4 situates the study by providing an understanding of the study setting. It gives an overview of the geography, demographic profile, economic and development situation, and the organisation of the health system in Nigeria, with relevance to the MSS.

The results of the study are presented in three chapters. Chapter 5 presents an appraisal of the design of the MSS, analysing the design process and the extent to which the scheme's design was informed by evidence. Its relevance to local needs and existing health systems structures is also discussed.

Chapter 6 investigates the implementation of the scheme examining the 'real life' constraints. The analysis focuses on whether the implementation took place as planned, what changes took place at different levels of the health system during implementation and actions taken to

adapt the intervention to newly emerging challenges. Factors that may have enabled or constrained implementation to various degrees are identified.

Chapter 7 presents findings on the results of the scheme and its contribution to strengthening district and national health systems. It analyses the intended and unintended developments reported to be plausibly associated with the MSS with particular attention to attractiveness, recruitment and retention of midwives and in terms of leadership, governance, and service delivery. The key issues regarding the implications of the MSS from a health systems strengthening perspective are discussed.

Chapter 8 concludes the thesis, placing the main findings within the context of the rationale and objectives of the study, synthesising the contribution to the literature, international evidence and significance for other countries. It also discusses methodological issues related to the conduct of the study, elaborated framework and data interpretation. Finally, it provides relevant programme and policy recommendations to key stakeholders in Nigeria and other countries in similar contexts in sub-Saharan Africa.

Chapter 2: Literature review

Reaching rural and underserved populations using skilled health workers and retaining them in these locations is a point of concern, especially for LMICs[108]. In response, countries have implemented various interventions and schemes to improve rural retention, albeit with different levels of success[100, 102, 109-115]. To provide a background to this chapter, the literature on human resources for maternal care in rural areas and factors that shape entry and exit of Human Resources for Health (HRH) from rural locations is reviewed and presented in Appendices 1 and 2. This chapter presents a narrative review of the literature on HRH retention schemes. First, section 2.1 considers strategies for improving rural retention of health workers. Drawing on country experiences, section 2.2 reviews the role of health systems in supporting retention schemes and considers important health systems factors in the design and implementation of retention schemes. Finally, section 2.3 presents the main gaps in the literature and priorities identified with reference to this study, and section 2.4 ends with a summary of the chapter.

The search strategy used to review the literature was based on text words and medical subject headings (MeSH). MeSH headings and subheadings, truncations, and mapping were adapted as appropriate for the various databases. Further detail is in Appendix 3. Only English language literature was included. No date limits were set, although emphasis was placed on literature published from 2000 because of the influence of the introduction of the MDGs on maternal health. The review included original research papers, review articles, case studies, reports and commentaries. Articles were included if they reported on one or more countries classified as 'LMICs'. Papers were excluded if they were not relevant to a developing country context or if they did not provide findings related to one or more of the categories of workers classified by WHO[75] as skilled birth attendant (141). From an initial 13,342 articles, 503 articles were included together with others identified through additional searches (Figure 2.1).

Figure 2.1 Flow diagram of article selection

Records identified through database searching (n =13342)

Additional records identified through other sources (n = 1081)

Records after duplicates and irrelevant titles removed (n = 2332)

Records screened through title and abstracts (n = 1536)

Records excluded (n = 942)

Full-text articles assessed for eligibility (n =453)

Full-text articles excluded, with reasons (n = 141)

Studies included in the review (n=503)

Hand selection of references and other literature (n= 53)

Identification

Screening

Eligibility

Included

Adapted from [116]

2.1   Strategies for improving retention of health workers

In 2010, WHO issued guidance on HRH rural retention in four domains: education, regulatory, financial incentives (direct and indirect) and personal and professional support, based on a comprehensive review informed by country experiences[117]. Many countries have designed and implemented interventions to attract and retain health workers in rural and remote areas. Available evidence suggests there is limited effectiveness of any single strategy[110, 117-121]. Rather, a comprehensive approach is advocated in which a combination of interventions[110, 119] is chosen from more than one of the four domains, as this better reflects the complex interplay of factors impacting on attraction and retention [102, 110, 122, 123], although the interactions between various types of incentives may be country-specific[124]. While there

has been no systematic collection of in-depth information about the implementation of these recommendations, many lessons have been learned[125]. The following section reviews the broad strategies highlighted by WHO and some lessons from implementation at country-level.

Education recommendations focus on providing health workers with opportunities for continuing education, training and professional development. The quality of training for health professionals varies widely in LMICs, but, in particular, continuing education is almost universally inadequate[126]. Education is therefore considered an important entry point to addressing retention in rural areas. Among recommendations in this category include the use of targeted admission policies to enrol students with rural backgrounds to increase the likelihood of choosing to practice in a rural area. Others include location of health worker training schools outside urban areas, inclusion of rural health topics in curricula and designing continuing education and professional development programmes to meet the needs of rural health workers[127]. Thailand's rural education programme combined the rural admissions process, collaborative training between medical schools and the Ministry of Health and return to service in home provinces when graduated[128]. An evaluation showed that retention time increased when rural-track education approaches were applied[128].

Regulatory recommendations are measures where government control is exercised through administrative, legal, policy or legislative tools[117]. This category includes introduction of enhanced scope of practice to improve job motivation, compulsory service requirements and provision of scholarships and bursaries linked to return of service in rural areas[117]. Enhancing the scope of practice has been used as an option for provision of some services; however, there is little evidence of its contribution to retention in rural and remote areas[129]. Three main types of compulsory service are found in the literature: condition of service employment programmes, and compulsory service with and without incentives[130]. As a condition of service programmes the government, which is usually the employer, has the authority to assign health workers to any part of the country for any length of time. Compulsory service with incentives requires service in a designated location, for instance, a rural placement may be required during training to qualify for a degree, as prerequisite for specialisation, license to practice or for career advancement, or as a return of service after graduation based on financial support for education. The incentives may be in the form of higher pay for rural service, access to further training, housing and logistics support. Frehywot et al.[130] found over

70 countries implementing some type of compulsory service programmes. Different forms of compulsory service including educational, employment and incentive-linked programmes mostly targeting doctors were implemented by New Zealand[131], Canada[132], Malaysia[110, 133], Kenya[134], Zambia[132, 135], Ghana[130], and South Africa[136]. Others include increasing recruitment and rapid deployment in Namibia and improving retention in Malawi[137]. The number of health workers who stay in rural areas after the period of compulsory service was not clear for many countries, although positive outcomes were reported for the Indonesia incentive-linked service[138], in South Africa[136] and in Zambia[139]. Variable levels of success have also been reported for scholarship and bursary schemes[140, 141].

Remuneration incentives are the intervention most frequently focused upon by government retention programmes[142]. The use of incentives is premised on economic models such as the neoclassical wage theory which posits that workforce mobility is related to demand and supply forces in the labour market[126]. While there is some evidence that they may be used to improve motivation, it is noted that financial incentives alone may not be sufficient to improve retention[143]. To be effective, the incentive should outweigh the opportunity cost of rural service[117]. Several types of financial-incentive programmes are described in the literature: educational loans that come with a requirement of service, loan repayment programmes, scholarships requiring service, service-option educational loans and direct financial incentives. Financial incentive programs increase the numbers of health workers in rural areas through four potential pathways. First, where there are health workers who would not normally work in rural areas but would be willing to in return for an incentive[144-146]. Second, where there are qualified candidates who would not normally have the means to finance their own education[147]. The third option is in the case of health workers who may have worked in a rural area without an incentive, but are now willing to stay longer when there is an incentive[147]. Lastly, where the supply of health workers in rural areas are increased thereby reducing some of the reasons for leaving such as social isolation, lack of supervision and heavy workloads[148, 149].

Although financial incentives have been applied across many countries and settings, a systematic review conducted by Barnighausen and Bloom[102] showed that most evaluations of the success of such programmes have been conducted in high-income countries. There is evidence of implementation of such programmes in LMIC like Ghana[150], Swaziland[151] and Mexico[152], but limited evidence of their impact in rural areas[121, 153]. Experience confirms that

these programmes are largely effective in recruiting substantial numbers of health workers to rural areas[147] and that participants in such financial-incentive programmes are more likely to stay in a rural area[154-156]. There is no firm evidence, however, that the effects of these programmes can be obtained with the exclusion of all other motivating factors[157]. For example, an India study showed that isolated measures focusing on only incentives could not redress the problem of chronic HRH shortage in public health facilities in both rural and urban areas[158]. Many incentive programmes have also been more successful in achieving the short-term goal of recruitment but had less success with long-term retention[159]. The experience of many countries where salaries are poor suggests that financial incentives were the most influential factor for retaining health workers[160]. For example, in Kenya raising doctors' allowances resulted in hundreds of doctors applying for government jobs[161]. Non-financial incentives, such as improved working conditions, on the other hand, appear to provide a stabilising influence after the more rapid effects following the introduction of financial incentives, by sustaining health worker commitment, sending additional signals to support distribution of health workers or compensating for loss of financial gains[162].

The challenges in successfully implementing financial-incentive programmes have been acknowledged[163]. Many of the problems stem from inappropriate or poor design of the policies which in turn affect implementation[164]. Governments especially in LMICs are also faced with limited long-term public financing[165]. Donor funding on the other hand is hampered by the reluctance of many donors to channel funds to running costs especially for long periods. This is linked to the debate on whether disease-specific agencies like the President's Emergency Program for AIDS Relief (PEPFAR) and the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) should invest in human resources for health in developing countries[166, 167].

The last category of interventions addresses personal and professional support themes. These include improving living conditions for health workers and their families, provision of appropriate working tools and supportive work environment. It also addresses supporting career and professional development programmes and adopting public recognition measures to improve intrinsic motivation thereby supporting retention[117]. The literature in many cases shows a correlation between living conditions and willingness to stay in a rural area, but less evidence of large-scale efforts to improve living conditions as part of efforts to improve attraction and retention[110]. The anticipated high investment for such interventions is a

possible explanation for limited intervention in this area. Thailand is an exception. Despite heavy investment, living conditions were still different from those in more urban districts[168].

The Malawian emergency six-year human resource programme aimed at retaining current staff by addressing non-financial factors including policies for postings and promotion, performance management, opportunities for training and upgrading of skills, gender issues and quality of housing. By the end of 2005, about 5,400 health workers were receiving salary top-ups. The result was that few staff left the public sector[169]. In contrast, the Zambia Health Workers' Retention Scheme (ZHWRS), which included five components (a salary top-up, child education allowance, housing rehabilitation, car loan and prioritised access to professional development) had limited success since most districts remained understaffed [170, 171]. The most significant issues impacting on health workers in the study districts related to living and working conditions, which were not addressed by the scheme, and the lack of practical strategies to address factors affecting motivation. This limitation was partly due to the one-size-fits-all approach, which failed to recognise the unique characteristics of different cadres. More success has been reported with schemes that combine financial and non-financial incentives in a complementary manner and take into consideration the wider needs of different cadre. Consideration of living costs in setting financial incentives and improved housing are significant contributors to success, as corroborated by many studies[172, 173]. An expanded literature review of evidence from implementation of retention schemes and the features that make them successful is included in Appendix 4.

2.2   The role of health systems in supporting retention schemes

The review presented here demonstrates the variety of initiatives seeking to promote health worker retention. However, their impact is measured often independently from the larger context within which they are located. Specifically, the role of the health system is rarely discussed. Thus, the technical design of the intervention may not explain the degree to which it can achieve the desired goals. Despite a recognition that health systems (horizontal strategies) influence the operation of donor-supported disease-specific interventions[174], there is still limited empirical evidence on whether health systems have positive or negative influences on the design and implementation of strategies[175]. Furthermore, the interconnections between systems components is ignored in many health systems interventions[176]. This section aims to highlight these linkages.

Health systems as defined by WHO consists of all organisations, institutions, resources and people whose primary purpose is to improve, restore or maintain health[177]. This definition includes the full range of players at central, regional, district, community and household levels and all those involved in funding or provision of services – pubic, non-profit, for-profit private sectors and international donors. There is wide recognition that many health systems in low income countries are poorly governed and fragmented[57]. The major constraints faced by these systems are common to all programmes and include human resources, financing, drugs and supply systems[57, 61]. Poorly functioning health systems have been put forward as the reason for non-attainment of many programme goals in sub-Saharan Africa[61, 64] including those of global health initiatives such as the GFTAM and Global Alliance for Vaccines and Immunization (GAVI)[178, 179]. The impact of a health system on achievement of coverage rates for disease-specific programmes such as measles and polio eradication has been demonstrated[180-182]. Furthermore, disease-specific programmes have been shown to make substantial positive contributions, but some of their effects on health systems have been both positive and negative in different settings. These results raise concern that concentrating resources on disease-specific areas further undermines the already weak health systems[183, 184]. In recognition of this, global health initiatives have begun to place greater emphasis on systems strengthening and workforce issues with the GFTAM committing to 'investing in activities to help health systems overcome constraints to the achievement of improved outcomes for HIV/AIDS, TB and Malaria'[178]. It is noted that for the GFTAM Round 8 which focused on HSS, less than a quarter of the spending was on the human resources building block with 97% of it dedicated to supporting the in-service workforce[185]. Thus, implying a persisting emphasis on program specific goals with less attention to system-wide benefits such as management capacity, retention of well-trained workers and pre-service training to build a strong health worker base. Rao et al.[186] suggest that certain conditions are necessary for programmes to have positive effects on health systems. The programme should be embedded in the health system, with an explicit policy aim to strengthen local health systems[186].

Figure 2.2: The WHO Health Systems Framework
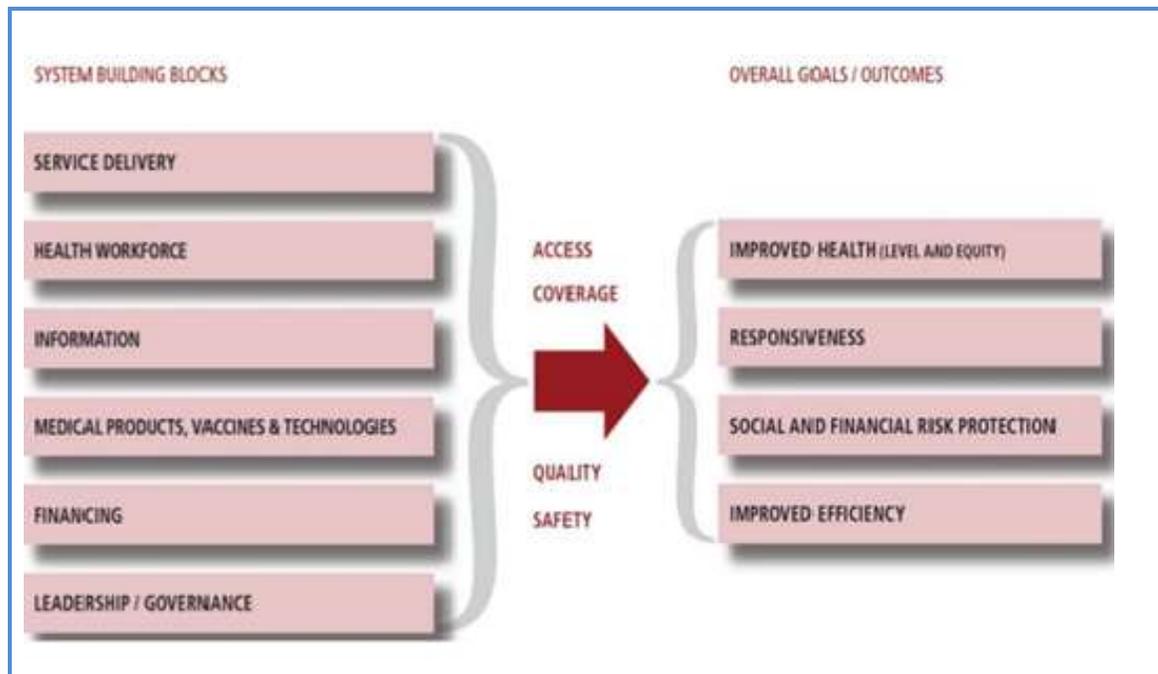
Everybody's Business. Strengthening Health Systems to improve Health Outcome. WHO's Framework for Action. WHO. 2007. http://www.who.int/healthsystems/strategy/everybodys_business.pdf

These and other findings have contributed to a shift in thinking about the interactions between health interventions and the health systems. Strong and effective health systems are increasingly considered as a prerequisite to achieving the intended outcome of interventions rather than being just the outcome of increased and incremental investments[187]. Consequently, Health Systems Strengthening (HSS) has risen to the top of the health development agenda[188] with the set of six building blocks articulated by WHO as the pillars for action[177]. Willis-Shattuck et al.[143] argue that HSS will be more effective in LMICs if 'systems thinking' is applied in their design, implementation and evaluation. There is understanding that not all interventions may benefit from a systems thinking approach; however, more complex interventions can be expected to have wider systems effects especially in weaker health systems[189, 190].

While there may be no consensus on the operational definition[191], the principal aim is to improve three aspects of priority health services; access, quality and utilisation by addressing staffing, infrastructure, commodities, logistics, monitoring and financing issues[192]. Improving the health workforce situation is therefore an important pillar of the HSS agenda. HSS can be viewed as a means to an end and not the end objective in itself[193]. It is in this regard that the debate about the effectiveness of vertical (aiming for disease-specific results) versus

horizontal (aiming for improved health systems) approaches to improving health outcomes and strengthening health systems arises[194]. A third strategy that combines the two – diagonal approach (aiming for disease-specific results but through improved health systems) – has been proposed[194-197]. Thus, the diagonal approach suggests taking the desired health outcomes as the starting point for identifying health systems constraints that prevent effective scaling-up of services, addressing health systems bottlenecks in such a way that specific health outcomes are met while system-wide effects are achieved and other programmes also benefit. Albeit limited, evidence suggests that while vertical programmes may appear to have impaired effective management of some interventions in the long term, in some settings they can have positive unintended results on the health systems[197]. It is increasingly recognised that strong systems are needed for programmes to meet their objectives[198, 199], thus strengthening health systems is a necessary starting point and desirable outcome of every programme[200]. HSS also supports the need to address health systems policy and capacity issues, encouraging the development of national health sector strategies and plans, and reducing investment in isolated plans for specific aspects of health systems[177]. Increasing attention is being paid to research to inform HSS efforts in LMICs, including the application of systems thinking concepts and the need for a holistic view[201-203]. Study findings, however, show that many evaluations and interventions have tended to focus only on one or two building blocks[201] with little attention to a comprehensive systems perspective[204, 205].

2.2.1   Health systems factors in design and implementation of retention interventions

As mentioned in section 2.2, the design of retention schemes must be aligned to and grounded in the local context and priorities at national and sub-national levels to take advantage of synergies and increase efficiencies. An important element is understanding and reflecting the complexities of the health workforce[127, 206, 207]. Comprehensive analysis of the health workforce and labour market analysis is essential in identifying factors such as the number of unemployed HRH, differentials in remuneration, underlying socio-economic influences and professional priorities of relevant cadre[110, 208, 209]. Other factors in the wider context such as reforms in the public sector, health sector decentralisation and decision-making power at sub-national levels may pose challenges due to their cross-cutting effects[210] and differential labour policies[211]. To be successful, an enabling public policy environment is required which addresses directly or indirectly issues which may impact on the implementation[212]. Examples can be drawn from the impact of pricing and taxation policies

on interventions which address alcohol and tobacco use[213-215]. Aligned to this is political support in terms of resources and public support. There is a need to consider how the intervention can be adapted to local needs based on health systems factors including strengths, weaknesses, infrastructure, coverage and utilisation, financing etc.[216-219]. Kirsh et al.[220] on the other hand, based on their empirical research, debate that tailoring interventions to the context alone would not ensure sustainability without adjusting to the unique local context to optimise success of the intervention.

Developing an effective intervention based on evidence and practice wisdom is only a first step towards improving health outcomes[221]. Empirical evidence supports the conclusion that the method and level of implementation affects outcomes[221]. Put differently, that implementation dominates outcomes[222]. It is often a complex process requiring attention to several multi-level variables related to the local health systems context, the strategies employed in implementation and the intervention itself[223]. In other words, implementation has many moving parts[224]. Characteristics of the health system that may affect implementation and results include variables related to the number and types of actors, providers and implementing organisations, commodity related variables, innovations, the delivery system and HRM management factors[225, 226]. For example, where HRM management and supervisory activities are strong, health worker training is likely to lead to better performance improvements than where they are weak[227]. A systematic review of retention strategies implemented in LMICs found that HRM weaknesses were not frequently addressed, possibly due to limited skills and power of HR managers, consequently affecting implementation success[110].

DeLeon [228] describes implementation as 'what happens between policy expectations and (perceived) policy results'. Policy refers here to government policy and Dye[229] states: 'whatever governments choose to do or not to do'. The seminal work of Pressman and Wildavsky and later Bardach redefined implementation especially within the public sector[230]. In their examination of the famous Oakland project, they noted that as the number of parties involved, both within the federal government, the local government, not-for-profit, and private sector, increased, so did the complexity of the situation. Bardach[231] suggests the need to 'look at the players, what they read as the stakes, their strategies and tactics, their resources for playing, the rules of "fair play", the nature of the communications among the players and the degrees of uncertainty surrounding the possible outcomes'.

How closely a program matches its original design – fidelity[232] – is an important factor for determining success[226]. A review of school-based programs identified implementation quality as the most important feature associated with achieving intended outcomes[233]. Additional findings indicate that compared to poorly implemented programs, those with higher quality produced much more intended benefits as a result of better implementation[234]. Researchers are mostly not agreed on what constitutes implementation success[235]. Several authors conclude that successful implementation is a function of the relationship between the nature of the evidence, the implementation context and the methods by which the expected change is facilitated[236, 237].

The relative importance of factors which influence implementation and how these interact with each other remains to be clarified[234]. Based on their review of over 500 quantitative reports, Durlak and Dupre[221] categorised these factors broadly into five. Community-wide factors, practitioner characteristics, program characteristics, factors related to the hosting organisation and factors specific to the implementation process. Damschroder[238] took a different approach and reviewed existing implementation theories and frameworks to identify common constructs that affect successful implementation across a variety of settings. Both approaches drew similar conclusions[224]. The main output of their synthesis is the Consolidated Framework for Implementation Research (CFIR) which identifies five major domains composed of multiple constructs which are likely to influence implementation success: intervention characteristics, outer setting, inner setting, characteristics of individuals involved and the process of implementation[239].

Implementation usually requires actions from organisations. Factors inherent in the nature of bureaucratic institutions may limit the ability and willingness to respond to new mandates[240]. In political systems where political authority is shared among units, for example in decentralised health systems, multi-organisational implementation is the rule[241]. Where this is the case, the limitations tend to be compounded as the number of agencies increases[240]. The need to understand implementation systems and actors responsible for implementation is emphasised in understanding why expected outcomes are not achieved[242]. Approximately 34 articles found in the review by Gilson and Raphaely [243] reported how interests, values and beliefs of different actors, including public health-care providers and managers, shape implementation and beneficiaries[244]. The judgements of implementers also depend on their contexts, values and interests[245, 246].

2.3   Gaps in the literature

The literature review identified several gaps, which this thesis intends to address. First, although there is extensive literature on strategies for retention of health workers in underserved and rural areas, very few replicable evaluations or assessments of the success of these have been conducted especially in LMICs. Few studies have examined the design and implementation of these strategies and even fewer have targeted bundled interventions [142]. A common factor across the previous studies is that they were mostly conducted in developed countries and targeted doctors. Few of these have focused on midwives who may have different preferences in the decisions to stay in or leave a rural area[110].

Second, the evidence on large-scale retention programmes is limited in LMICs. There is still a need for better understanding of different LMIC contexts and the outcomes of implementing different packages especially at scale and involving complex adjustment to the rest of the system. Although a number of studies explore the links between incentives, motivation and retention[110, 247] there are no formal comparisons of lessons from developed and developing countries which allow establishment of common themes to enable the application of such theories in a LMIC context[248].

Third, the evidence of the effects of the specific health systems context in which these interventions are delivered is often limited. Few studies have examined the role of contextual factors in constraining or facilitating implementation, thus there is very little understanding of how these factors affect outcomes especially in LMICs. This is probably due to the difficulties in assessing contextual factors and the often lack of baselines. This study emphasises an assessment of design and implementation processes and gives due attention to the role of context at both levels.

Fourth, many studies have reported mostly on the results in terms of how successful the intervention was in improving rural retention. There is less evidence on comprehensive assessments, which include the design and implementation. This study undertakes a comprehensive assessment by tracing the resources embedded at the design stage and how these work during implementation. Thus, recognising the linkages between use of evidence in design, the intervention characteristics, implementation actions and processes and the results.

Lastly, the evidence of either single or bundled interventions implemented in LMICs is mainly on strategies that are isolated and vertical and tend to focus on one block of the health system – human resources. While significant contributions have been made through the review of such interventions, few studies have examined retention interventions in the context of health systems strengthening. The intersections between the intervention components and the building blocks of the health systems and the potential effects may play a role in strategies for strengthening health systems. This study recognises the need to improve health systems' performance through improvements in midwife retention and the potential contribution of the MSS to this.

This thesis aims to fill the gaps identified above. In addition, it proposes a framework for assessing rural retention schemes from a health system strengthening perspective.

Chapter 3:   Research aim, conceptual framework and methods

This chapter presents the aims, key research questions and the framework that guided the research undertaken in this thesis. The methods for data collection and analysis to answer the study questions are discussed.

3.1   Research aim and objectives

The aim of this research was to obtain evidence on the design and implementation of the Midwives Service Scheme (MSS) and to present lessons for policy-makers.

The specific research objectives are:

1. To evaluate the extent to which the design of the scheme draws effectively on the local context, resources, needs and population preferences.

2. To identify and describe factors that promoted or constrained the implementation of the scheme in two Nigerian states (Ebonyi and Kaduna), and to understand the conditions under which the scheme is more effective.

3. To assess changes and developments, intended and unintended, in the district and national health systems as a result of the scheme in terms of:
   a. Attractiveness, recruitment and retention;
   b. Governance, service delivery, logistics/medical products, health information and financing.

4. To provide evidence-based realistic recommendations for programme managers, policy-makers, and researchers in the design and implementation of rural retention interventions in Nigeria and other LMICs.

3.1.1   Key research questions

The following questions were addressed in this study:

1. How was the MSS designed?
2. To what extent was the choice of the intervention based on evidence, documented need, and stakeholder preferences?
3. Were there any changes during implementation and how were these dealt with?
4. What changes in the national and sub-national health systems (in terms of recruitment, attractiveness, retention, leadership/governance, service delivery, availability of logistics, financing) resulted from the scheme's implementation?
5. What lessons can be learned from the successes or failures in implementation?

3.2   Conceptual framework

The conceptual framework underpinning this study seeks to draw on the existing knowledge as well as guide the analysis, while retaining a flexibility to adjust to newly emerging themes. The framework was developed in several stages. First, a literature search was undertaken to identify frameworks designed to diagnose health systems' performance applicable to human resource issues. These frameworks were critically examined to determine their suitability for this study (see summary in Appendix 5). The WHO 'building blocks' framework has been among the most commonly used framework to evaluate the impact of various interventions on health systems[181, 252-255]. However, it was not originally intended for evaluation purposes but for planning purposes, and does not allow for the evaluation of the linkages between inputs, outputs and outcomes[182]. Moreover, it does not allow for addressing the complexity of the health system and the interactions between the building blocks[256]. In contrast, the systems thinking framework[69] recognises the dynamic interconnectedness of the six building blocks, the feedback loops and the unpredictability of effects of intervening in one block or other. The health dynamics framework expands on the building blocks by including new elements and visualising the relationships between them as dynamic[257]. Similarly, Kruk and Freedman[258] offer a framework that analyses health system processes and outcomes, and evaluates the mechanisms for change[258]. Finally, the Conceptual Framework for Health System Performance[259] and the Framework for Monitoring Performance and Evaluating Progress in the scale-up for better health[260] both provide the basis for comprehensive exploration of contextual issues and efforts towards strengthening health systems and results,

but broadly focus on health systems functions. They are not well suited to analysis of the linkage between the context, the choice of interventions, successes and failures in implementation and how these impact on the results; therefore their applicability for this study is limited.

The conceptual framework used in this study (Figure 3.1) was derived from key aspects of the framework developed by Huicho et al.[261] and the WHO IHP+ monitoring framework[260]. The framework also draws heavily from diverse literature including theories of change, program and systems theories. First, the main components are derived from Huicho et al.[261] framework, which was designed to guide assessment of interventions to increase access to health workers in rural and underserved areas. It was considered a suitable starting point because it extends beyond the traditional input-outcome-impact evaluation approach to include and link design and implementation to outputs and outcomes. This is consistent with a realist evaluation approach, which aims at finding out what works, for whom and in what circumstances[262-264]. Realist evaluation differs from traditional epidemiological research designs seeking to identify cause and effect, and recognises the complexity of social institutions[262]. Thus, it supports examination of all stages of policy development following a logical sequence as well as filter through which contextual factors are relevant. It also enables examination of whether the intent of the intervention has been achieved. Its flexibility makes it applicable in many different contexts.

Secondly, this study's framework draws from the systems thinking concept[69, 265]. Health systems can be considered Complex Adaptive Systems (CAS) because of the many interacting components, ability to self-organise, adapt and learn and their highly heterogeneous actors, especially in LMICs[265]. With its origins in systems theories such as general systems theory and complexity theory, systems thinking is described as an analytical approach that requires keeping the whole system in mind while investigating distinct problems or services[69, 203, 266]. It proposes a shift from linear predictable processes to non-linear processes in which the uniqueness of the local context and emergent characteristics are central[267]. The framework applied in this thesis adopts a systems thinking approach in recognition of the complexity of health systems and the diverse yet interconnected components and processes[265]. Thus, this framework provides a useful lens through which the pathways for designing interventions, modelling policy options[268] and choosing appropriate interventions in a complex health system can be understood. Furthermore, in understanding

the contributions of MSS to strengthening the health systems[265], and the views, interests and power of its various stakeholders and actors[70], the framework also gives recognition to the non-linearity of the processes and the uniqueness of the local context and emergent characteristics[265, 267]. Building on the established input-output-outcomes-impact evaluation model, it recognises that rural retention interventions are complex and therefore the outcomes are not attributable to any one intervention, rather to an appropriate combination or bundle of interventions. The application of systems thinking in the framework provides a guide to understanding and interrogating the steps taken (by policy-makers) from design to implementation to outcomes.

Thirdly, the need for theory-led inquiry in understanding how policy change processes influence outcomes has been identified in the literature and has been underscored as an important factor in bridging the divide between knowledge of what works, practice and its evaluation[269]. Thus, theoretical works relevant for investigating design and implementation were considered; these are presented in Appendix 6. The framework used here specifically draws insights from program theory and the top-down and bottom-up approaches to policy implementation. Program theory takes root from theories of change and is useful in ascertaining the appropriateness of a program[270-272]. Usually illustrated as a logic model, it consists of statements that describe the pathway to achieving the anticipated effects, explaining why, how and under what conditions the program's effects occur[273]. Drawing on this, the framework describes how one component of the MSS leads to the next, from its design and implementation, to the intended outcomes and the mechanisms through which the intended outcomes are achieved[274]. It is also applied within each component, for example in analysis of the context and an assessment of evidence for MSS design and adaptation of program elements[275]. Regarding policy implementation, the top-down and bottom-up paradigms[276] in describing implementation informed the framework. Top-down implementation occurs when a policy decision is taken by centrally located actors as seen with MSS[277] and is consistent with the view that the policy process is a linear sequence of activities with a clear division between formulation and execution[246]. However, top-down implementation neglects the reality of policy modification, adaptation or distortion that may happen at the hands of implementers[278, 279]. It has been argued that policy implementation would benefit from greater emphasis on citizens' participation at the 'street-level'[280] and recognition of local implementation actors, networks and implementation managers as active and important participants in the complex implementation process[281, 282]. Following this logic,

the framework also enables a bottom-up view in order to facilitate reflection on the role and influence of local level actors and communities and better capture the full range of implementation's intricacies[280].

Lastly, the framework draws from the WHO building blocks because of its wide use to assess the impact of health systems strengthening interventions, and as such provides a common language for researchers and allows easier comparison between studies. Consequently, it is used in the results section of the framework to guide assessment of the MSS contribution to health systems strengthening.

Drawing on these different bodies of knowledge, the framework developed for this study is divided into three components: design, implementation and results. The study framework, shown in Figure 3.1, provides the underlying rationale about how the MSS is expected to work and what impacts it is expected to have, and the intervention logic or theory of change. It takes into consideration the context in which the intervention is designed and implemented, what makes the intervention work and the outcomes produced[263]. It also aims to support the assessment of all stages of policy development and an understanding of factors that facilitated or impeded the intervention's success, and provide recommendations for how to improve the MSS programme.

Figure 3.1 Conceptual framework for measuring results of a rural retention intervention
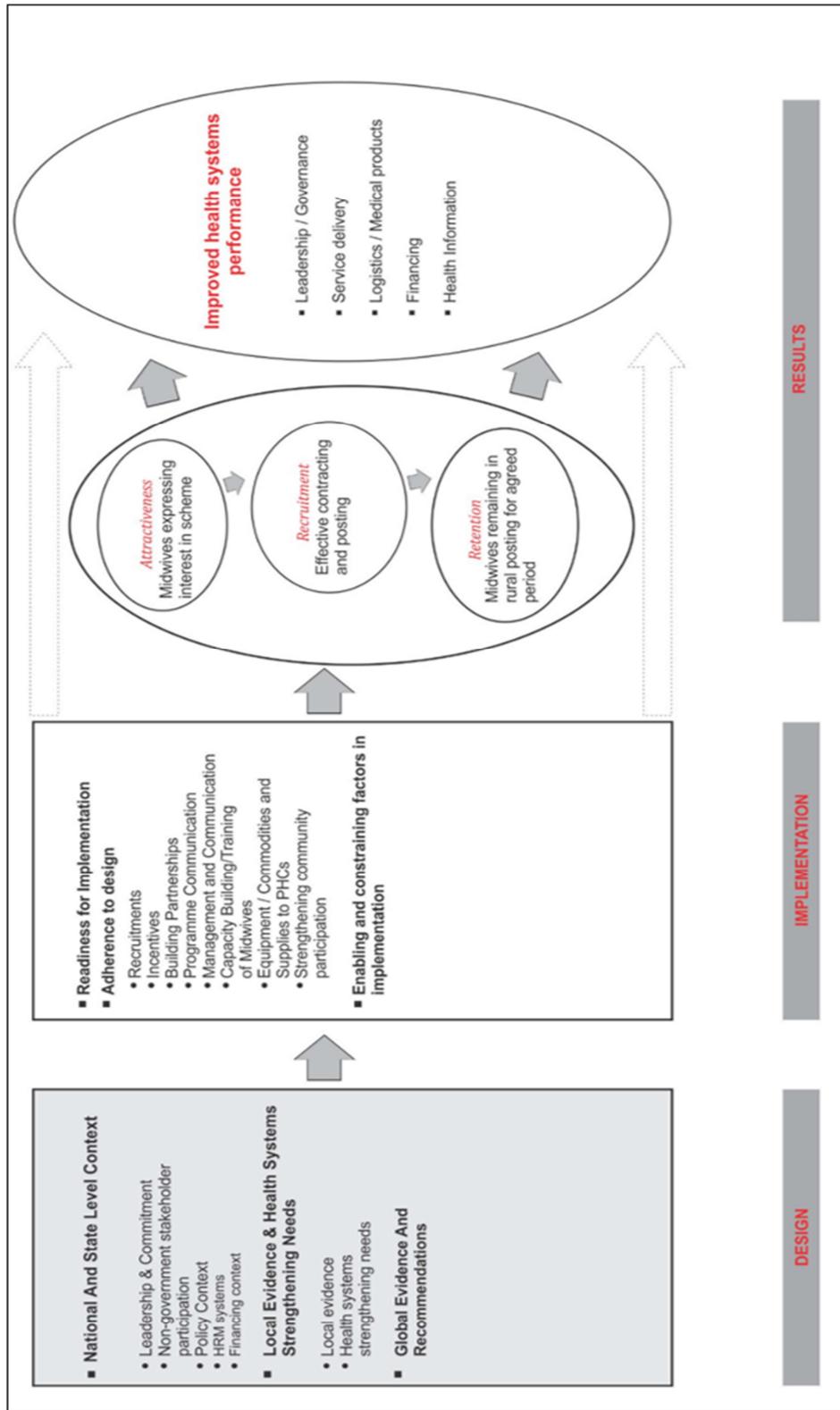
Considering the *design* of the MSS, the framework guides a retrospective examination of whether the design and selected interventions responded to the health system context and population needs at inception[261]. A key concern is whether the MSS and chosen interventions are based on local evidence and responded to need, and whether the design is fit for purpose. This component guides the analysis to achieve Objective 1 by reviewing the design in relation to global recommendations for interventions aimed at health worker retention, local evidence and health systems strengthening needs. It examines the context at national and state level including:

a. ***Leadership and commitment at national and state levels.*** Leadership and commitment has been defined as the availability of policy frameworks, provision of effective oversight, appropriate regulations and incentives, attention to the system design, and accountability[177]. The elements of interest to be assessed here include whether clear plans for improving the HR situation were available; how strategic information such as the description of health worker supply, remuneration and incentives were utilised in the design stage; whether there was high-level advocacy to promote the implementation of the MSS; and efforts made to develop leadership capacity for managers at all levels[283-285].

b. ***Policy context.*** This refers to the background of existing decisions, plans and actions undertaken which relate directly or indirectly to aspects of the MSS structure and operation. Specifically, whether HRH and other relevant policies were in place and scopes of practice were defined for all cadres including midwives, whether other policies and regulatory frameworks were analysed before the intervention and to what extent the strategy was coordinated with other sectoral policies. Finally, it refers to how the Scheme linked to existing health systems strengthening strategies[175, 286-288].

c. ***Stakeholder participation.*** This component examines participation of groups who have expert knowledge that should be taken into account, those who will be essential to implementation of MSS and/or those who have an interest in the outcome of MSS. The study will explore whether there were mechanisms to engage all the relevant stakeholders and whether these mechanisms were utilised. Also, the study considers the range of

stakeholders consulted and recommendations that were taken forward with the strategy[170, 289].

d. ***Human resource management systems***. This refers to systems for management of the different kinds of clinical and non-clinical staff responsible for public and individual health interventions. It includes the skills, motivation, performance and the benefits system for those individuals responsible for delivering health services. The interest is whether there was an analysis of human resource management systems and an analysis of the organisational capacity to support implementation[290, 291].

e. ***Financing context including financing of the MSS.*** This includes how resources are allocated within the decentralised system in Nigeria to meet local health needs. Attention will be on whether the costs of the intervention were calculated and considered affordable, and whether the costs projected and budgeted for were made available for the duration of the intervention[147, 170, 292].

Furthermore, the framework guides an examination of how the available local evidence on maternal mortality and midwives' availability was used to inform the MSS design. It also helps to examine the strategies chosen and whether they had the potential to lead to improvements in the health system. Lastly, the study assesses the relevance of the design to global evidence, and its consistency with WHO recommendations.

Considering the ***implementation*** of the MSS, the framework assesses all elements of the package implemented in each of the selected states: Kaduna and Ebonyi, and in selected facilities in each state. The study examines whether the activities took place as planned, whether there were changes in implementation capacity and how these influenced the various components including actions taken to mitigate challenges. The critical factors in the success or failure of planned activities in the two states were also examined, including the differences in context and the role this may have played. The focus of the study was on the following components of the implementation package:

a. ***Recruitment patterns***: e.g. what was the number of planned posts compared to actual number recruited in each state?

b. ***Incentives to midwives on the Scheme***: e.g. were obligations related to payment of incentives met in a timely and efficient manner?

c. ***Local and international partnerships for implementation***: e.g. did all partners play the expected role as outlined in the partnership strategy?

d. ***Capacity building***: e.g. did planned trainings/capacity building take place?

e. ***Coordination mechanisms***: e.g. were appropriate mechanisms for coordination put in place and utilised?

f. ***Logistics and other elements***: e.g. were all required logistics, medical products, equipment etc. made available at the right time?

The ***results*** component of the framework guided the analysis to achieve objective 3, in particular whether the intervention achieved the intended results in terms of:

a. Whether ***attractiveness*** (the intention of health workers to come and stay in the rural areas) of the rural area improved.

b. Whether ***recruitment*** and deployment targets were met (relative to funded positions and needs for MSS).

c. Whether ***retention*** of midwives in the rural locations of posting improved using the two-year contract period as a benchmark.

This component also involved examination of other intended and unintended changes in the national and district health systems tentatively associated with the package of interventions implemented. Specifically, it assesses:

d. ***Leadership and governance****:* e.g. were there any changes in leadership and governance? For instance, the existence of up-to-date national strategies based on needs and priorities, comprehensive reproductive health policies and guidelines consistent with international guidelines, other health sector documents published and disseminated such as budget documents and performance reviews.

e. ***Service delivery***: e.g. were there improvements or changes in the facilities' capacity to provide MNCH services and other basic services (as defined in MSS program

documents) and service utilisation? Were there any new services as a result of the Scheme?

f. ***Logistics/medical products/vaccine and technologies***: e.g. were there improvements in availability of medical products etc. attributed to MSS implementation?

g. ***Financing***: e.g. were there improvements in local financing for health worker retention and/or MNCH services?

h. ***Information***: e.g. were there improvements in submission of timely, complete and accurate reports to national level? Were there regular summary reports provided by the national level showing analysis and validation of data from districts?

3.2.1 Propositions

The analysis undertaken in this study relied on a mix of deductive and inductive approaches drawing on data; however, several propositions were formulated based on current knowledge:

- the more consistent the MSS design is with the local health systems context, available resources, midwife and population preferences, the more likely it is to function effectively;
- the (perceived) effect of the MSS will be greatest where the elements of the intervention package are delivered as planned;
- midwives for whom MSS benefits are higher, are more likely to be retained in rural locations;
- the MSS will contribute to improved health systems performance and greater utilisation of PHC maternity services provided that effective processes are in place and that the Scheme fits into the administrative framework at federal, state and local levels.

3.3   Methods

3.3.1   Research design

A multi-site flexible case study design was chosen for this study, and each of the sites was treated as a 'case'. Case studies can be used to explain, describe or explore phenomena [293]. Thus, case studies are well suited for an in-depth investigation of new policies and their

implementation in real-life setting[293]. Case study designs can help to answer 'what', 'how' and 'why' questions relevant to a policy or an intervention[294]. Thus, they can help to explain causal linkages and pathways resulting from policy initiatives such as the MSS[293].

According to Green and Thorogood, the case could be a site, individual or policy[295]. The 'case' is the MSS and two states were purposively selected as the 'case units'.

3.3.2 Selection and composition of sample

The MSS covers all 36 states in Nigeria; however, in this study priority is given to states with higher maternal mortality burden. In this regard, the implementing agency, NPHCDA has assigned states as Very High Mortality (VHM) if the mortality ratio is greater than 1,000/100,000 live births, High Mortality (HM) if the mortality ratio is between 500–1000/100,000 live births and Moderate Mortality (MM) to those with ratio less than 500/100,000 live births. The VHM states also have the greatest reported health worker shortages. The MSS is being implemented in 12–24 facilities in each state (see Appendix 7 – distribution of facilities per state).

Drawing on the bottom-up and top-down implementation theories, the study considered the perspectives of actors working at different levels of the system. Taking into consideration the decentralised nature of the Nigerian health system and the role of the central government in the design and implementation of the Scheme, the study was conducted at four levels: 1) federal, 2) state, 3) local government, and 4) facility/community.

A purposive sampling technique was chosen, as it is: a) oriented to the research objectives and questions, b) generates the data necessary for the analysis, c) easy to follow and implement in the field, and d) economic in terms of time, financial and personnel requirements in the context of the study[296, 297]. To obtain complete insight into the issues in all its variations, multi-stage maximum variation sampling was used. This type of purposive sampling was chosen based on the principle that in trying to interview a broad selection of people, their aggregate answers will

be close to the average[298]. Furthermore, it enables the achievement of comparability and representativeness to the extent possible in a qualitative study.

Two states in different maternal mortality regions (very high mortality and moderate mortality as defined by the implementing agency) were purposively selected for this study: Kaduna and Ebonyi. An important consideration in selecting these states was that the Scheme had been operational in the state for at least two years, to allow sufficient time for changes and effects to occur, enabling rigorous assessment of the implementation processes. Two LGAs in each state were then purposively selected to include a wide variety of settings: rural, urban, and remote. Although the private health sector plays a significant role in the provision of health services in many parts of the country, the focus was on public facilities since the MSS was implemented only in these. Within each LGA, two MSS facilities and one non-MSS facility were identified for the study (six facilities per state) to provide comparison within the state. Facility type and location were also considered in purposive selection of facilities. The sample included PHC facilities relevant to the Scheme at the different levels, for example comprehensive health centres, primary health centres and health posts. Facilities serving both urban and rural/hard to reach areas were also included as they may be different in terms of how the Scheme operates and its outcomes.

Respondents were selected in accordance to their role in designing and implementing the Scheme, as facility-level implementers, health workers or beneficiaries at the community level. Based on this, study participants included: 1) decision-makers and program managers at the central and state levels, as well as the local government health department, 2) facility managers or their deputies, 3) MSS midwives, non-MSS midwives and midwives that had left the Scheme, and 4) Ward Development Committees (WDCs), Traditional Birth Attendants (TBAs) and service users at the community level. Permission for participation of respondents at facility level was sought and obtained through a multi-stage process from the implementing agency, NPHCDA, departments of public health in the two states and the Local Government Primary Health Care Coordinators (PHCC) of LGAs selected for the study. Snowball sampling was used to identify midwives who have left the Scheme but who were willing to participate in the study.

The final sample sizes from each category was determined during the research process, by reaching saturation; the results of interviewing new participants no longer yielded any new data[299].

Data for this study was generated mainly through in-depth interviews (IDIs) and Focus Group Discussions (FGDs). In-depth interviews facilitate in-depth understanding of individual experiences, opinions and feelings, and the addressing of sensitive topics. They also help to elicit all the factors that underpin participants' answers: reasons, feelings, opinions, beliefs; thus, helping to provide explanations for their actions and decisions[300]. FGDs were chosen because of their usefulness in identifying and eliciting opinion about group norms, further shaped through debate[300]. In addition to qualitative interviews, facility-based National Health Management Information System (NHMIS) data were collected at facility level. Table 3.3 provides a summary of the interviews and FGDs conducted and analysed.

The quality of information obtained from qualitative interviews is largely dependent on the skill of the interviewer[301], thus the author led or oversaw all aspects of the study. Two research assistants assisted in facilitating FGDs, taking notes, transcribing and checking data quality. They also acted as translators for the interviews and FGDs conducted in Hausa language since the author is fluent in Ibo. The choice of the assistants was based on their competence and experience in similar studies, fluency in the two local languages (Ibo and Hausa) and previous collaboration with the author. The author was solely responsible for all central, state and LGA level interviews, which were conducted in English. At facility level, interviews were conducted in English often with interjections in the local language. Most community-level and user groups had their interviews in the local language.

Data was collected in three phases over a period of 11 months between August 2012 and June 2013 – first at central level to obtain the perspectives of actors who designed and led implementation processes. Early fieldwork was undertaken to assess feasibility of the work and obtain approval from the lead agency and subsequently the National Ethics Committee in Nigeria.

3.3.3   Research instruments

The main instruments used were semi-structured interview guides to obtain good descriptive data and permit the participants to tell their stories, share ideas, observations and concerns[302]. Interview guides[303] were developed to guide the initial set of questions and maintain consistency in data collection across sites, individuals, key informants and focus groups; particularly important given the scope of the fieldwork. Questions were left as open-ended as possible to encourage interviewees to explore their thoughts and feelings on topics[301]. Care was taken not to allow the author's prior assumptions to influence the data gathering through posing questions in a neutral manner, actively listening to participants' responses, and asking follow-up questions and probing based on those responses. Different sets of questions were developed to guide the interviews at various levels, based on the issues of interest and the role of participant.

Before the start of data collection, interview guides were pre-tested on seven participants (five individuals and two key informants) in Bwari, a suburb of the capital, Abuja. Pre-testing helped to assess the clarity of the questions and to identify ambiguous questions[304]. Further questions served as probes to encourage participants to deeply reflect on the issues. Based on the feedback, the interview guides were revised. The final interview and FGD guides are attached at Appendix 8.

3.3.4 Data collection procedures

Face-to-face interviews were arranged via telephone or personal contact. Facility visits were pre-arranged with the help of the MSS focal person for the state who also conveyed the approval for the study to facility managers. At the facility level, midwives on the Scheme were identified, provided with information about the study, and asked to give consent, and interviews were conducted. The in-depth interviews lasted on average 40–55 minutes, and up to 90 minutes for FGDs. Each respondent was interviewed in private, to maintain confidentiality. FGDs were held separately for different groups: young/older midwives, ward development committee and women accessing maternal and child health services, to facilitate comfortable interaction on the specific topics. The interviews were conducted mostly in English but a few in Pidgin-English, Ibo or

Hausa. Interviews in Ibo or Hausa were recorded using a digital recorder and transcribed verbatim. Where required, interviews were first translated into English. Notes were taken to record observations, to capture non-verbal information and to serve as backup if recording failed. At every interview or FGD, there was a moderator who led the discussion and an assistant who observed, took notes, and handled logistics as suggested in the literature[305]. The number of IDIs and FGD conducted and analysed is summarised in Table 3.1.

Table 3.1: Description of sample

Level	Type/Number	Method	Language	Questions
Central (18)	Policy-makers – (5)	IDI	English	*How the Scheme was designed
	MSS Core management team, TWG and program managers – (10)		✓	*Role in design and implementation *How interventions were selected
	Development partners – (3)	IDI	✓	*Changes during implementation and how these were dealt with *Challenges *Changes (positive or negative) attributable to MSS
State (4)	Program managers (4)	IDI	✓	*Role in design and implementation *Leadership and governance role of state *Financial commitments *Absorption of midwives into state service
LGA (11)	PHC Coordinator (4)	IDI	✓	*Role in design and implementation *HRH management and supervision of midwives *Drugs and commodities management *Data management
	LGA health team (7)	1 FGD	✓	
Facility (66) MSS Facilities	MSS Facility Manager (8)	IDI	✓	*Facility level implementation issues *Midwives experiences of MSS *Reasons for joining/leaving *Motivating/demotivating factors for staying in rural posting
	MSS midwives (27)	IDI 1 FGD (group of 6)	✓	
	Midwives not on MSS (6)	IDI	✓	
	Midwives who left the Scheme (7)	IDI	✓	
Non-MSS Facilities	Facility manager (3)	IDI	✓	
	Midwives (4)	IDI	✓	

Level	Type/Number	Method	Language	Questions
Community (36)	TBA (3)	IDI	Hausa, Ibo, Pidgin-English	*Views on MSS *Participation and role of communities *Relevance of MSS to local needs *Satisfaction with services *Challenges experienced
	WDCs members	3 FGD (7–10 per group)	Hausa, English	
	Service users	3 FGDs (4–5 per group)	Hausa, Ibo, English	
86 IDIs and 8 FGDs (49 people)				

Central level data collection

Data collection was initiated at central level because of the need to understand the formal policy framework, given that MSS was conceptualised and implemented in a top-down manner. Furthermore, the implementing agency, NPHCDA, was also located at federal/central level. In-depth face-to-face interviews were first held with key officials involved in policy formulation and implementation of MSS drawn from the Federal Ministry of Health (FMoH), Nursing and Midwifery Council of Nigeria (NMCN), NPHCDA, and advisors from key international development agencies supporting work on maternal health and the core program management team. Interviews were conducted in their own offices. Initially questions were broad, and based on the responses, and were followed up with specific questions.

Interviews conducted at this level permitted the collection of data on the role and participation of stakeholders, the basis for the choice of the intervention, and identified gaps in implementation and challenges encountered at sub-national level. In addition, data was collected from the MSS database on routine MNCH information, MNCH service utilisation and midwives in post at facility level for descriptive purposes. Relevant policy and programme background documents were obtained and reviewed, for example: a) MSS concept, process and progress, b) National Strategic Health Development Plan (NSHDP), c) MSS baseline survey report, d) MSS implementation plan, e) National HRH Strategic Plan, and f) National Health Policy, among others.

State and local government data collection

Based on findings from the research at the federal level, the first contact in each state was the MSS focal person. The MSS focal person is staff of NPHCDA resident in the state, embedded in the SMoH, and responsible for coordinating MSS activities. The MSS focal person was used as the focal person. In-depth interviews lasting an average of two to three hours were conducted with each one. In Kaduna state, the interview took place in a development partner's office where the MSS focal person worked from because he had not been provided office space in the SMoH. For Ebonyi state, the focal officer worked from Enugu, the capital of a neighbouring state. The research team first met with him in Enugu where the first part of the interview took place before travelling with him to the Ebonyi capital, Abakaliki, where the rest of the interview took place in the author's field vehicle because he lacked an operational base in the state. Interviews with MSS focal officers allowed an understanding of the context of implementation in each state, their role in implementation, actors, implementation gaps, local implementation problems and the human resource management issues in relation to the Scheme's midwives.

Guided by issues identified at federal-level, in-depth interviews with SMoH officials explored their role and participation in the Scheme, states' commitment and financing, leadership and governance at the state level, and sustainability plans, including absorption of midwives into the states' service. In-depth interviews with Primary Health Care Coordinators (PHCC) focused on validating findings from federal and state levels. In one LGA, upon arrival to interview the PHCC, seven members of the LGA health team whose roles spanned data management, supply chain, disease control, maternal health and family planning and immunisation were present. On-site recruitment strategy[306] was used to recruit them as FGD participants as they were already gathered in the PHCC's office for a routine monthly meeting. Consequently, a lively FGD was held with them in the LGA headquarters. The FGD helped explore and expand on issues raised by other LGA-level actors.

Facility and community levels

The research team spent an average of four to five days in each facility conducting interviews and FGDs with midwives (MSS and non-MSS), heads of facilities and members of the community served by the facility (Ward Development Committee (WDC) members and service users). Individual interviews were first held with the facility head when they were available and with their deputy if they were not available. A common trend was non-availability of many MSS midwives at the time of visit. Although the total number of interviews planned in this category was not reached, it was judged that sufficient numbers had been achieved at the point where no new, rich or diverse data was being acquired. Additionally, one FGD took place with six newly posted midwives in one LGA headquarters. Personal accounts of midwives and other facility staff were elicited allowing the author to understand midwives' perspectives of the Scheme's components and incentives, explore motivating and demotivating factors for staying in the rural posting and their experiences with facility-level implementation. Additional data was collected through five telephone and two face-to-face interviews with midwives who had left the Scheme to find further demotivating factors and reasons for leaving the Scheme.

Facility-based routine NHMIS data, service delivery, logistics/medical products, records of midwives' attendance and reporting to higher levels were collected for the implementation period, to be used descriptively. However, in two of the eight facilities, facility managers were unwilling to share records of midwives' attendance.

Lastly, FGDs were held with WDC members and female clinic attendees. The sessions lasted between two and four hours with seven to ten members in each group. Members represented key groups in the community served by each facility, thus the discussions enabled exploration of communities' norms and views on the MSS. FGDs also facilitated interaction among participants who already knew each other. It helped to further explore and validate findings on the participation and role of communities, the relevance of the intervention to local needs, implementation gaps and user satisfaction.

3.3.5 Data analysis

Data was analysed and interpreted using framework analysis – following the newly developed framework described earlier[301, 307]. Although similar to grounded theory approaches, this approach differs in its adaptability to research with specific questions, limited time-frame and a focus on pre-defined set of issues[308]. Framework analysis was chosen because it is flexible and allows analysis to take place concurrently with data collection[309]. It also enables the review and generation of policy and practice-oriented findings as intended in this study[295, 307, 309] through a continuous and iterative process of data analysis[307, 310]. The framework analysis steps followed were a) data familiarisation, b) development of a thematic framework, c) coding and categorisation, d) charting, and e) mapping and interpretation (see Appendix 9 for a summary). Transcribed data were managed and analysed in NVivo10 software[311]. Figure 3.2 summarises the data collection and analysis steps, depicted from top left to top right.

Figure 3.2: Steps in data collection and analysis
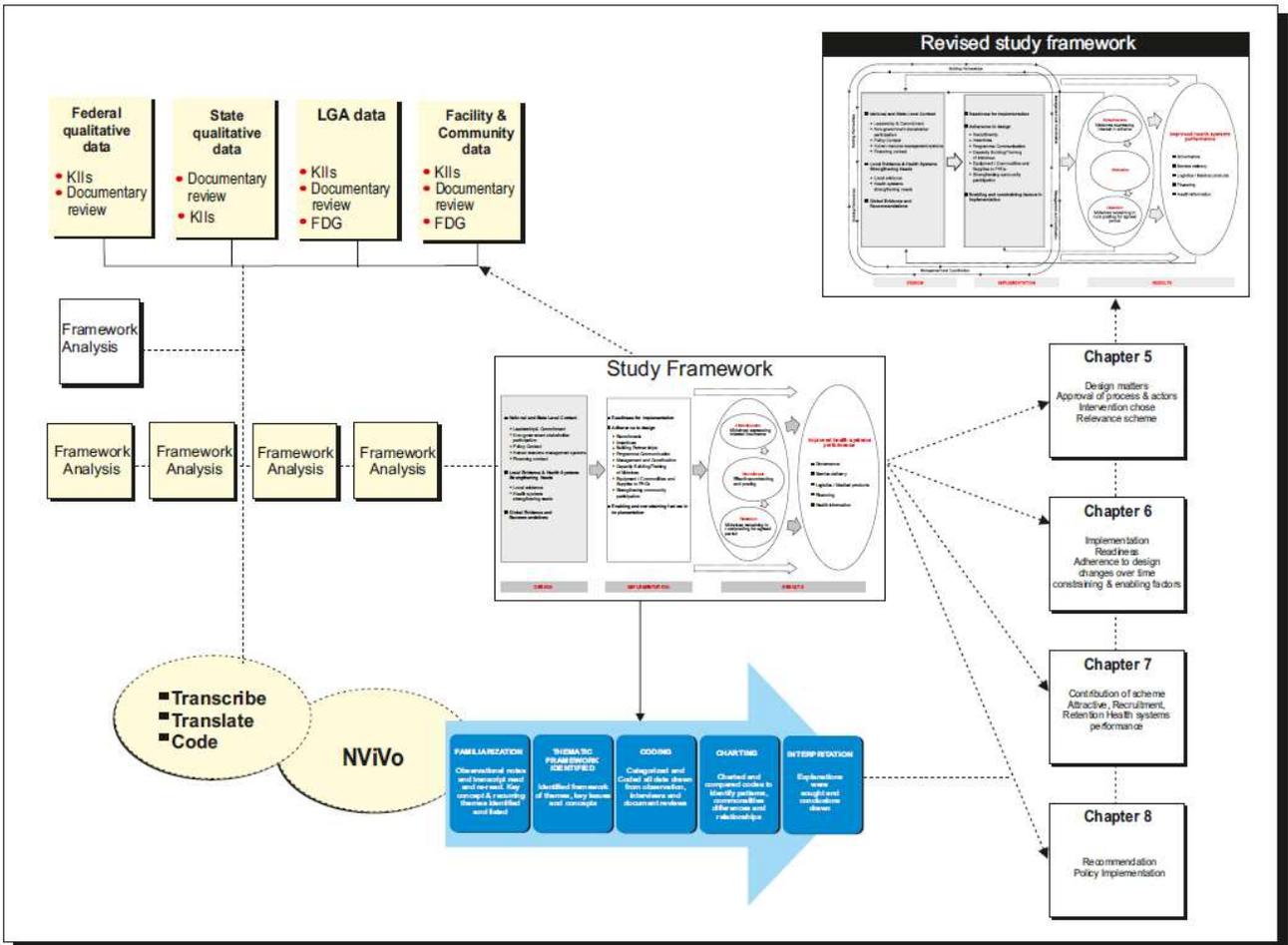
The author started the analysis by immersion in the transcribed data and field notes by reading and re-reading them to get familiarised with the data. A coding framework was developed using both deductive and inductive approaches[312]. A start-list of codes was first generated based on *a priori* themes from the conceptual framework (Appendix 10). Then taking an inductive approach, emerging themes were progressively identified as data was analysed. This is a systematic approach in which the concepts, models and themes are derived through interpretations of the raw data and is guided by the research objectives[312, 313]. An example of a code developed in this way is 'deciding to express interest in the Scheme'. At this stage, the author looked out for the unexpected by allowing the data to guide the themes to bring fresh ideas to the analysis. Eighty-nine codes were initially generated. All codes were clearly defined to enable their consistent application. Both descriptive (summarising topic of excerpt) and

explanatory (explaining pattern, causation, differences etc.) codes were used. Codes were revised, as the analysis proceeded because some did not fit well with the data, some were broken down into sub-codes where too many segments of data were getting the same code, while others were merged if highlighting different aspects of the same issue.

The next step was to categorise and code the data. A 'code' was given to a passage to describe or classify it according to its meaning. At this stage, everything that was considered relevant from as many perspectives as possible was coded. This process was applied to all data, taking care that the content and context was retained to understand the point being made. To create thematic charts, the data was sorted and clustered according to the main themes and sub-themes. Models were also used to represent ideas visually, for example to explore initial thoughts about the relationship between midwife category and retention.

Queries in NVivo aided in exploring patterns, trends and associations, intersections and overlaps. For example, coding queries were used to gather all content coded at "midwife incentives" or "what did MSS midwives say about financial incentives?". This stage helped the author identify patterns within and across the different levels – central/federal, state/LGA, facility and community. Recurring issues identified at any level were further investigated at the other levels. Text search queries (see Appendix 11 for an example) were useful in searching for words or phrases and viewing all matches across interviews, for example "internal arrangements" was reported by facility, LGA and federal managers and consistently referred to the same concept. During this process both logical and intuitive thinking was applied in making judgements about relevance and implicit connection of ideas[309]. A memo was used to write-up ideas about codes and their relationships, reflective notations, impressions, summary statements and thoughts about what was going on.

Charts were created and used to provide concise illustration of different relational concepts thus guiding interpretation of the data set. For instance, a chart of the coding from federal/state/LG/facility managers and midwives at "midwives' supervision" showed it was a more common topic for midwives than for others. The report wizard was then used to create and view summary information and verify the frequencies of these linkages.

3.3.6   Enhancing rigour

Rigour refers to the reasons we have for believing the claims of a qualitative study. In other words, the extent to which the study has been protected from biases or the 'trustworthiness' that contains four parts: credibility, transferability, dependability and confirmability[314-316]. Bias can arise in qualitative studies during the design, data collection, analysis and reporting[317]. Different types of bias include selection biases, including sampling times, places, people and questions, availability and reliability of kinds and sources of data, affinity of researchers with certain kinds of designs, data, theories or explanations and the researcher's knowledge, skills, methodological strength and value preferences[318]. Despite debate in the literature on whether rigour can ever be achieved in qualitative research[319-321], there is an agreement regarding the need for qualitative researchers to be concerned about it[322-324]. In this study, systematic research design, data collection, interpretation and communication were adopted to reduce bias[325].

Although purposive non-probability sampling was applied, a systematic approach was used to ensure the diversity of the sample in terms of identifying and including participants with access to important information and who would enable exploration of all levels of the Scheme's design and implementation[325]. Field assistants' skills in collecting qualitative data were considered in their selection since this skill is a key variable in the quality of research. An orientation on the objectives, framework, methods and interview guides followed by participation in pre-testing helped to refine and ensure that members of the team used the same processes. Triangulation[326] was used to strengthen overall validity[315, 324]. First, applying methods triangulation by using different methods of data collection (in-depth interviews and focus groups). Second, conducting interviews with various interest groups (federal-level actors, program managers, facility-level health workers and community representatives) for data source triangulation. Third, investigator triangulation was achieved by asking one of the research assistants to separately code district-level IDIs using the agreed coding template and comparing themes they identified. The use of different triangulation approaches is viewed as a strategy to test validity through the convergence of information from different sources[315, 327, 328].

Efforts were made to objectively and comprehensively record data by audio-taping all interviews, and making detailed observational notes and transcription of data with great levels of detail. Transcribed data was reviewed with recordings and notes to ensure that interpretation of data were contained in the context of the participants' explanation and not based on the author's preconceptions[327]. To support the author's conclusions, where possible, anecdotes, examples and quotes were selected counted and reported. Attention was paid to negative cases by conducting 'deviant case analysis'[324, 326]. This involved searching for elements of the data that appeared to contradict apparent patterns or explanations that were emerging from data analysis. When this occurred, further explanations were sought until the patterns emerging from the data could be explained or confirmed. For example, only one midwife on the mandatory pre-registration service indicated willingness to stay on in the rural area. Further consideration of this case provided insights into the impact of social relationships with community members on midwife retention, providing new directions for analysis of the dataset.

Member checking[329], the process of soliciting participants' views of the credibility of the findings and interpretation, was used to confirm narrative accounts[330]. Three procedures were used in this study. First, summarising the information and asking participants to determine accuracy and reflect their views[331]. Second, a few participants were also brought together and asked to view and comment on the raw data and transcriptions completed while still in the field[332]. Third, a final member check with key informants at the federal level was conducted towards the end of the study to ensure that the data is accurately represented. Finally, the author believes that the rigour of this study is strengthened by the attention to obtaining a 'thick, rich description'[332] of the setting, the participants, themes of the study and what was done at all stages of this study.

3.3.7 Reflexivity

The researcher's own views, prior assumptions and personal experience can influence the study by shaping the collection of data and interpretation of results. As such, personal and intellectual biases, the effects of personal characteristics such as age, sex, social class and professional status

should be made explicit as they may have influenced the findings[317]. Reflexivity is accepted as a method for qualitative researchers to validate their research practices[333-335]. It is a process that allows the researcher to reflect continuously on how their own actions, values and perceptions impact on the research setting and can affect data collection and analysis[336], enabling the description of philosophical stances 'self' and the 'lens' through which the researcher sees and interprets their research[334].

It is acknowledged that the author's familiarity with the setting, having lived in Nigeria and worked in the health sector, was an advantage in obtaining access to federal/central-level actors and relevant documents. To address possible biases, a reflexive journal was used to log possible prejudices and subjectivities[337, 338]. Keeping a record of thoughts, feelings and activities associated with the process helped to 'turn back' on the author's initial reactions[339]. Debriefings with the research assistants were used to obtain independent feedback and highlight overemphasised points, biases or preconceptions to add credibility to data collection and research.

Program managers and other central-level actors were aware of the author's background. However, this did not influence the power relations and interactions as I was mostly viewed as a peer. Despite 'the asymmetrical power relations' described by Kvale[340], in my opinion the interviewees spoke openly without exercising undue caution since I was not viewed as an outsider. At state and LGA levels, contrary to initial expectations, my identity facilitated the smooth conduct of interviews and the openness of respondents as they saw me as someone affiliated with the system. At the facility-level, respondents in most facilities were not aware of my background as a medical doctor or my role within the public service. However, the introduction of the study and the expected outcome of informing policy caused the author to be viewed as a potential linkage for their challenges to be heard at the highest level. Consequently, many requested the exchange of phone numbers for future communication. WDC members were recruited by the facility-in-charge who is usually responsible for convening WDC meetings. The use of the facility-in-charge to recruit WDC members created confidence in the process and permitted open discussions. The involvement of the facility-in-charge did not appear to influence how free participants felt about sharing their opinions. On the other hand, facility staff were not

involved in the recruitment of service users to avoid patients feeling compelled to participate for fear of being excluded from services. Rather, clients were approached while they waited to be attended to or afterwards. Cross-cultural assumptions and misconceptions often add layers of complexity to the complex interactions of interviews[303]. Care was taken with the dress code allowing for the socio-cultural mind-sets of respect and acceptability. It also served the purpose of reducing researcher/participant distance. The research team was all female. This appeared to enhance interactions at the facility level since all midwives on the Scheme and service users interviewed were female.

3.4   Ethics

This study received ethical approval from the London School of Hygiene and Tropical Medicine's Research Ethics Committee (LSTHM ethics ref: 6230), the National Health Research Ethics Committee (NHREC) (approval number: NHREC/01/01/2007-10/06/2012) in Nigeria and NPHCDA (Appendices 12, 13 and 14).

Participant's information sheets were developed in English and given to all participants to read or translated to Ibo or Hausa in the case of participants who did not read English. The author answered all questions and clarifications. Before commencing interviews, informed consent was obtained from all participants either verbally or by signing the information sheets (Appendix 15). Consent was also obtained for audio-recording of interviews and inclusion of quotes anonymously. The principles of confidentially, voluntary participation and freedom to withdraw from the study at any time without adverse consequences were reiterated by the interviewer before starting. Confidentially was maintained by excluding any personally identifying information from the data. The author stored all data collected securely.

Participants were met and interviewed in their workplaces, ensuring that privacy was always maintained; therefore the issues of reimbursement and/or compensation did not arise. Thus, no incentives were paid for participation.

Chapter 4: Situating the study

This chapter describes the Midwives Service Scheme (MSS) as it was conceptualised at inception, including the components, targets and expected outcomes. Finally, it gives a brief overview of the two states in which this study was conducted: Ebonyi and Kaduna.

Nigeria is a large and ethnically and culturally diverse county in West Africa. The current estimated population of 168.8 million, makes it the tenth most populous country in the world[341]. There are about 374 identified ethnic groups but three are considered to be majority: Hausa, Igbo and Yoruba. The population remains largely rural, with 30% living in urban areas. In 2010 Nigeria was reclassified as a lower middle-income country (LMIC). It ranks as the second largest economy in sub-Saharan Africa. In contrast to the official statistics reporting strong growth in the economy, indicators of the welfare of the population remain poor[342] with the human development index ranking 153 out of 186 countries[343]. Poverty and unemployment remain pervading problems.

The organisation of the health sector is based on a three-tier decentralised system: federal, state and local government. The federal government is responsible for policy development and issuance of guidelines, and, in collaboration with states and LGAs, ensuring mechanisms are in place for their implementation. In addition, it coordinates tertiary health services. States are in charge of secondary care through state hospitals. Although local governments are primarily responsible for primary health care implementation, all three tiers of government and various agencies participate in Primary Health Care (PHC) implementation with the result that there are overlaps, duplications, confusion of roles, poor coordination and accountability[344].

This chapter situates the study by providing a description of the Midwives Service Scheme (MSS) as it was conceptualised at inception, clarifying its aims, key features and components. The MSS targets and expected outcomes are also described. Furthermore, the chapter gives a brief overview of the two states in which this study was conducted: Ebonyi and Kaduna. An overview of Nigeria's geographical, political, economic and health sector context are described

in detail in Appendix 16. A snapshot of the human resources for health situation and maternal health statistics are presented in Appendices 17 and 18.

4.1 The Midwives Service Scheme: features and significance

The MSS is the first large-scale intervention in Nigeria focusing on retention of midwives. It was established by the federal government in 2009 as an emergency response to the chronic shortage of health manpower for provision of maternal and child health services, especially in rural areas, and in recognition of the slow progress towards the MDGs[345]. It seeks to mobilise newly qualified, unemployed and retired midwives for deployment to selected primary health facilities in rural communities with the overall goal to increase skilled attendance at birth and reduce maternal, newborn and child morbidity and mortality in Nigeria. In this Scheme, midwives are deployed to health facilities in rural under-served communities to undertake a two-year rural posting. For newly graduated basic midwives, the Scheme is a one-year mandatory pre-registration requirement for midwifery practice in Nigeria[346].

Table 4.1: Core Objectives of MSS

1. To increase the proportion of primary health care facilities manned by qualified midwives offering 24 hrs service by 80% in the MSS target area by Dec. 2015.
2. To ensure that all the midwives recruited under MSS are trained on Life Saving Skills (LSS) and Integrated Management of Childhood Illnesses (IMCI) by Dec 2010.
3. To increase the proportion of primary health care facilities providing essential/emergency obstetric care (BEOC) in the MSS target area by 60% by Dec. 2015.
4. To increase the proportion of pregnant women receiving antenatal care in the MSS target area from 60% to 80% by Dec. 2015.
5. To increase the proportion of deliveries attended to by skilled birth attendants in the MSS target area from 36.3% to 72.6% by Dec. 2015.
6. To increase contraceptive (family planning) uptake in the MSS target area from 13% to 50% by 2015.
7. To reduce maternal, newborn and child mortality by 60% in the MSS target area by 2015.

The Scheme has eight complementary components:

(a) *Management and coordination*: a high-level technical working group (TWG) was constituted and chaired by the minister of health. The key responsibility of the TWG is to provide strategic direction, support and guidance for the Scheme's implementation. The secretariat for the Scheme resides in the National Primary Health Care Development Agency (NPHCDA) where a team of program managers is responsible for day-to-day management. At the state level, focal persons are identified from NPHCDA staff members. These oversee and coordinate activities at state level and serve as contact persons for the midwives.

(b) *Building partnership and consensus among key stakeholders*: the Scheme is based on a partnership between the three tiers of government based on shared responsibilities and formalised through a memorandum of understanding signed by the federal, state and local governments.

(c) *Strengthening/institutionalising community participation*: through a participatory learning approach, Ward Development Committees would be strengthened to engender community involvement, participation and ownership.

(d) *Deployment of midwives to frontline health facilities in rural communities to improve coverage by skilled birth attendants*: midwives will be recruited and posted to selected facilities across the 36 states of the country and the federal capital territory.

(e) *Support to primary health centres with basic equipment/commodities and supplies:* through the Scheme, basic equipment, drugs and supplies, service guidelines, jobs and protocols would be distributed to all MSS facilities.

(f*) Capacity building/training of midwives to improve quality of care*: capacity building for midwives on the Scheme to enhance quality of maternal and child health services provided.

(g) *ICT support, monitoring and evaluation*: the Scheme is to use mobile platforms to collect data from MSS facilities based on the core indicators for monitoring. These platforms would also be used to monitor stock level of some commodities such as the kits for delivery.

(h) *Program communication*: this component addresses communication of the programme at two levels. At the level of policy/decision makers it would focus on advocacy, while at the second level it targets clients – pregnant women, families, community – to create awareness and encourage the use of skilled attendants at delivery.

Figure 4.1: Organisation of MSS in relation to health systems levels
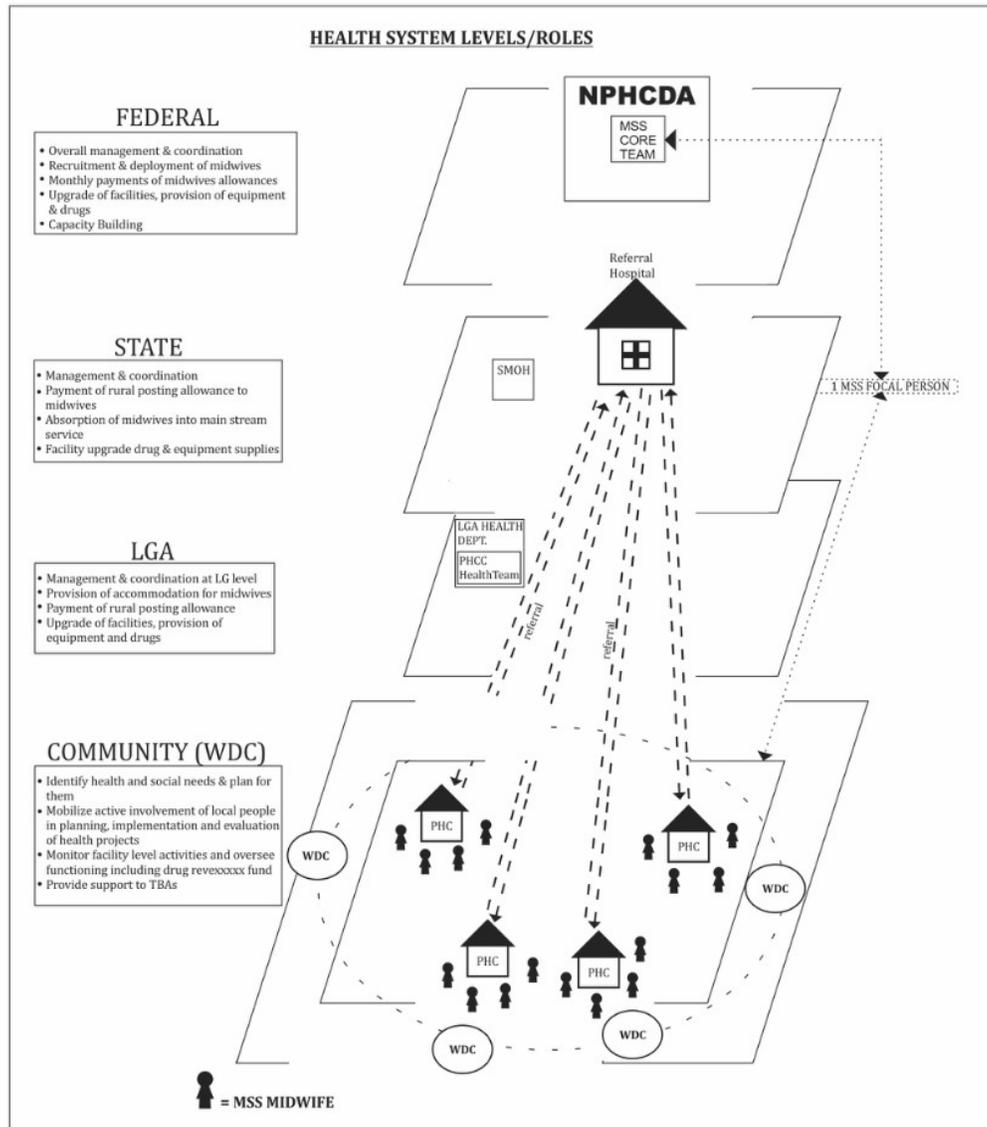
The Scheme aims to target an estimated population of 10,711,532 through 815 (652 primary health care and 163 general hospitals) selected facilities in the 36 states and Federal Capital Territory (FCT). It is implemented through a hub and spoke model, a system of referral connections with four PHC facilities clustered around one secondary facility (163 clusters). The general hospital (secondary facility) acts as referral site for the cluster. States with greater need have been allocated more clusters based on pre-categorisation into very high mortality (VHM), high mortality (HM) and moderate mortality (MM), with 24, 16 and 12 facilities per state respectively. Criteria for inclusion of primary health facilities on the Scheme include their location in a rural, hard to reach area or underserved population serving between 10,000 and 30,000 people, client flow of at least 120 births/year and facility classified as type 3 (primary health centre) with enough space for selected services. At the start of the Scheme, 2,488 midwives (retired and newly graduated) were successfully recruited and posted.

Figure 4.2: Map of Nigeria showing states by mortality rate

Source: NPHCDA, 2010. The MDG-DRG funded Midwives Service Scheme:concept, process and progress.
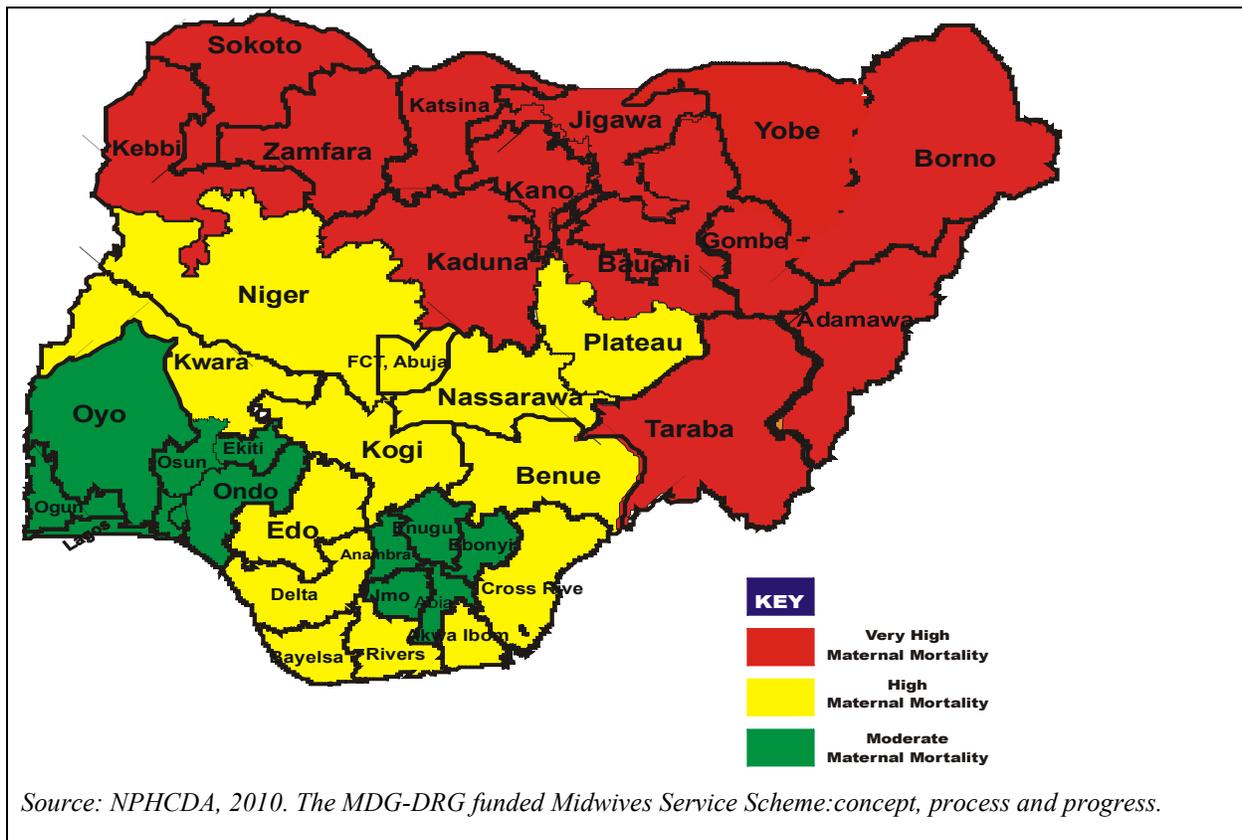
The Scheme depends on partnerships between the three tiers of government, which share responsibility for delivering the agreed package of interventions and its success. The federal government is responsible for paying 30,000 naira (USD 190) monthly for one year to midwives in the Scheme, provision of midwifery kits, registers and monitoring tools, training on life saving skills and integrated management of childhood illnesses, and provision of health insurance to midwives. State governments are responsible for provision of an additional 10,000 naira (USD 64) monthly top-up allowance to midwives in the Scheme, mentoring and monthly supportive supervision and transport logistics for effective linkages between beneficiary and referral facility. Local Government Authorities (LGAs) are responsible for providing accommodation for midwives and their families, security and logistics for commodities and supporting WDC/VDC/CDC in the discharge of their duties under the Scheme.

As part of the partnership strategy, a Technical Working Group (TWG) was inaugurated at federal level with key partners including WHO, UNICEF, UNFPA, Pathfinder, the Midwifery Council of Nigeria and the National Health Insurance Scheme. At the local level, partnerships include state and local government representatives, representatives of religious groups, women/youth groups, non-government organisations and traditional healers/birth attendants.

Table 4.2: Summary of key elements of Memorandum of Understanding

Components of the MOU	Responsibility	Terms
Recruitment, appointment and posting of midwives to all primary care facilities on the Scheme	Federal Government	Midwives have 1-year contract. 2nd year contract upon 1st year satisfactory performance.
Payment of midwives	Federal Government	30,000 Naira ($200) monthly pay
Rural Posting Incentive Allowance (RIPA)	State Governments	Expected to pay not less than 20,000 Naira ($133) additional monthly to each midwife posted to the state
Provision of accommodation to deployed midwives or payment of supplementary allowance	Local Government Councils	Not less than an additional 10,000 Naira ($67) monthly to midwives posted to the LGA in lieu of accommodation where this has not provided by LG Council.
Absorption of midwives into mainstream service	State Governments	At end of the midwives' 2-year contract with Federal Government, i.e. 2011

Components of the MOU	Responsibility	Terms
Upgrade of facilities and provision of equipment, revolving Scheme for drugs and essential supplies for Emergency Obstetric Care	State Governments	States to focus on secondary (referral) facilities. Other terms not stipulated, i.e. quantities,
Upgrade of facilities and provision of equipment, revolving Scheme for drugs and essential supplies for Basic Obstetric Care	Local Government Councils	Terms not stipulated. LG Councils were to focus on primary facilities

At inception, a comprehensive baseline survey was conducted to collect baseline data on MSS core indicators, determine the utilisation pattern of MNCH services in all selected facilities, and determine the factors associated with the observed utilisation patterns. The same indicators form the basis for monitoring and data reporting. The survey showed that about 52% of selected facilities required infrastructural improvement to be able to provide services, 30% of the facilities lacked the requisite number of midwives and therefore did not provide 24-hour services[346].

Table 4.3: MSS Core Indicators

1. The proportion of health facilities with midwives offering 24 hours services under the Midwives Service Scheme (MSS).
2. The proportion of pregnant women receiving antenatal care four times and above under the MSS.
3. The proportion of deliveries attended by skilled birth attendants in the areas covered by the MSS programme.
4. Reduction of Maternal Mortality Rate.
5. Reduction of Neonatal Mortality Rate.
6. The proportion of women using family planning services in the areas covered by the MSS.
7. The proportion of children fully immunised at one year in the areas covered by the MSS programme.

Countries have applied several mechanisms to improve human resource retention. However, two schemes comparable to MSS are the Zambian Health Worker Retention Scheme (ZHWRS) and the Zimbabwean Harmonised Health Worker Retention Scheme (HHWRS).

Established in 2003, ZHWRS aimed at recruiting and retaining indigenous Zambian doctors in rural and remote districts later expanding to incorporate other cadres: tutors, nurses and paramedical staff[171]. The key component was for health workers to serve a period of three years in rural areas. Benefits comprised financial and non-financial incentives; hardship allowance,

vehicle loans, housing rehabilitation subsidies, facility incentives, education allowances for children aged 5–21 years and assistance for postgraduate study for those eligible. A differential hardship allowance was paid based on rural, extremely rural or peri-rural location. The Zimbabwean HHWRS started in 2009 with its focus more on reversing emigration of health workers and ensuring newly trained workers are recruited to fill emerging vacancies[347]. The main incentive was a tax-free monthly salary top-up dependent on grade and location of work (urban, rural). The logic underlying the scheme was that payment of incentives would increase the number of health workers providing services. One commonality across the three schemes is the use of financial and non-financial incentives, which target health workers at the individual level. The ZHWRS provided a robust package which cut across three of the four domains in the guidance on health worker retention[127]. An innovative feature of MSS compared to the others is the introduction of complementary components aimed at addressing health systems issues. The approach emphasises that improvements in health worker retention is not an end in itself but a means to improving skilled attendance at birth and in turn achieving MMR reduction goals.

4.2 Context of the study states

4.2.1 Ebonyi State

Ebonyi is one of the south-east states created in 1996 out of parts of Abia and Enugu states. It covers a land area of 5,530 square kilometres subdivided into 13 local government areas. It has an approximate population on 2,176,947[348]. The Ibos are indigenous to the state and Igbo is spoken across the State. Except for the State capital Abakaliki, it is mostly rural and farming is the main source of livelihood of the people.

Figure 4.3: Map of Ebonyi state showing LGAs

Ebonyi has the poorest indices for health and education when compared to other states in the south-east zone. Adult and youth literacy rate is 53% compared to 72–75% in neighbouring states. It is classified together with other South East states as having very moderate maternal mortality ratios[346]. Modern contraceptive use is low at 5.6% among currently married women. 85% of women in Ebonyi are likely to receive antenatal care from a skilled provider, but only 62% will be deliver using a skilled provider and 60% will do so in a health facility[106].

There are three tertiary hospitals, three general hospitals (secondary level facilities) and 430 public primary health centres in the State. In addition, private health facilities provide a significant proportion of health services but this is poorly documented.

Table 4.4: Health indicators for Ebonyi and Kaduna states

Indicator	National Average	Ebonyi	Kaduna
Maternal mortality ratio	576 per 100,000 live births[1]	1500 per 100,000 live births[2]	1025 per 100,000 live births[3]
Skilled birth attendance	33% [1]	46%[2]	19%[4]
Unmet need for family planning	16%[1]	20.5[2]	15.7[5]
Antenatal coverage (> 4 visits)	60%[1]	76%[2]	78%[4]
Total fertility rate	5.5[1]	5.3[2]	4.1[4]
Postnatal care within two days of delivery	40%[1]	55.3%[2]	50.4%[4]
Infant mortality rate	69 per 1000 live births[1]	99 per 1000 live births[2]	114 per 1000 live births[5]
Under five mortality rate	128 per 1000 live births[1]	191 per 1000 live births[2]	269 per 1000 live births[4]
HIV prevalence	3.4%[1]	0.9%[2]	9.2%[4]

4.2.2 Kaduna State

Kaduna State is located in the north-west geopolitical zone and is considered to be in the centre of northern Nigeria. It has political significance as the administrative headquarters of the north during the colonial era. It occupies 45,567 square kilometres and agriculture is the predominant occupation of the people.

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[1]National Demographic and Health Survey, 2013
[2]Ebonyi State Strategic Health Development Plan (2010–2015)
[3]Kaduna State Strategic Health Development Plan (2010–2015)
[4]Kaduna State Operational Plan for Elimination of Mother to Child Transmission of HIV (2013–2015)
[5]Nigerian Urban Reproductive Health Initiative (NURHI) Toolkit, 2011

Figure 4.4: Map of Kaduna state showing LGAs

Kaduna State has 23 local government areas and is the third most populous state in the country with an estimated population of 6,066,562[348] most of whom reside in rural communities. There are over 30 tribes and indigenous languages in the State and most of these are in the south of Kaduna. Hausa is commonly spoken across the State. The two predominant religions are Islam and Christianity (in almost equal proportions) with a few traditionalists. The State has experienced sectarian riots, the most significant of which were in 2000 over the proposed introduction of Sharia into the State criminal law and in 2002 over a Miss World newspaper article. Religious tensions remain a key defining factor in the politics and affairs of the State.

Based on recent national Education for All (EFA) 2015 reviews, Kaduna is among the states unlikely to attain the EFA goals as a result of the poor youth and adult literacy of rate of 29.3 % (NMEC, 2012) compared to the national average of 50.6 %[349]. Like many states in the north, there is low girl-child school enrolment due to socio-cultural inhibitions, which help maintain the wide gender gaps.

There are 1,693 public primary health care facilities, 55 secondary facilities and five tertiary hospitals. In addition, 656 private health facilities and 2,500 registered patent medicine shops[350]. The northwest zone within which Kaduna State falls has some of the highest burden of disease.

Chapter 5: Rolling out the Midwives Service Scheme: design matters

This chapter presents the analysis of the Midwives Services Scheme's (MSS) design. Intervention design is a key component of the conceptual framework, with the premise that the initial design of an intervention determines how the intervention operates. Recognising path dependency in health systems[70], design is also likely to critically affect how the intervention is implemented and this will affect all subsequent adjustment to the changing environment. It has been argued that for any intervention to be successful it must be well designed, relevant to the context[273, 351] and adapted to local health systems arrangements[218, 352], aligned to legislation and regulations[243, 353], and benefitting from political and public support[213]. Drawing on this literature, the conceptual framework of this study was operationalised to key elements considered to be important in assessing MSS design: leadership and commitment, stakeholder participation, policy and regulatory environment, Human Resource Management (HRM) systems and financing context. These were examined retrospectively to identify the extent to which the MSS design responded to national and state level circumstances. The chapter also examines the Scheme design in the context of its relevance to local evidence, health systems strengthening needs and global recommendations.

This chapter is structured as follows. First, it explores the extent to which the design responds to, and is consistent with, national and state-level health systems context and population needs. Second, the interventions that form part of MSS are appraised, examining their compatibility with local evidence and health systems strengthening needs. The chapter ends with a discussion of the degree to which the MSS responds to global strategies recommended for improving recruitment and retention of health workers in remote and rural areas.

5.1 Relevance of Midwives Service Scheme to national and state-level health systems context and population needs

The fundamental goal and principles of the Scheme were widely supported by program managers and policy-makers across the three health systems levels relevant to its operation (federal, state and local health authorities) and by community members. However, the design showed limited

recognition of the decentralised nature of the health system and of differences in the economic and cultural contexts of the different states and how this might have shaped the choice of intervention. When addressing the question of the MSS's relevance to national and state-level health systems context, this study identified the following themes (reflected in the conceptual framework): different degrees of leadership at the federal, state and local levels, tensions in decision-making between state and federal levels of government, the influence of policy and environmental factors, financing context and financing of the MSS. The importance of non-state actors is also highlighted. Each of these is discussed in detail.

5.1.1   Leadership and commitment

The national government demonstrated strong leadership and political support through identifying the need for a scheme to address the shortage of skilled birth attendants in rural Nigeria and in setting goals for policy intervention in this area. Thus, MSS benefited from high-level visibility through participation of members of the President's cabinet and the wife of the President during its launch[105]. As such, partners saw it as a demonstration of the government's commitment to improving maternal health.

> *"MSS is a demonstration of government leadership and commitment to address maternal health issues." (Development partner)*

There was broad consensus among policy-makers and program managers that the Scheme was needed as an urgent intervention to address the gaps in skilled care at birth.

> *"We have been talking about high maternal mortality for many years but nothing concrete was happening. Many of us [policy-makers] believe that MSS is a good step that shows government concern." (Federal policy-maker)*

The timing of MSS's introduction in 2009 was significant. Its introduction received support among different stakeholders; for example, there was strong advocacy by the Nursing and Midwifery Council of Nigeria (NMCN), as they felt their own scheme of a one-year mandatory pre-registration rural service programme for midwives was a precursor to the MSS.

"It was the success story of the one-year mandatory service that we [Midwifery Council] introduced for the products of midwifery schools that made the federal government start looking at the possibility of the Midwife Service Scheme." (Manager, NMCN)

Consultations and deliberations over the content of the policy took place between 2008 and 2009 involving representatives of three key federal-level players: the Federal Ministry of Health (FMOH), the National Primary Health Care Development Agency (NPHCDA) and the NMCN. The Minister identified these actors based on their organisational mandates and they were tasked to establish the Scheme. The NPHCDA was given the lead in recognition of its legitimate mandate to coordinate PHC delivery in Nigeria[354]. Consultative meetings led to the development of the MSS concept (described in section 4.4), which received federal government approval. The Scheme was then legally established under the 2009 *Federal Appropriation Act*[6]. Thus, the MSS evolved as a federal-led initiative as designed by federal-level government actors. The tri-partite process of designing the MSS was described as follows:

"The [MSS] concept was designed by three of us [one representative each from NPHCDA, FMOH, NMCN] with the intention of placing four midwives in each [PHC] facility and clustering around general hospitals. Then we brought partners together and presented the concept to them." (Federal PM)

Findings from the review of project documents and interviews with program managers showed the absence of a comprehensive plan incorporating planned actions year on year, expected inputs and outputs, and the pathway (or theory of change model) through which the policy was expected to bring about results. Notably, the year one plan was silent on actions to be undertaken by sub-national governments, despite the fact that they were ultimately responsible for planning for and delivering on their obligations within the Scheme. Federal managers explained that time constraints did not permit bottom-up planning engagement.

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[6] The *Federal Appropriation Act* is an Act of the Parliament, passed by the Nigeria Parliament, which allows the Federal Budget Office to issue funds out of the Consolidated Revenue Fund. This is done annually to enable government expenditure.

Considering the extensive decentralisation of the Nigerian health system, the manner of MSS evolution and design process, which excluded states and LGAs, had several effects from the outset. Respondents at both national and sub-national levels highlighted these. The effects most commonly noted – low commitment of state government and LG Councils, tensions in decision-making and limited participation of non-government actors – are discussed below.

Low commitment of state governments and LG Councils

Despite general acceptance by state actors that the Scheme was important and was the right course of action, there was low commitment from states and scepticism about their own role. One federal manager underscored the low interest of states and the poor engagement:

> *"I think it is the typical apathy of states towards federal initiated projects. We had actually expected them to embrace the Scheme. Given the financial outlay that the federal government has put in, we are surprised. It is not a case of 'can't' but more a case of 'won't'. There is absolutely no reason why they should not." (CT member)*

Federal respondents explained the lack of engagement of local decision-makers on the choice of intervention as a generic problem that permeates many aspects of the health system. Based on over 15 years of work in NPHCDA, one manager reflecting on past experiences attributed his opposition to 'over-centralisation' of implementation and decisions. He felt this substantially contributed to unsatisfactory results of past interventions related to immunisation, nutrition and maternal health interventions.

> *"...I disagree with some things. We always make the mistake of over centralisation of implementation and decision-making. Many past interventions in the areas of nutrition, immunisation and maternal health have not yielded good results for this same reason...so why are we still going this way?" (Federal PM)*

All four senior State Ministry of Health (SMoH) officers interviewed in both states pointed out that they had little knowledge of the MSS within their respective states. Moreover, they had no information about the expected role of states in the MSS, and had little involvement in its design. For instance, one state-level officer dismissed the MSS as "their programme" referring to the federal government, and showing a clear lack of ownership of the MSS.

> *"According to what we were told, we are supposed to be part of implementation. Sometimes it is difficult to understand where we come in." (State PM)*

Consequently, states withdrew their support as they viewed their proposed role in the Scheme as merely 'tokenistic' as reported by most SMOH managers.

> *"If you trace their [NPHCDA] footsteps you will see that they don't come to us. Our supposed role is just tokenistic. We too, we are no longer interested." (State PM)*

Officially, all states were required to demonstrate commitment and interest to participate by signing a Memorandum of Understanding (MoU) with the NPHCDA to meet their counterpart financial and in-kind contributions over a two-year period (summarised in Table 4.2). Federal managers complained that even after repeated visits to states, by the end of the first year fewer than 50% had signed the MoUs. State managers contended that their governments mostly did not buy into the terms of the MoU because of the implied financial commitment, but signed them because it was a pre-condition for state participation which they expected would be beneficial. States were concerned that some deliverables within the MoU were not realistic.

> *"Maybe if they discussed well with us we may not agree to many things [all terms] in the MoU because we cannot provide all." (PHCC, Ebonyi)*

Similarly, LG Councils were concerned about their lack of involvement in designing the Scheme and the uncertainly about their role in its governance. Strong objections were expressed by all four Primary Health Care Coordinators (PHCCs)[7] with one reporting having first heard about the

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[7] The head of the Local Government Council health department.

Scheme from newspaper advertisements calling for recruitment of midwives. Others, when midwives arrived with letters of posting.

> *"As you people [NPHCDA] send them where you like, the chairman of the LGA or the secretary don't actually know how you people designed it because you posted them [midwives] and gave them the health facility where they will be from your end…"* *(PHCC, Ebonyi)*

> *"The posting letter came with the name of the facilities direct from Abuja to us. We don't think it is fair but we cannot do anything. We just continue to take them [midwives] with strong heart [equanimity]." (PHCC, Kaduna)*

Despite this perception of unfair treatment due to the lack of involvement, LG staff reported more active interest in participating in MSS implementation processes compared to states. For example, some LGs reported conducting periodic visits to confirm whether the posted midwives were at the facilities, seeking to address midwives' housing and welfare issues and periodic supervisory visits by one LGA. These findings can be attributed to the fact that the Scheme's implementation was centred on PHCs for which LGs have direct responsibility. Hence, it was easier for the LGs to see the immediate benefits of the intervention within their communities as well as the potential political advantage for LG leadership of introducing new services.

Central versus local-level tensions in decision-making
Decisions were made centrally and passed to states and LGs for implementation creating a risk that they acted 'merely' as agents for the central government. This contradicted the spirit of choice and power to make decisions 'conferred' by federalism and health system decentralisation[355]; for instance, the National HRH Strategy states:

> *"States and LGAs have the ultimate responsibilities to train, hire, manage and develop their health workforce based on their perceived needs, prevailing local laws and regulations." (National HRH Strategy, p..24)*

This imbalance in decision-making was indicated in relation to three areas: recruitment and deployment practices, midwives' management and benefits payments. Regarding recruitment and deployment, the Scheme's strategy to post midwives to locations where the needs are the greatest, and regardless of their state of origin, was judged by federal managers as a rational approach to staff redistribution.

> *"The initial assumption was that there were a lot of midwives but the challenge was a question of distribution. So, we decided to post them mostly from southern states to the north were the need was more." (CT member)*

LGA staff on the other hand provided several arguments against the recruitment strategy. First, they argued that local policy-makers would have preferred employment from the available stock within their locality and re-distribution within the LGA.

> *"...we just did a census. We have more than 126 qualified health workers – indigenes of this LGA- unemployed; sitting down just like that. If they wrote to the chairman of the LGA that they want a person of so and so qualification to serve in this LGA. Only ten! [with emphasis]. Don't you think that politically you would have scored a goal?" (PHCC, Kaduna)*

Second, LG staff raised concerns that the Scheme's model of recruitment and posting of midwives may not have considered cultural preferences. For example, due to the cultural conservatism of some communities, there was a preference for women to be attended by female health workers.

> *"...people's confidence will be boosted because this is their own children and we will give them females [midwives], we will not give them male. It will increase people that come for ANC and deliveries." (PHCC, Kaduna)*

Third, some LG respondents perceived the "imported" midwives to be less committed since they were not members of the local community. For example, it was reported that many midwives made frequent visits to their home-states during the time they were supposed to work.

> *"She wants to go home and spend one month. She wants to go home and spend two weeks, her mother has something, she has an interview. Always excuses, always excuses!" (PHCC Kaduna)*

Fourth, cultural and language barriers in service provision were also identified. For instance, in one northern LGA some of the midwives were accused by LG staff of not being "appropriately covered up" and mentioning "sensitive" parts of the body in English rather than the more acceptable descriptive approach, used locally, which was considered less offensive. For example, *"your front"* instead of "your vagina".

The second point of tension was related to Human Resource Management (HRM). The MSS aimed for a centralised approach to midwives' management, with all decisions pertaining to management of recruitment, posting, performance and discipline determined centrally by the NPHCDA. Three of the four PHCC coordinators identified this as demotivating. The main dissention was that based on the Scheme design, LG Councils lacked the employer rights when it came to midwives on MSS, whereas other facility staff came under their management. Some of the specific concerns included inability to discipline the MSS midwives, and they lacked power to respond to staffing issues as they arise. Given that information related to performance of midwives was most likely to be observed by 'front line' managers who reported to LG Councils, this lack of authority was perceived to hamper effective management.

> *"We don't have any basis to say this person is not working well, they [NPHCDA] have posted them. They [midwives] do what they like but we cannot discipline them. It is discouraging us." (PHCC, Ebonyi)*

There was also concern about the possible tensions arising from applying different performance standards to similar cadres in the same facility.

The final cause of friction between the central-level and LG Councils was the dissatisfaction with the 'decision space'[356] with respect to benefits payments to midwives. For one, the level of emoluments and non-financial incentives was set centrally, including the amount of additional payments to midwives by the states and LGs. The basic entitlements were also disbursed from the central level directly to individual midwives. Federal managers reported that this procedure was aimed at having uniform and consistent standards to minimise inequalities. Consequently, LGs lacked the right to decide the midwife's eligibility for payments or deal with some emergency situations related to sustaining service delivery, lack of discipline and poor individual performance.

On the other hand, central-level managers argued that information related to midwives could easily be sent to the central-level via telephone or email for decisions and therefore did not see the centralised approach as a possible threat to implementation.

> *"I don't see the problem in us [NPHCDA] managing midwives. If there are any issues, they can always report it and we can handle from here [federal level]." (Federal PM)*

5.1.2   Non-government stakeholder participation

This section presents findings regarding the involvement of development partners and the community in the design of the MSS. The MSS concept document identified its non-government 'strategic partners' to include World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), United Nations Population Fund (UNFPA), Pathfinder International, the MCH programme of the Partnership for Revival of Routine Immunization in Northern Nigeria (PRRINN-MCH) and local communities[105]. According to the document, 'the partners are expected to explore area [sic] of collaboration and support in their focal/operational areas and align their programmes to the scheme'. However, in practice this was not the case. Federal managers reported that only those development partners likely to contribute financially to the Scheme were invited to join the technical meetings. Consequently, development partners' participation during the design did not reflect their diverse roles but rather focused on the misconception that their role is primarily as funders and less as technical advisors.

> *"The selection of development partners was based on their existing role in funding MNCH. ...so we decided to key in, that is, bring them on board." (Federal PM)*

One respondent representing a development agency noted that: "As a result [of non-participation at the design stage], the opportunity to incorporate important insights gained from the field [other programmes] was lost." For example, most partners, based on local and international experience, strongly supported a more inclusive process led by states or LGs.

> *"I would have gone for either a state or LGA-led approach. Our experience shows that it is often more efficient to work closer to the ground because you can avoid many bottlenecks in implementation." (Development partner)*

The non-funding organisations felt treated as outsiders. As reported by a member, the Society of Gynaecology and Obstetrics in Nigeria (SOGON) considered a key stakeholder in maternal mortality reduction was not given the opportunity to play an active role.

> *"We were left behind despite the role we played in advocacy. Maybe because we have no funds to contribute." (SOGON member)*

Opinion was split on the extent and value of local community involvement. Federal managers reported that the involvement of communities in decision-making with respect to MSS policy objectives and design was not considered to be necessary. Rather, the focus was to ensure their participation in implementation. This was in part due to the general belief among federal managers that many community members lacked the capacity to understand and articulate inputs relevant to the policy development process.

> *"You know many of these people are illiterates. They won't understand but will be telling you we want this, we want that. We did not want to waste time. We engaged with them when we were selecting facilities but we gave them clear criteria." (Federal PM)*

Communities were represented by a Ward Development Committee (WDC) set up to ensure their participation and involvement in health programmes. Having participated in similar health and development projects in the past, a few Ward Development Committees (WDC) members expressed dissatisfaction with the MSS design process when compared to similar initiatives in which they played a more active role in decision-making.

> *"This MSS is not like the others [health programmes] we have been doing. We do not really know what is happening only what they tell us. But [in other programmes] it is WDC that makes decisions." (WDC member, Ebonyi)*

The majority view from FGDs with WDCs was that their role in MSS implementation was unclear to them even though the training had been conducted using a participatory learning action (PLA) approach, which aimed at promoting active participation of community members in identifying their own needs and finding appropriate solutions. However, decisions regarding MSS design had been made prior to WDC training. Consequently, community needs and priorities were not central in the development of the Scheme design. Several WDC members confirmed that they only participated in electing committee leaders. Interestingly, the study found that WDC members' interest in the Scheme seemed greater in communities where maternal mortality was higher and was perceived as a major problem.

> *"You know a lot of our women suffer during delivery, some suffer before and some after...we are happy the [MSS] midwives are here." (WDC member, Kurmin-Marshi)*

> *"They trained us. But our opinion was not taken because they had finished everything before they came. They said our own [role] is to help the midwives with accommodation and other things." (WDC member, Nwezenyi)*

5.1.3   Policy and regulatory environment

A supportive policy and regulatory environment is required to formalise and enable both the design and implementation of a new policy[357]. Interviews with federal-level managers indicated

that formal analyses of the policy context (existing decisions and actions related to the MSS, HRH and other policies, HRH regulatory frameworks, health systems strengthening strategies at national and sub-national levels) were not conducted at the MSS formulation stage.

> *"We paid greater attention to the technical content of MSS package and less emphasis on understanding the influences of the policy context." (CT member)*

One policy maker felt the MSS "was conceptualised as a programme rather than a policy" therefore was not approached from a health policy perspective. This suggests the MSS may have been viewed as a short-term intervention to create temporary improvements in midwife availability and not intended to bring long-term changes in a systemic way. This may further explain the low attention to analysis of the policy environment.

The 2007 National HRH strategy identified actions for achieving six strategic HRH policy objectives and was supposed to guide development of HRH plans at all levels.

> *"...each state will develop its own HRH Strategic Plan linked to the National HRH Strategic Plan with prioritised and costed annual implementation plans at state level and a consolidated annual implementation plan and monitoring mechanisms at Federal level." (National HRH Strategy, p.7)*

Findings from this study suggest that at the time of the MSS design there was a diversity of non-harmonised policies, policy gaps, poor funding for HRH programming and capacity challenges.

> *"… the Federal and most State Ministries of Health do not have structures and capacities to facilitate the development and implementation of cohesive and integrated HRH plans. Very few State Ministries of Health have evidence of routinely planning for human resources for health." (National HRH Strategy, p.17)*

While HRH needs across all levels of government are poorly coordinated, differential conditions of service and remuneration exist between the federal and state governments and across states

[358]. However, when asked about this, federal programme managers did not perceive this to be a problem because of the high-level support for the Scheme at that level.

> "This is one area where all the three tiers [of government] still need more work. Especially in making the policies speak to each other. Though we did not go checking for specifics we already knew that whether it [supportive HRH policies] was there or not it would not restrict what we wanted to do in MSS." (Federal PM)

The findings show that of the 36 states and the Federal Capital Territory (FCT) only two had enacted HR rural service policies focusing mainly on salary top-ups for rural postings; these were inconsistent with MSS principles because they addressed only financial incentives. Findings further suggest that policy development and implementation relating to production, recruitment and retention of health workforce were often slow and fragmented. The HRH strategy notes that:

> "Most of the initiatives enumerated above are being implemented in a slow, disjointed and fragmented fashion without coordination, mainly owing to the fact that responsibility for health staff management and development is divided among the three tiers of government." (National HRH Strategy, p.24)

The poor coordination of policies was blamed on the unclear division of responsibilities across the three tiers of government. Nonetheless, there was an understanding that training, hiring, management and workforce development were established roles of SMoHs and LGAs who then work within prevailing local laws/regulations. The MSS design involved more radical change that departed from this norm and presented challenges. Two elements of the MSS were significantly inconsistent with the existing policy in many states. First, the majority of states had restrictions on employment of non-state indigenes[8] into the state public service. While this policy

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[8]The word "indigene" is widely understood at all levels of Nigerian society as a person who can trace his or her ancestry back to a community of people who were among the original inhabitants of that place. In practice, however, this definition can be extremely difficult to apply and is most often simply used as a way to express tribal and ethnic distinctions. Nigerian law contains no clear definition of 'indigeneity' even though a broad range of policies at every level of government makes use of the concept. State and

did not affect the Scheme's ability to post midwives outside their states of origin, it impacted negatively on the strategy of absorbing midwives into the respective states' services in a sustainable manner. The low interest of midwives in remaining in the locations may be partly attributable to this.

> *"I am from Akwa-Ibom. It is only their people [indigenes] that they employ in state service. So, I am looking for another job. Once I get, I will go." (MSS-midwife, Chikum)*

> *"Many of us are looking for government work. Even though the money may be small but it is better in the long term. They said state will employ us…I am praying. If they don't take [employ] us, I will go back to private [sector]." (MSS-midwife, Ebonyi)*

Second, there were restrictions on employment of retired workers. For nurses and midwives, service years are counted from entry into nursing and midwifery school. As such, many who attain the maximum service years retire earlier compared with others of the same age in the public sector.

> *"The policy is that when you go into a school of nursing you start counting your years of service from that day on. So many of them retired at the age of 50, 51 but they are still very active. So, we reengaged those interested…" (Manager NMCN)*

Despite policies restricting employment of retired workers by government, the Scheme could engage retired midwives, thus increasing the number available for the Scheme. The challenge was the inability of state governments to consider them for employment in the long term.

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local governments nationwide grant indigenes preferential access over settlers to land, education, public infrastructure, and government jobs.

5.1.4 Human resource management systems

A functional human resource management (HRM) system is essential for managing motivation, performance and benefits for midwives. The importance of the HRM systems situation and capacity and how these fit with and support the MSS were not initially recognised and so were not considered. Federal managers reported that the HRM implications of the Scheme were not initially perceptible until after commencement of implementation.

> *"We took a step back. We realised there were many issues including salaries, deaths, illness, maternity leaves, welfare issues etc... (thoughtfully)...we have not planned for the human management issues for the midwives." (Federal PM)*

MSS program managers responsible for providing oversight and management of midwives lacked prior experience or training in HRM. These managers complained about being ill-prepared to handle the emerging challenges faced by midwives including welfare and motivation issues and blamed this on lack of training. Any emerging problems faced by midwives were mostly referred to the national level for decisions. Consequently, there were long delays in getting responses and many issues remained unresolved. Both focal officers interviewed described HRM as the most frustrating aspect of their work due to their inability to address issues even after midwives' complaints have escalated.

> *"We have had nothing on HR management, let's be specific on that. We don't need training on service provision but on management. We do not go to the health facility to look at service we are only managing them [midwives], listen to their problems, accommodation issues, security issues...not service." (MSS manager)*

5.1.5 Financing context and financing of the Midwives Service Scheme

This section presents findings about how resources for the MSS were mobilised and allocated within the decentralised health system. It also presents findings in relation to the financing context of the Scheme at the federal and state levels.

A strong link can be made between the 'debt-relief-induced' resource availability and the evolution of MSS and its core principles. Policy-makers identified Debt Relief Gains (DRG) from the Paris Club[9] as the primary source of federal funding for the initial two-year intervention. At the time, DRG represented a robust source of funding[359]. Also, it was assumed that states and LGAs would play their role by providing supplementary funding. Thus, at the design stage, funding was not perceived as a problem. Table 5.1 shows the annual funds releases compared to parliamentary appropriations for 2009 through 2015. Except at inception in 2009 when the allocation received was about 50% of the expected funding, annual funding releases surpassed the amount appropriated for each year up until 2014.

Table 5.1: MSS federal-level resource allocation (2009–2015)

Year	MSS (DRG Funded)	
	Appropriation NGN[10] (billion)	**Allocation received NGN (billion)**
2009	3.0	1.5
2010	1.8	2.9
2011	2.4	3.4
2012	3.6	3.3
2013	1.5	2.0
2014	1.4	1.4
2015	1.0	0.4

Federal managers reported that this was a departure from the normal scenario where the allocated funds were rarely released in full and that it demonstrated the government's commitment to MSS. Despite that, a resource analysis for developing and implementing the MSS option was not conducted before its introduction.

> *"There was no global budget for the cost of financing the MSS at federal or state levels. Now that you ask, I realise that estimation of HR costs for the period was also not done."* (Federal PM)

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[9]An informal group of creditor nations whose objective is to find workable solutions to payment problems faced by debtor nations.
[10]NGN = Nigerian Naira

Program managers reported that the primary focus at the time was to obtain approval for a budget for immediate launch of MSS through its inclusion in the Appropriation Act.

> *"...time was not on our side. It was not possible to go into producing a comprehensive implementation plan and budget due to pressure to submit a budget quickly to National Assembly." (Federal PM)*

The Scheme design which required states and LGAs to part-pay midwives' allowances, provide accommodation, procure drugs and other commodities had long-term financing implications for states and LGAs. However, the financing capacity of the states and LGs was not discussed in the planning phase. Managers in both states shared their concerns about the disregard for their existing commitments in assigning financing responsibilities.

> *"...you cannot plan with another person's pocket in mind. I am sure if they asked our Governor he will tell them there is no money. The state can't meet its own commitments. They are even struggling to pay our salaries." (State PM)*

State and LG respondents cited two underlying factors as the main reason for their inability to meet expected obligations with respect to funding of supplies, equipment, infrastructure and incentive payments. First, they claimed they had no knowledge of the budgetary implications of the MSS. Second, the strong perception that NPHCDA was receiving huge sums for the Scheme (with underlying suggestions of lack of transparency) and that a contribution from states/LGAs would not be required.

> *"I think the federal government should pay all the money. What are they doing with all the MDG [DRG] money?" (SMoH officer)*

One PHCC explained that in his LG, in the absence of allocated resources, funds were sometimes requested on an ad hoc basis.

"We usually appeal to the Chairman who is kind enough to authorise payments to midwives." (PHCC, Kaduna)

The transition of the MSS from federal to full ownership by the states was planned for 2012 after the initial two-year federal funding as part of the sustainability strategy. As shown in Table 5.1, federal funding for MSS declined after 2012, but without commensurate increases in state/LG input. Consequently, the federal government had to sustain funding beyond the initial two years planned.

"Initially we planned the Scheme for two years, but now the third year has been implemented and fourth year is in process because states are not funding." (Federal PM)

Donor input represents an important source of financing for MCH in Nigeria. However, managers reported that donor contribution to MSS was limited to training and infrastructural improvements in a few LGAs where they had on-going interventions. As such, it was difficult to quantify since these outputs were not linked to the MSS. On the other hand, uncoordinated planning and budgeting processes by the government did not provide a clear prioritisation and a platform for addressing specific needs and may have limited donor responsiveness to MSS needs.

"The approach to budgeting was not very clear and specific needs and priorities were not known. Basically, we carried on with our on-going work." (Development Partner)

5.2 Relevance to local evidence and health systems strengthening needs

5.2.1 Poor use of state and local-level evidence

This section examines the nature of the available evidence on maternal mortality rates (MMR) in Nigeria, midwives' availability and characteristics that underpinned the design of the MSS; how it was developed, how it was understood and how it was used in policy formulation. This study found that some data on MMR was used to inform the design; however, did not find direct

evidence that available, local, disaggregated data on midwife distribution was used to inform the MSS design formulation. It is uncertain whether this disconnect was due to pre-existing gaps in the evidence-base, weak capacity for evidence uptake or prevailing circumstances which did not permit analysis and gathering of new data. Respondents were not concerned about the evidence-base, and rather described relying heavily on expert opinion. Two federal managers who were central to the design of the MSS maintained that although the evidence-base was not comprehensive enough to support the model chosen, the choices were mostly informed by tacit, practice-based knowledge and anecdotal experience from other programmes.

> *"...we used our experience. We have been doing this thing for a long time and many of us understand the situation. I would say the design is in order in meeting the needs." (Federal PM)*

LG staff challenged the uniform design of the MSS applied across the country because it did not reflect a good understanding of geographical differences that may influence the operation of the Scheme. Examples given include differences in the level of maternal mortality, cultural and other factors such as delivery practices, midwives' availability and preferences, and differing human resources management capacity.

> *"Every LGA is different. Even the next LGA has different problems. If you use the same eye to look at all of us [view us as the same] you will get it wrong. Even in this LGA the facilities are different. Sometimes the facilities are not supposed to have such calibre of personnel." (PHCC Kaduna)*

The findings suggest there was weak capacity to identify, analyse and use data to adapt MSS to particular contexts. Federal managers posited that there was already good knowledge of the situation guiding delineation of the country into high, medium and low mortality zones (as described in MSS project documents). Nigeria's maternal mortality data comes mainly from large-scale, periodic household surveys. The National Demographic and Health Surveys (NDHS) were conducted in 1990, 2003, 2008 and 2013 and data is mostly presented at zonal level rather than LGAs, and it forms the basis for PHC decision-making, thus limiting its usefulness in

micro-planning. One program manager noted that further secondary analysis of existing literature or conducting of dedicated studies to inform the design of the scheme was not considered since they already *"knew the problem areas"*. In contrast, LG summary data showed that using aggregate zonal and state figures might have masked significant local variations. For example, although Ebonyi state is in a moderate mortality zone, the Ebonyi State Health Strategic Plan reports similar maternal mortality patterns (1500 per 100,000 live births) to the northern states located in the high mortality zone.

Variation in midwives' availability and characteristics

The mobility of health workers influences their availability and distribution. The review of national HRH documents conducted as part of this study showed that data on health workers was patchy and not up-to-date. Based on the Scheme design, there were two models for midwife recruitment. First, midwives were recruited mostly from southern states and deployed to northern states perceived to have greater need. Second, four midwives were posted to each MSS facility. Findings suggest that in reality, midwife availability across the various geographical areas was not always aligned to the plan. Rather, due to factors such as employment freezes by some LGAs, the health department was unable to employ new midwives even where they were available.

> *"Although some LGAs had more midwives than we expected, we were informed that most LGAs were not employing because of [lack of] funds." (Federal PM)*

Interestingly, a baseline survey was conducted in January 2010. However, this was four months after commencement and posting of midwives, thus it may not have correctly reflected the midwives' status prior to commencement.

> *"There was a baseline survey when we started which took the HR stock at the facilities at that time. That was the only data that was taken. Otherwise there was none when we were designing for midwives to work for the MSS." (CT member)*

This study's findings at facility level showed that while many facilities had fewer than four midwives, some small facilities had over six after the arrival of MSS midwives. The number and distribution of midwives, estimation of the number required for different facility types and locations would have been a useful reference in design decisions on a facility-by-facility basis or LGA basis.

5.2.2 Relevance to local health systems strengthening needs

The need to adopt a 'systems thinking' approach when studying health systems is increasingly emphasised in the literature[69, 70]. This concept guided the author's examination of the MSS components to identify strategies which were included and which have the potential to improve one or more of the six health systems building blocks and lead to possible improvements in access, coverage, quality or efficiency[69]. Weaknesses in the Nigerian health systems are reported in all the building blocks and include inadequate human and financial resources and their inefficient use; lack of coordination and inefficient management; financial, social and geographical barriers limiting access to essential health care; and inadequate information and evidence for policy and decision-making[358].

A review of the MSS concept document[105] showed that the weaknesses in the health system were acknowledged. Thus, MSS was designed to address the 'maternal and child health issues from a system perspective' (p.27). One federal policy-maker noted the absence of clear national guidance on health systems strengthening but observed that several national reports had linked poor maternal health outcomes with the weak health systems, consequently efforts had shifted towards systems strengthening approaches.

> *"… the WHO document on building blocks gives important guidance. At the national level, there are no specific documents that spell out the need to strengthen health systems. There are some strategies though that suggest the need for a strong health system for implementation" (Federal policy-maker)*

Despite this lack of planning and explicit acknowledgement of the health system, the MSS did address important areas of health systems strengthening. Figure 5.1 presents a comparison of MSS components with WHO health systems building blocks.

Figure 5.1: Comparison of MSS components with WHO health systems building blocks
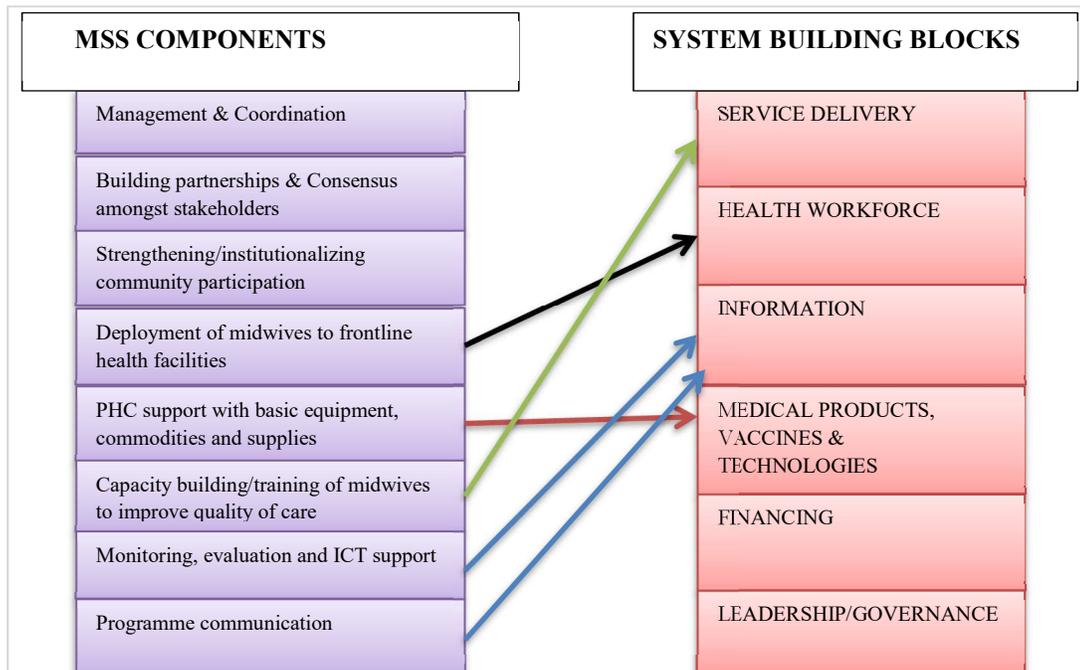
This analysis shows that six out of the eight MSS components address system-level interventions that are directly targeting one or more of the six health systems building blocks as defined by the World Health Organization [177]: service delivery, health workforce, information, medical products, leadership/governance and financing. The dynamism and complexity in health systems means that the effect of the MSS on any of the blocks can potentially spill over to other blocks and, as a result, trigger system-wide changes. Thus, it may be difficult to separate and attribute the effects on the health system to any one specific component. Furthermore, interactions between the broader health systems and the MSS components may facilitate or hinder expected results. Thus, the analysis establishes that based on its design, MSS has the potential to bring about system level changes. The extent to which this was achieved in practice is presented in Chapter 7.

5.3 Relevance of the choice of intervention to global evidence and WHO recommendations

This section presents findings on how the elements of the MSS were chosen and the extent to which they are consistent with WHO recommended global priorities for improving the retention of health workers in rural and remote areas[117]. This is complemented with an analysis of the elements of the intervention in the context of local midwives' requirements. The influence of the global recommendations in guiding choices is derived analytically rather than stemming from the data; most managers did not refer to them when discussing how interventions emerged even when prompted.

Table 5.2 compares the MSS interventions with WHO recommendations for improving attraction and retention in remote and rural areas. MSS interventions incorporate two of the four WHO recommended categories for improving rural retention: financial incentives and regulatory interventions. In addition to understanding factors that influence decisions to stay in or leave rural areas, WHO emphasises consideration of broader social, economic and political factors at national and sub-national levels in determining the retention factors to be addressed. Thus, understanding local factors that influence midwives' decisions is a prerequisite for designing and choosing effective retention interventions. Although an analysis of midwives' preferences was not conducted during the design stage, program managers and midwives interviewed in this study cited poor pay, poor health and social infrastructure and professional exclusion as some of the prevailing local factors driving midwives away from rural locations.

> *"It is always the same complaints we hear from many health workers. They will tell you that they will be forgotten in the rural area, there is no light or water and on top of it the money [salary] is small." (Federal PM)*

Table 5.2: Comparison of MSS HR interventions with WHO recommended interventions for improving attraction, recruitment and retention of health workers in remote and rural areas

WHO recommended categories of interventions		MSS intervention by Category
Category of Intervention	**Examples**	**Chosen for MSS**
A. Education	A1 Students from rural backgrounds	NO
	A2 Health professional schools outside of major cities	NO
	A3 Clinical rotations in rural areas during studies	NO
	A4 Curricula that reflect rural health issues	NO
	A5 Continuous professional development for rural health workers	NO
B. Regulatory	B1 Enhanced scope of practice	NO
	B2 Different types of health workers	NO
	B3 Compulsory service	**YES** (For newly graduated midwives only)
	B4 Subsidised education for return of service	NO
C. Financial Incentives	C1 Appropriate financial incentives	**YES** (though not considered appropriate by midwives)
D. Professional and personal support	D1 Better living conditions	NO
	D2 Safe and supportive working environment	NO
	D3 Outreach support	NO
	D4 Career development programme	NO
	D5 Professional networks	NO
	D6 Public recognition measures	NO

Source: Adapted from Table 3.1 of WHO [117] Global policy recommendations for increasing access to health workers in remote and rural areas through improved retention, p.17.

There is no clear picture of whether or how the factors identified here were used to design the MSS incentive package. However, the results of this study have highlighted the importance of addressing local midwives' preferences and other retention factors within the context of broader global recommendations.

When asked about the adequacy of the monthly payments as an incentive, overall, all MSS midwives felt that the pay was low and as such did not constitute an 'incentive'. This was based on the perception that their contemporaries in states' services earned more than what the Scheme offered, in some cases nearly twice as much. They were also dissatisfied with the lack of other allowances like transportation and risk.

"The amount is low…but we have been saying repeatedly that except you get a person who has been posted to her locality, it will be difficult, then we ran into problems." (CT member)

While federal managers understood that the rates were too low to incentivise midwives, they were unsuccessful in negotiating better rates with the decision-makers at inception.

"The initial amount that we recommended was higher, but we had to go with what government could afford. We also had to be careful so that the Scheme did not result in pulling midwives from government jobs." (CT member)

According to core team members, they recommended a minimum of 50,000 Naira ($333.33). At the time this was equivalent to a university graduate entry-level pay at federal level while midwives usually started off at a lower level of pay than university graduates. The recommendation was rejected and 30,000 Naira ($200.00) was fixed by policy-makers. According to federal program managers, the lack of consistent and uniform standards in relation to the wages paid by states due to decentralisation and autonomy resulted in marked differences in midwives' pay across states and created equity challenges. It was suggested that a more standardised approach should have been taken to minimise inequalities between midwives while still retaining some flexibility:

"States were to give a financial incentive but this was not specified. They can go as high as 20,000 [$133] if they wanted. For example, some paid 30k [$200] for north but some are not paying. LGA's minimum was 10k [$67], which is not being paid by many of them. The only constant one has been from the federal government. This is one thing we could have done better… "(CT member)

5.4 Conclusions

This chapter examined the design of the MSS and the extent to which it draws on the health systems context, resources, local needs and priorities. It also critically reviewed the relevance of the interventions within the context of international strategies for improving rural retention of health workers and the robustness of MSS in contributing to health systems strengthening priorities.

The findings indicate that the design of the Scheme was based on federal level program managers' knowledge of maternal health and health worker policy issues, but did not consider the decentralised nature of the health system. Consequently, a number of challenges identified in the Scheme related to not sufficiently accounting for the local context in the Scheme design. While uniform standards may be desirable in any Scheme, there is a need to build in adaptability to local conditions. Findings indicate that the health system and economic contexts cultural preferences and local evidence were insufficiently considered during MSS design, resulting in poor local ownership and commitment. The federal government demonstrated strong leadership, commitment and ownership of the MSS compared to other actors, but this was also problematic in that it shifted the responsibilities to it. For example, substantial increases in federal funding were recorded between 2010 and 2014 compared to states and LGs, which made no budgetary provisions for MSS. Also, a core technical team was established at the national level to lead planning, implementation and monitoring in contrast to a lower resource allocation at lower levels which were tasked with implementation but lacked equivalent managerial structures.

The Scheme design was not based on data and there was no evidence that the design decisions were shaped by consideration of other possible options to address the identified problems of midwife shortages in rural facilities. Ensuing from the design, the study identified emerging themes, including inadequate management and logistical capacity to deal with the complexities of the Scheme and poor absorptive capacity of many states of the posted midwives.

A critical concern raised by sub-national actors was dissatisfaction with the 'decision space'. The lack of decision-making at lower levels of government resulted in tensions, especially regarding

the model of recruitment and deployment of midwives, centralised management of midwives and payment of monthly emoluments. Since decentralisation critically modifies the decision-making space, an inclusive process where sub-national actors participate in choosing policy options should be a prerequisite.

The findings also showed that the MSS intervention addresses four of the six health systems building blocks. Thus, has the potential to strengthen the health systems. The analysis also identified that the strategies fit with global recommendations for health worker retention. However, insufficient efforts were made to link the strategies to the identified problems. Financial incentives were the most important to midwives but were considered insufficient. Finally, implementing a uniform financial package irrespective of pay structure in the different states created equity challenges.

Chapter 6: The devil is in the detail: Implementation of the Nigeria Midwives Service Scheme

Chapter 5 discussed the Midwives Service Scheme's (MSS) design and the extent to which it responded to the local context and was adequate to need, as well as its relevance to overall policy development seeking to improve maternal health outcomes in Nigeria. However, while policy design is an essential first step, successful operation of the Scheme is contingent on effective implementation.

This chapter seeks to examine the implementation of the MSS programme, thus addressing the second objective of this study. The analysis presented here is guided by the 'implementation' component of the conceptual framework (see chapter 3): examining retrospectively the extent to which each element of implementation (midwife recruitment and deployment, incentives, capacity building, equipment/commodity supplies, community participation and monitoring) adhered to the design and intent of the intervention. The analysis is presented in three parts. Section 6.1 describes the readiness for implementation. Section 6.2 explains the extent of adherence to MSS design, changes and mitigating actions to address implementation challenges. Finally, section 6.3 explores the factors enabling and constraining implementation, drawing lessons from process and practice of MSS implementation at the different levels – national, state/LGA and facility.

6.1 Readiness for implementation

Implementation readiness emerged as an important theme in the analysis, and is assessed by looking at role distribution, capacity and will, team communication, planning and implementation resources.

MSS implementation started concurrently in all locations with a 'big bang' approach[360] in October 2009, after a symbolic launch attended by the wife of the President and cabinet

ministers. Core team members[11] who were interviewed reported several factors that negatively impacted on the overall readiness for implementation. The first was the distribution of roles. In principle, it was expected that core team members should have been assigned Terms of Reference (ToRs) based on the thematic components of the scheme. However, in practice, team member roles and responsibilities were not clearly defined and communicated. Some members felt that overriding *"management instructions"* further blurred the poor differentiation of roles. This was described as the situation in which the department head arbitrarily assigned duties to those described as "insiders" (friends of the boss) even when this was not part of the team member's role, creating confused lines of accountability.

> *"Although we did not get the TORs, everybody knows their role. But you see people handling your own work and they will tell you oga [the boss] sent them." (Federal PM)*

This practice affected communication and cohesion within the team as some team members felt excluded. Consequently, commitment and willingness to support the Scheme varied and may have influenced performance. In addition, senior management were not perceived to have taken sufficient steps to ensure that core team members had appropriate competences, skills and experience required for the various posts. Most team members reported that since they received no dedicated training, they lacked the capacity and authority to carry out their roles.

> *"There was no training or orientation for staff to work on MSS. They assumed that since we are staff working on other projects before the Scheme, we should have the capacity, but that is a problem." (CT member)*

However, despite initial start-up difficulties, communication within the core team improved significantly with respect to obtaining members' input and opinions. Regular meetings held with senior management at the start of the implementation helped to overcome tensions.

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[11] Made up of 11 National Primary Health Care Development Agency middle-level managers located centrally and assigned to work 100% on the MSS throughout its planned two-year duration.

"At first the tension was too high. It was when we [core team] started meeting with management that things started getting better because they made each person's role clearer. It was no longer one person trying to do everybody's work." (CT member)

On the other hand, there was no formal communication between the core team and state or Local Government (LG) program managers who reported their surprise when midwives started arriving in health facilities with letters of posting from 'Abuja'. For many, that was the first time they heard about the Scheme, although a few had reported having heard about it through radio advertisements.

"I saw the advertisement. I heard that some 2,000 of them are going to be posted. But you see as a coordinator of PHC I just saw that in the paper." (PHCC, Kaduna)

This implies that there had been limited or no prior joint planning at the state/LGAs or facility level required for effective implementation. In the absence of a global plan with milestones, annual implementation plans were derived on an ad hoc basis, based on the core team's perception of next steps. This study found that there was poor definition and understanding of what constituted full and consistent implementation among program managers at the different levels. For example, as stated in the concept document, program managers working both at the state and LGA levels were to provide *"monthly supportive supervision"* and *"security and logistics"*. However, there was a lack of clarity or precise description of what this entailed in terms of scope of supervision to be covered by the states/LGAs etc.

"The eight components of the Scheme is what we use to bring out annual plans. We did not break it down to say, for example, how many visits and other detailed steps. Now it is difficult to compare and say if they are doing it well or not." (CT member)

This lack of clarity posed a challenge because there was no blueprint for implementation so the program varied across LGAs and the 652 PHCs. In addition, implementers were unsure whether implementation was aligned to design because there was no detailed implementation plan and outcomes operationalised to the LGA and facility levels.

Regarding the availability of resources to support implementation, funds for the first year of implementation were released at the federal level prior to commencement in October 2009; however, there was no commitment to ensure funding for subsequent years as parliament approved federal budgets on an annual basis. The process of engagement with states regarding state funding for the Scheme began after the Scheme's roll-out and may have impacted on financial readiness at that level. A federal manager states:

"After we started, we wrote to States about these contributions…" (Federal PM)

6.2 Adherence to design and intent of the intervention

Despite the challenges posed by an unclear design due to insufficient description of what constituted full implementation for each component of the MSS, there was some consensus among federal managers regarding what was to be done under each component. This section draws strongly on those annual "intentions" in describing and explaining what happened under various components.

6.2.1 Recruitment and deployment of midwives to frontline rural facilities

Midwife recruitment and deployment was an essential and most central element of the MSS, envisaging that four midwives were to be recruited and posted to each of the Scheme's 652 PHC facilities. Except for newly graduated midwives for whom the Scheme formed part of their compulsory pre-registration service, other midwives heard about the planned recruitment either through media sources or personal communication.

"One of my friends showed me the advert in the newspaper." (MSS-Midwife, Kurmin-Kogi)

According to core team members, recruitment and deployment were planned to take place once, at inception, because it was assumed that applications would exceed vacancies.

"We planned to deploy 2,488 [midwives] but were able to deploy 2,323 at [the] start. ... we could not achieve the expected numbers." (CT member)

Due to the shortfall in the numbers of recruited midwives in the first instance, a second round of recruitment was undertaken to meet the target of 2,608. In total, the Scheme managed to enlist 2,488 midwives; however, of those, 2,323 accepted the postings and were deployed. Although formal reasons were not provided by midwives who rejected the postings, federal managers became aware of two main reasons: better paying job options and security concerns at workplaces in some northern states.

"Security challenges have affected things. Most [midwives] are moving away from the north back to the south. You know most of them were posted from the south to the north because of the HR challenges in the north. Some say they got higher salary somewhere." (CT member)

Thus, in about a third of the facilities, fewer than the four midwives expected per facility were posted at the second round.

"We did not achieve four per facility in about one third of facilities." (CT member)

Table 6.1: Summary of outcome of midwife recruitment and deployment

Intended outcome	Actual outcome
One recruitment exercise with target of 2,608 midwives to be deployed	Two recruitment rounds at onset. 2,323 midwives accepted postings and deployment to facilities after both
Four midwives per facility (652)	Four midwives/per facilities not achieved in about 30% of facilities
Provision of 24-hour services	Not implemented in some facilities due to midwife shortages/absences
Capacity building/training of all midwives recruited under MSS LSS and IMCI to improve quality of care	Coverage of training for midwives was low. However, those trained demonstrated good delivery practices
PHC Support with basic equipment/commodities and supplies to all MSS facilities	Most facilities received at onset resulting in positive perception of MSS. Subsequent challenges with restocking and logistics management

Intended outcome	Actual outcome
Establishment/reactivation of Ward Development Committees for all PHC to engender community involvement, participation, ownership and sustainability	Low community participation and involvement
Monitoring, evaluation and ICT support comprising voice, data, internet connectivity	Incomplete reporting, data quality challenges, poor information feedback
Decentralised approach to program management with roles for federal, state and LG levels	Central-level wholly in charge of program management

According to federal managers, the inability to meet the targets after the second round of recruitments challenged one premise of the MSS design: that the pool of unemployed or retired midwives was larger than the number of posts required to implement the MSS. However, poor communication about the Scheme and the size of the remuneration reported by federal managers (discussed in section 6.2.2) seemed to be important factors.

Although recruitment was planned to occur once at the start of the Scheme, several rounds of recruitment were undertaken during implementation to replace midwives exiting from the Scheme. As explained by federal managers, this was associated with additional costs of advertisements for new recruitments, training and orientation of the new midwives, as well as operational costs related to managing the turnover. Because of midwives' mobility, according to federal managers, the total number of MSS midwives fluctuated from year to year, with consequences on availability and quality of services. Despite recruitment becoming an on-going activity, the targets were not met. In 2012, the federal government established a new project similar to the MSS but with a different funding source, the Subsidy Reinvestment and Empowerment Programme (SURE-P/MCH). The introduction of the SURE-P/MCH project posed a major challenge for MSS recruitment, as both projects now competed to recruit midwives from the same pool.

> *"It [SURE-P/MCH] is running parallel to MSS. It is the same midwives we are competing for. It is still the same rural areas we are sending them to." (Federal PM)*

6.2.2 Incentives

Planned incentives under the Scheme included monthly financial payments to midwives at the three health system tiers, provision of housing near the facilities where they are posted, and opportunities for in-service training [105].

Financial payments

Table 6.2 shows the financial payments by federal, states and LGAs. Poor implementation of incentives was a major concern reported by both midwives and program managers. Focusing on financial incentives, MSS midwives raised several issues as sources of discouragement for staying on the Scheme. First, there were irregularities in salaries and incentives paid, which worsened after the first year. Some midwives complained they went several months without being paid.

> *"Like me, I stayed for 5 months without pay, and I don't know the reason. I laid the complaints and they said they will pay, they will pay but…[shrugs]. Till today, nothing."* (MSS-midwife, Kaduna)

Table 6.2: Summary of monthly payments per midwife by federal, states and LGAs

Amount (Naira)	Payable by	Outcome
₦30,000.00 ($200.0)	Federal	Predictable
₦20,000.00 ($133.3)	State	Not paid by either of the two states
₦10,000.00 ($66.6)	LG Councils	Lower than expected, unpredictable

Those affected explained that during these periods they suffered particularly because of the difficulties in seeking redress. First, the procedures for reporting unpaid salaries were unclear and cumbersome and they did not have direct contact with central level managers who handled those issues. Second, the total monthly pay fell short of the promised package because of non-

payments by the states and many LGs. No midwife in either of the two states included in the study had received any supplement from the state.

> *"State is supposed to be paying us ₦20,000 [$133], but nothing." (MSS-midwife, Kurmin Marshi)*

In contrast, five of the eight LGA councils had paid supplements albeit irregularly due to non-availability of funding. Despite the difficulties experienced by midwives, there was consensus that the component paid by NPHCDA (federal level) was the most predictable.

> *"It is because of federal that we are still here! If not, hunger would have killed us!" (MSS-Midwife Nwezenyi)*

> *"The LGA is supposed to give us allowances…But in the last five months they have not done anything." (MSS-Midwife, Gwagwada)*

Third, the amount paid by LGs across the country differed, as it was dependent on local decision-making on funding and health expenditure. As such, the total package received varied depending on the LGA where the midwife worked. Thus, it created inequities among midwives, which clashed with the uniform standards expected from the Scheme.

> *"… midwives in some states are getting more because their LGA and state are paying. This is not fair because we are in the same MSS." (MSS-midwife, Chikum)*

The effect of this was three-fold. First, it affected MSS midwives' motivation because of their initial perception of the Scheme as 'special' and their important role within that in contributing to maternal mortality reduction.

> *"Meanwhile they told us that MSS is special. Yet those who are not in MSS are earning more. I am not motivated to continue." (MSS-midwife, Kurmin Marshi)*

Further, depending on the responsiveness of the host state or LGA, it was more lucrative to work in particular facilities (sometimes nearby but belonging to different LGAs). In some states, it paid better to be employed on a regular post rather than in the MSS.

> *"We are getting ₦40,000 from federal, and ₦10,000 from LGA making ₦50,000. The difference is much. Some of them in State [employment] are collecting em.... two [₦200,000] plus. Some LGA are not paying...people don't want those LGA." (MSS-Midwife, Kubuochi)*

Second, the Scheme's inability to meet midwives' expectations affected the perception of their commitment as non-MSS staff reported that they did not work as hard as was expected.

> *"They [MSS midwives] say they are not paid well. In this facility, the patient is not coming as supposed. It is MSS [midwives] that suppose do this work. The main thing is they need to work harder." (non-MSS midwife, Kaduna)*

The third effect was that one of the main goals of the Scheme, to have MSS midwives absorbed into the service of states, was not being met:

> *"...so, some states are now having problems with absorbing midwives because it takes them back to the regular salary the midwives in the state earns. In some states, this is higher than MSS." (CT member)*

To mitigate these challenges, federal managers reported that a marginal increase in pay from ₦30,000 to ₦40,000 ($370) was implemented in December 2012. However, disparities in the total package received by midwives within a state and between different states remained due to the state and LGA pay differences.

Housing

Provision of housing for midwives either in the facility or nearby was regarded as part of the incentive package, as this was aimed at reducing the personal costs of travel and accommodation enabling the midwives to be available to provide extended services.

> *"LGA was to provide accommodation as part of the incentives. We said 'decent' and accessible to facility so they can be available to provide 24-hr services." (CT member)*

Several midwives from both states complained about lack of interest and proactivity by LGs to provide promised elements of the incentive package such as accommodation and continued capacity building. No midwives reported participating in training organised by the LGs. Only one out of four LGs had provided accommodation, and even in those cases, it was considered to be of poor quality by the midwives.

> *"Four of us in a room in Akeme's [chief's] house. They [LGA] just gave us a room with hospital mattress. ...very poor living conditions." (MSS-midwife, Gwagwada)*

Federal managers acknowledged that there was insufficient guidance given by the federal level to the LG health departments and State Ministries of Health (SMOHs) on provision of accommodation. Considering that staff housing was not universally available in all facilities, federal managers agreed that capacity to provide accommodation should have been included as a part of eligibility criteria for facility selection.

> *"Different kinds of accommodation have been provided, some sub-standard. 'Decent' should have been described. Some are not even providing at all." (CT member)*

Accommodation problems were reported by midwives and other facility staff to result in midwives' absences from duty posts and informal work arrangements observed in facilities. 'Internal arrangements' were made between midwives, often with facility managers' acquiescence, to cover extended unofficial absence due to accommodation difficulties. Federal managers also confirmed this finding.

"Many of the facilities have what they call 'internal arrangement'. You can go to a facility and find only two midwives who may be working for two weeks and they have this understanding between them. When you go to monitor, they cover it up and tell you they just stepped out. Whereas in actual fact those two have agreed to run for like two weeks and the other two will come back for the next two weeks. They say it is because of their accommodation problems…" (CT member)

Consequently, patients' attendance at facilities was perceived by facility managers to have been affected over time.

"It has affected services. Patients will come and when they don't see the nurse, definitely they will go back!" (Facility manager, Izzi)

6.2.3 Capacity building of midwives

All midwives were to undergo competency-based training upon recruitment into the Scheme, aimed at enhancing service quality. Planned training consisted of six days on Life Saving Skills (LSS) and Integrated Management of Childhood Illnesses (IMCI) conducted at state-level, at the Schools of Midwifery (training institutions). About 10 of the 27 midwives interviewed reported not undergoing any training upon entry into the Scheme. Federal managers suggested that this was due to financial constraints. However, the federal managers did not seem to regard this as an issue of concern because they viewed the training as an add-on and incentive rather than a requisite for service operations.

"Capacity building was seen as part of the incentives. We had budgetary constraints… Even in government jobs you can be there for years without having any training. So, it is an incentive." (Federal PM)

This study could not determine if there were any differences in performance between midwives who received the training and those who did not. Nevertheless, midwives and facility managers

who were trained reported that it was useful in updating their skills. It was also not possible to check whether training took place in line with existing guidelines and content, since no training manuals or other guidance was specifically developed or adapted for the Scheme. However, respondents who had participated in the training generally described it as a positive experience:

> *"[Exclaims] I learnt a lot. I learnt about a lot of things I did not know before. Then I was refreshed in some areas like about the use of drugs in labour. For instance, this Mesoprozine, the way we have been using it before, I learnt another way." (MSS-midwife, Nwezenyi)*

Midwives' assertion that their skills improved through the training was supported by some facility managers who reported better delivery practices generally observed among MSS midwives when compared to others.

> *"Mmmm.... [thinking] I should say that the MSS midwives are more experienced than the ones that are not in MSS. Like in the way they conduct delivery and I have been assessing them. Do you understand? This MSS they have been practising it frequently. Is not the same way the ones that are not in the MSS do it. If they are covering my shift, I am always satisfied." (Facility manager, Nwezenyi)*

Although differences in midwives' skill was acknowledged in a number of facilities, it is difficult to attribute this to the training received by MSS midwives because the facility managers having this view also oversaw more MSS midwives who were from the retired pool. The differences may be accounted for by the greater experience of these midwives due to more years of practice.

6.2.4 Equipment, commodities and drug supplies to facilities

The Scheme sought to support facilities with drugs and basic equipment, as well as commodities and supplies. To achieve this, a complementary approach was used where the federal government was to provide for Primary Health Centres (PHCs), state governments for secondary

facilities, and LG Councils additional funding and delivery of supplies, security and logistics for commodities. After initial positive perceptions due to availability of drugs and commodities provided at the start of the MSS implementation, drug and commodity shortages and supply disruptions became common because the complementary approach did not work. This was associated with a decline in the quality of services and patient attendance.

> *"We provided all the drugs and equipment. When it was time for them [state and LG Councils] to redeem their own part of the MOU they started failing and reneging on their commitments." (CT member)*

> *"Ah, not regular. Since the drugs we had got finished… they haven't brought [more]." (MSS-midwife Ezzamgbo)*

In addition, some facility managers observed that the initial promised supplies expected from the federal government were not made available.

> *"We did not receive any drugs here. Maybe they gave it to their midwives [with sarcasm]." (Facility manager, Nwezenyi)*

Some of the items received were perceived by facility staff to be of questionable quality and were mostly delivered directly to facilities by contractors. This supply chain related to MSS differed from the routine system for drug and logistics management in which drugs and commodities are obtained from state medical stores and distributed to facilities. Although inventories and stock records for MSS were routinely kept, facility managers were unsure which level of government was responsible for replenishing stock.

> *"We don't know who is responsible for giving us more drugs, federal or LGA or even state. The few things we received were brought by the NPHCDA [federal level] contractor. We have been complaining." (Facility Manager, Ezzamgbo)*

Most facilities had a long history of lacking drugs and other medical supplies, especially in rural areas. Together with the policy of not charging user-fees, the initial supplies served to restore some confidence in the services being provided in these facilities.

> *"In the beginning when we received drugs, they [community members] were very happy and many were coming. But since then... When there is no drug in the facility they don't normally like to come." (MSS-midwife, Kurmin-Kogi)*

However, this confidence could not be sustained as supplies ran out. Many community members preferred to seek care outside the facility from other providers who offer flexible payment terms such as Community Health Extension Workers (CHEWs)[12] that operate 'private clinics', patent-medicine vendors and traditional medicine practitioners.

> *"I come here when I have any problem but there is no need to come if they tell you no medicine go and buy. Is it not better to go where they will give you what you need?" (FGD service users, Chikun)*

An informal practice found in many facilities was the establishment of a parallel pharmacy/shop by facility staff (including midwives) dispensing drugs and supplies.

> *"When they are out of stock we do help the mothers because they come from far…some nurses are selling some things like medicine, pad and other things they need for delivery." (Facility manager, Kurmin-Marshi)*

In the absence of government supplies, facility staff saw this practice as being helpful to users. Some community members seemed grateful for this option:

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[12] Health workers specially trained to provide basic primary health care by performing tasks limited to consultation, writing prescriptions, basic treatment and undertaking relatively minor procedures in primary health care centres, all guided by standing orders.

"Yes… truly… sometimes even if there is no money, we come here… you know money comes and goes…and when we come, they give us what we need because we have a good rapport and when I get the money I come to pay." (Service user, Gwagwada)

6.2.5 Strengthening community participation

Ward Development Committees (WDCs) consist of representatives of villages served by a facility and are usually led by a chairman and a secretary elected by members. WDCs are a vehicle to ensure community participation and involvement in health programmes. In relation to MSS, their roles included identifying health and social needs and planning for them, providing support and co-management of community-based integrated PHC services and monitoring activities at both facility and community levels[105]. To play this role effectively, WDCs linked to the 652 PHC facilities were to be reactivated and strengthened as part of the MSS [105].

In practice, the role of the WDCs was found to be limited. Only two out of the eight WDCs that participated in this study had held a meeting in the past nine months preceding the study, and only one described instances of involvement in facility activities. Facility managers reported mixed experiences with WDCs. Internal conflict within the committee was a common challenge. For instance, in one facility, there was an on-going feud between the in-charge and the WDC chairman, which made it impossible to convene meetings. It was also not clear to the majority of members what authority resided with the WDC, or where to report challenges with facilities, services and facility managers.

"We [WDC] don't exactly know who we should complain to when there are problems. Sometimes we go to people looking for donations here and there." (WDC FGD Kaduna)

Others included difficulties getting members to attend WDC meetings since membership was voluntary and no allowances were paid. On the other hand, WDCs blamed facility managers for irregular meetings. Some members believed the meetings were not convened because the facility manager (commonly referred to as 'in-charge') took the money that was perceived to have been allocated for meetings.

> *"We do not meet often. People say that the in-charge is taking the money for the [WDC] meeting that's why she does not call for meetings." (WDC member, Ebonyi)*

Training and in-depth engagement of WDCs may explain the differences in the level of involvement and interest of some communities in the MSS when compared to others. Where the WDC reported having received orientation or training they were able to cite supportive actions towards implementation such as monitoring of the welfare of midwives and creating demand for services.

> *"We use the ward head leader, who tells the town crier to inform the community. Also, we use the religious leaders, the pastors and imam, to give information in the mosque." (WDC member, Kaduna)*

> *"We had this case before. There was a health worker who used to be here, it happened that there was a misunderstanding between her and the ANC women. So, in the end, we went to the [village] chief, called her and sat together and… just like a dialogue. And things changed." (WDC member, Kurmin-Marshi)*

6.2.6 Monitoring for results

The monitoring and evaluation component was planned to be implemented through the Mobile Application Data Exchange System (MADEX) and involved the use of mobile phones, by the facility-in-charge or a trained MSS midwife, to collect key MNCH information based on MSS core indicators. The system was commissioned to cover all MSS facilities and be managed centrally by NPHCDA.

Monitoring was perceived by core team members to be the weakest component of the Scheme, although federal managers initially envisaged the mobile platform as a cheap and efficient monitoring solution.

> *"…MADEX is cheap and the simplest of all if you ask me. All they need to do is to input data via a cell phone. It does not allow you to send data that is incorrect so it was very useful and worked well for some time." (CT member)*

In practice, there was a lot of incomplete reporting from facilities and across the Scheme. According to program managers, by the end of the first three months fewer than 60% of the MSS facilities were reporting. After six months, the level of reporting fell to about 40% and by the end of the first two years reporting completely stopped. Data quality issues were acknowledged at all levels: by facility staff, LG staff and core team members. For example, MSS midwives in the majority of facilities reported only on their activities rather than for the facility as a whole. Thus, only a few included deliveries conducted by non-MSS staff. There was also a gap in reporting of deliveries occurring within communities because this was not planned for and the capacity was weak. Thus, data from deliveries at home by TBAs were captured only in few cases.

> *"They will deliver in their own house but normally we used to beg them [TBA] to bring their report so that we will merge it with the facility own." (Facility manager, Ebonyi)*

Opinion was divided on the reasons for this. Midwives attributed the difficulties in reporting to lost phones, no electricity in some rural facilities and irregular supply in others, making it difficult to keep the phones charged. In some cases, midwives exiting the scheme (commonly without notice) left with the phones.

> *"We had a few problems, missing phones, no money to recharge the phone, transfers and people are going with the phones." (MSS-midwife, Nwezenyi)*

On the other hand, federal managers attributed monitoring difficulties to country-wide issues with incomplete, untimely and largely incorrect health system data rather than the Scheme in particular.

"We did not envisage the kinds of problems they encountered. Even though we know that we have issues with data in the country, we thought that it would have been easy for a health facility to provide summaries and to send by simple phone messages and we get it here and analyse." (CT member)

Information flow and feedback from facilities to the centre was inconsistent and was difficult to monitor since it did not follow the established national reporting system. Further, data collected by midwives was transmitted to NPHCDA and did not necessarily link or integrate with the rest of the facility data or with the LGA overall data.

"Like most of those people [MSS midwives] they do not give us the data. So, our reports here in the LGA is not complete. MSS data is not always included." (PHCC Ebonyi)

In response to these concerns, core team members noted adaptations that were implemented to alleviate difficulties. First, they sought to allow active participation of the LG monitoring and evaluation officer who was tasked with leading PHC monitoring but was hitherto not involved in MSS monitoring. Second, a cluster monitoring system was established, in which joint teams, made up of federal and zonal-level NPHCDA staff, visited facilities monthly to collect data. This was, however, found to be expensive, time consuming, with persisting problems with quality.

"We came up with sending people to the facilities to sit down with the midwives, look into forms, and retrieve data. It takes time though and it is expensive. It happened once, twice but over time it stopped. The major challenge to holding cluster meetings is funding." (CT member)

6.3   Factors constraining implementation

This section summarises factors internal and external to the Scheme that appear to have constrained its implementation. It reflects the experiences at various levels – federal, state, local government, facility and community levels.

6.3.1 The influence of decentralisation on management and coordination

In line with the health system decentralisation discussed in section 4.4.2, MSS implementation involved several layers of government (Figure 4.5) each with its own set of organisational specificities. However, in practice implementation was mostly done by NPHCDA. This had adverse effects on implementation as it led to confusion between the three tiers over management roles. Due to the poor differentiation of responsibilities and uncertainty over roles, there were conflicting decisions and sometimes failure to carry out necessary tasks. Consequently, key aspects of implementation like payment of midwives' salaries, provision of accommodation, drugs and commodities supply encountered constraints (described in 6.2). For example, it was unclear to all four PHC coordinators what aspects of management had been delegated to the LG. LG staff understood their role to be that of providing an additional input to the Scheme, for example midwives' monthly payments, rather than a broader management role.

> *"According to what they said, our own [role] is to provide them with accommodation and a functioning health facility." (PHCC, Ebonyi)*

Another consequence was poor accountability across the Scheme as there was no clear framework for reporting vertically from one level to the other. The concept of a federal institution (NPHCDA) employing and posting staff to work in facilities owned and managed by LGs was identified as problematic. LG officials reported that this was a handicap in implementation and undermined LG council authority, given that employment of staff for PHCs was usually the role of LGs and State Local Government Service Commissions [361]. Because of the weak accountability structure, midwives at times were absent from duty for long periods without recourse to their facility managers.

> *"It is the federal people that give them instructions. They [midwives] will tell you they [NPHCDA] sent text for them to come to Kaduna [the capital] for one-week workshop or something. How will I know if they are doing what they were sent here to do?" (PHCC Kaduna)*

Sometimes they were invited personally to attend trainings and workshops organised by state or federal officers. Travel allowances paid for such activities constituted a major incentive such that midwives with 'long legs' (access to senior federal and state officials) frequently received invitations and were often unavailable to perform their duties. However, the facility in-charge or LG had no control over the scheduling of the training and other activities due to the multiple centres of authority. Thus, it resulted in disruptions in implementation.

Furthermore, facility-level operations were reported directly to the federal level and not necessarily to the facility manager or LG health department. Similarly, instructions were often passed directly from the central-level to midwives, sometimes via text messages, without reference to the LG health department or facility managers. Both federal and LG managers reported this as a problem, especially when instructions given by federal managers differed from those of the LG.

6.3.2 Lack of implementation capacity of selected facilities

State governments selected the facilities that implemented the MSS, based on eligibility criteria pre-defined by NPHCDA (Appendix 19). However, according to federal managers, up to 30% of selected facilities did not meet one or more of the agreed criteria. For example, urban facilities were included; the patient flow in some facilities was below the stipulated 120 births per month.

> *"During the baseline assessment, we realised that more than one-third of facilities were not good enough. By this time, we could not do much." (CT member)*

Reported deficiencies in some of the facilities included infrastructure problems, lack of water and electricity, inadequate space to provide the complement of services proposed under MSS, and long distance from the community being served. Many of the facilities in this category also lacked other complementary health staff. As a result, there were delays in the uptake of the scheme in such sites, and inability to absorb midwives who were posted there.

"Of course, criteria were given in the selection of facilities but they have not identified facilities based on agreed criteria. They [LGs] tended to promise that for facilities that did not meet the criteria this would be fixed in two months. But you can see that even after two years of implementation some of these facilities are not in the state they should have been for the services to be provided as part of the Scheme. That has been the challenge. Maybe we should have been stricter…" (Federal PM)

The reasons for including less-suited facilities were mostly linked to pressures to identify facilities within villages of politicians, senior federal or state government officials.

"Politicians always put pressure…so you have to include the facility in their community. …but some of these facilities are not really giving us the maximum result." (Federal PM)

6.3.3 Inadequate supervision of midwives

The plan for on-going supervision of midwives at facility-level was unclear. Midwives reported being faced with difficult decisions and anxiety about poor outcomes but mostly lacked supportive supervision.

"Nobody has come here to do supervision since I came. I am part of those that just finished midwifery course. Sometimes I am afraid in case a difficult case comes and I am alone…I pray o!" (MSS-midwife, Gubuochi)

Interview findings show that many rural facility managers were from the CHO (Community Health officer) cadre, which is considered lower than those with the midwifery qualification. This presented supervision difficulties in such facilities because MSS midwives said it was difficult to report to CHOs or be supervised by them because they perceived their midwifery training to be superior.

"Our own [facility manager] here is CHO…(chuckle) she cannot supervise midwives. You know the training is not the same." (MSS-midwife, Ezzamgbo)

Only a few midwives (mostly new graduates) said they are receptive to being supervised by CHOs, as this cadre had more field experience. In particular, post-basic midwives expressed interest in supervision and on-the-job mentoring, especially where the team had no midwives from the retired category. It was found that in some LGAs there did exist supervision mechanisms that MSS could have utilised.

> *"Walahi (affirmation), there are people trained in the kind of technique that the MSS people are using. On weekly basis these deputy directors [referring to LG staff] go for supervision; we have a schedule of supervision…we could have included MSS. Madam, please MSS in a way is good and noble, but the modus operandi should improve."*
> *(PHCC, Kaduna)*

6.3.4 The effect of demand-side barriers

The study identified obstacles faced by women in accessing services but which were beyond the scope of a single intervention such as the MSS. Although these barriers were generic to many other services, they were seen to constrain the implementation of the Scheme. Midwives in many facilities complained of persisting low attendance, which meant they were not able to utilise their skills. As reported by midwives, facility attendance appeared to be lowest in the most rural facilities in the two states. FGDs with community members suggest that the unfriendly behaviour of facility staff, lack of drugs and user charges (despite the free MNCH services offered in PHCs) were considered as major barriers. Based on information from facility staff and community members, Table 6.3 shows the average user charges paid by community members for various services.

Table 6.3: Average unauthorised user fees per service based on facility and community-level interviews

Services	Ebonyi	Kaduna
	(NGN)	(NGN)
Immunization	3.89 ($0.03)	2.08 ($0.01)
ANC Card	148.95 ($1)	61.25 ($0.40)
Deliveries	1,692.11 ($11.0)	47.92 ($0.30)
Postnatal visit	42.11 ($0.28)	9.17 ($0.06)

Other reasons for low attendance that were reported included transportation difficulties and associated costs, lack of bridges to cross rivers during the rainy season and lack of amenities such as electricity in the facility.

> *"Lack of electricity also affects us. For example, in the case of fever. A person will come with fever. Instead of having fans to cool her off... so, a person comes feeling hot and leaves feeling hot. You see... even this is no small matter." (Female community member, Chikun)*

There was also a suggestion that poor attendance at facilities was linked to negative experiences reported by some community members. The perceived poor quality of service delivery due to lack of supportive supervision of MSS midwives was also cited.

> *"In this facility, the patient is not coming as supposed. The main thing is they [MSS midwives] need to work harder and they need proper supervision. Through supervision they can be serious in all work." (non-MSS facility staff, Gwagwada)*

Not least were the socio-cultural dimensions which did not permit women especially in the northern communities to attend facilities, even where MSS trained midwives were present, without express permission from their husbands.

"Toh! (exclamation of helplessness in Hausa language). The men when we tell them, they don't show concern. We can't just leave home like that without telling the husband. It is at the dying minute that we come to the hospital." (Female FGD participant, Makarfi)

6.4 Conclusions

The analysis presented in this chapter focused on the extent to which MSS implementation adhered to the intent and design of the Scheme. It has also highlighted several factors at different health systems levels either promoting or impeding implementation.

The findings show several themes that should have been addressed before commencement of implementation. As revealed from the analysis, capacity building, team-building and definition of team-member roles at federal level were necessary prerequisites which were not met. Secondly, given the health systems decentralisation and expected role of sub-national units in management and coordination, readiness for this governance role should have been a key element of preparation. Thirdly, decentralisation of implementation also implied the need for joint planning between the federal team and states/LG/facility and would have improved clarity on what constituted full implementation of each MSS component at each health system level. All these factors were interrelated and overlapping, and contribute to the causal explanation for how implementation evolved.

With regards to adherence to MSS design during implementation, findings reveal that variations occurred in all program components. This study identified that multiple rounds of recruitment were undertaken, instead of one at the outset, due to difficulties in attaining planned recruitment targets. Financial incentives for midwives consisted of contributions from federal, state and LG agencies. While funding from the federal government was consistent, this was less so for states/LGs resulting in many midwives receiving far below the promised pay. One area that showed significant departure from the design was the non-financial package (accommodation and capacity building), which was not provided to most midwives. However, for those who received capacity building under the Scheme, findings suggest a positive impact on service delivery. One-off supplies of equipment and drugs were made to all facilities at commencement

by the federal level. This was inconsistent with the design for all three-tiers to maintain drug availability in facilities and resulted in negative effects on service delivery and lower perception of the Scheme among community members.

Although not all WDCs were successfully strengthened, findings showed a positive relationship between WDC training and their participation in MSS-related activities. There were concerns among federal-level managers regarding the low level of implementation of the monitoring component, which was perceived as the most challenging. Due to incomplete reporting, data quality issues and difficulties maintaining the complement of mobile phones required for the mobile reporting system initially adopted, changes in the system for monitoring were made twice to address persisting challenges.

In summary, implementation was hampered by inadequate management and logistical capacity to deal with the complex design, poor absorptive capacity of states for the posted midwives, failure to provide supervision, and welfare issues that affected the midwives. Finally, inclusion of facilities not suited to implementation requirements also affected implementation. These findings indicate that the will, commitment, readiness for change and capacity of implementers are critical determinants of policy success. The bottlenecks in implementation point to the need for improved engagement of all actors, bottom-up and top-down planning and consideration for local contextual issues in order to maximise implementation success in a decentralised health system.

Chapter 7: How does the Midwives Service Scheme contribute to midwife retention and strengthening of district and national health systems?

Chapter 6 presented findings on the Midwives Service Scheme (MSS) implementation process, the extent to which implementation adhered to the intent and design of the scheme, and how its operation has been shaped by the structures and processes in the broader health system. This chapter examines changes and developments in the district and national health systems, which can be associated with the Scheme's introduction. Given the complexity of the intervention and the way it permeates all aspects of the health system, it is not feasible to draw direct 'cause and effect' relationship. The focus of analysis is, instead on drawing plausible associations, and examining temporal and sequential events, for example MSS preceding particular systems changes that fit with implementation timeframes). The associations are derived through in-depth analysis of the respondents' accounts and their interpretation of sequencing and logic of the MSS implementation, which lead to and help explain their own actions. This stems from the concept of people-centred health systems[362] where key actors have agency and their day-to-day actions critically shape and modify the way policies and programmes operate, triggering new adaptation and implementation cycles.

Given the multi-component nature of the Scheme, it is a plausible proposition that the Scheme will have a broader significance beyond its immediate objectives, and influence the health systems within which it is located. These influences can be intended and unintended. Human workforce is one of the six core attributes required for health systems strengthening; together with service delivery, financing, governance and leadership, medical products, vaccines and technologies and health information[177]. Thus, improving health worker performance and retention is seen as an important pillar of the health systems strengthening agenda[261]. The assumption is that large-scale interventions such as MSS are expected to have consequences for health systems strengthening beyond the individual building block they are targeting, particularly as experienced at district and local level.

The analysis in this chapter is guided by the 'results' component of the conceptual framework and its domains; attractiveness, recruitment and retention, and health systems performance.

Section 7.1 examines how the Scheme may have influenced the intention of midwives to come and join the Scheme and stay in the rural areas, changes in motivation and retention of midwives in the rural locations of posting using the two-year contract period as a benchmark. Section 7.2 seeks to identify changes in the health system at district and national levels and its performance; considering leadership and governance, service delivery, drugs and logistics, and health information, while section 7.3 summarises the key issues.

7.1 Attractiveness, motivation and retention of midwives

This section examines MSS effectiveness in achieving its goal of improving the retention of midwives in rural locations through improving the attractiveness of rural locations and motivating midwives to stay in rural postings. Attractiveness refers to changes in the intentions of midwives to relocate, reside in or leave the rural areas served by MSS[261]. Under this domain, the most significant factors are presented under three overarching themes: attractiveness of the Scheme, features of the work environment and the implications for retention.

7.1.1 Attractiveness – midwives' interest in the Scheme

When asked how they heard about the Scheme, midwives reported having heard via media advertisements or personal communications. Federal managers suggested that the advertisements appealed to midwives' patriotism and the approach was mostly responsible for midwives expressing interest rather than the promise of incentives.

> *"We reached out through the media to attract midwives. The communication package was structured to appeal to their patriotic sense. This played a major role in convincing them to join MSS." (CT member)*

The analysis showed that majority of midwives preferred to work in urban or semi-urban locations, but had still chosen to accept the rural postings. The reasons differed depending on the midwife category. Among the newly graduated (or basic midwives) for whom rural service was

mandatory for one year after completion of studies, most said they had no choice and would opt-out of rural service if allowed to. On the other hand, both retired and unemployed midwives reported being drawn by the promise of the Scheme, citing the financial package and training opportunities to improve or update their professional skills as the most common reasons for applying to the Scheme.

> *"Before we came we were hearing that they will pay this and that, we will be going for workshop…many things. Many of us rushed." (MSS-midwife, Kurmi-Karshi)*

Although one of the key groups targeted by the Scheme was unemployed midwives, contrary to expectation, the Scheme attracted nearly half of its midwives from those already employed in private health facilities.

> *"I was working with one private hospital at Onitsha. What they are paying is just a token of ₦15,000.00 ($100). To my own side it is payment. What they say they are giving me here is more than what I was earning." (MSS-midwife FGD, Nwezenyi)*

MSS midwives' responses suggested that they had generally realistic expectations, understood rural areas to mean areas with poor infrastructure including lack of electricity, bad roads, limited transport services, poor health services and limited recreational facilities.

> *"To live inside community is not.... you know easy. No water or light. You have to climb okada [commercial motorbike] in some places more than one hour to come out." (MSS-midwife FGD, Nwezenyi)*

However, the majority were still taken aback at the very poor level of resources they found in the location of posting and seemed unprepared for the realities of rural living.

> *"They told us that it is a rural stuff but this one is very… [laugh] really interior [remote]. There is no water, no light. And that they were going to give us accommodation. But*

*there is nothing in the facility. Nothing is working. There is no accommodation. How can
we stay here?" (MSS-midwife FGD, Izzi)*

The basic midwives held more negative perceptions of what it means to work in rural facilities
and said they were unlikely to encourage friends and colleagues to join the Scheme since they
were still uncertain of the gains. In some instances, feelings of betrayal were expressed because
of the loss of the previous employment upon joining the Scheme; they felt the Scheme fell short
of their expectations.

> *"The amount they are paying is lower than I expected. We thought everything was
> working but it is not so. I regret leaving my former job." (MSS-midwife, Ebonyi)*

In comparison, retired midwives were motivated by the opportunity to get back into employment
provided by the Scheme. They reflected that while the prevailing conditions in rural areas were
not satisfactory, joining the Scheme provided some level of earnings despite that these were
mostly perceived to be low. Midwives from all categories disagreed with the suggestion that
altruistic reasons played a role in their decision to join the Scheme. Discussing their future plans,
respondents acknowledged they would be happy to move on if offered higher pay elsewhere. In
addition to the promised financial package, midwives also identified the lack of alternative jobs
as a pull factor for the Scheme:

> *"It is this problem of 'no work'. If you can't find work you take the one you have seen.
> Me, I have to leave my baby with my husband in Enugu to come here. It is not easy."
> (MSS-midwife FGD, Izzi)*

> *"It is because I have not gotten a job and I can't stay at home just like that – so let me
> continue with them [MSS]" (MSS-midwife, Kurmin-Marshi)*

Midwives' interest in joining the Scheme was also affected by security problems in the North-
Eastern states. These states were not attractive to midwives who referred to them as "no-go
zone" because of the risk of frequent bomb attacks on communities by insurgents.

"My people are worried because I am in the north. I tell them it is not this side [of the North]. If they sent me to North East…ahh (exclaiming), that side is no go area because of 'Boko Haram'. I won't go. Some of my friends posted there refused to go." (MSS-midwife, Kurmin-Marshi)

7.1.2 Work environment

The analysis identified several factors which impinged on midwife motivation. Some of these factors were discussed in relation to the MSS implementation (Chapter 6); however, this section focuses specifically on their impact on midwife motivation more broadly, in reference to the continued role of midwives.

Low and unpaid salaries and incentives

All MSS midwives expressed strong disappointment at the amount they received monthly because it was lower than expected. In some cases, in addition to the shortfalls from non-payments of state and LG Council components, months went by without the federal component being paid.

"Some of my colleagues are complaining that they have not received their salary since July. Even one of my colleagues, since when she started they [NPHCDA] only started paying her in June. … it is like they are owing her about 5 or 6 months. But me, they are not owing me." (MSS-Midwife, Kurmin-Marshi)

The inability to meet their needs and commitments to family members was a great concern. Older married midwives expressed frustration at leaving their families behind in the city in the hope that they would be able to meaningfully contribute to education bills and meet responsibilities to extended family members. This concern seemed to be the reason for multiple job holding found among MSS midwives. Federal managers reported dealing with several cases of midwives who held private sector posts in addition to working on the Scheme. Younger

midwives appeared particularly demotivated by the pay and seeking options outside the Scheme, including considering migration.

> *"We have been complaining 'sha' [anyway] saying: 'will this money take us anywhere and after all, will we benefit pension?' If we secure any job especially overseas, we will go." (MSS-midwife, Gwagwada)*

Housing difficulties and associated transportation problems

Housing difficulties were reported by midwives as the most unsatisfactory aspect of the experience. Federal managers confirmed the housing challenge was "a risk to the Scheme which was not envisaged" because accommodation for midwives was not provided by the LGs as planned. Sometimes midwives were asked to find their own accommodation, which they had to pay for without being reimbursed. This, together with the additional transportation costs for travelling to the facility, greatly increased the financial burden on them. To cut costs, sometimes up to four midwives rented and shared a single room.

> *"It is we that rent it; just a single room, so we are doing shifting [rotating] so those that are around will stay and the other week others will come. As I am here this week, another week somebody else will be here." (MSS-midwife, Kurmin-Kogi)*

Due to the inability of midwives to afford their accommodation costs, as described by LG staff, many younger midwives moved in with community members and co-habited with them.

> *"When the accommodation is not convenient, after a while of living in the community some of them based on their 'romantic liaisons', because they are mostly young women, move in with someone." (PHCC, Ebonyi)*

Very often the lack of accommodation took the midwives away from the vicinity of the facility and increased commuting time to work; this was described as demotivating. One midwife who moved back to the family home in the neighbouring town describes the difficulties of travelling to work.

> *"At times, I spend up to one and half hours or two hours because of traffic jam at the junction." (Basic midwife, Kurmin-Marshi)*

Lack of a career development path

The MSS was designed to employ midwives for two years after which state governments were to absorb them into the state public service [105]. There were no career development plans within the Scheme itself as it was meant to contribute to enhanced career development more broadly. However, in both states and most of the LGs there was a pre-existing freeze on hiring new staff due to budgetary constraints. This meant that midwives remained at the same professional level regardless of the duration of their work in the Scheme. There were also no other mechanisms, such as bonus career points, for rewarding long MSS service. The absence of career progression and prospects with no guarantee after the initial two-year contract were identified as a demotivating factor, especially among the younger midwives.

> *"Since when we started we are still on the same level, there is no promotion; we don't go on leave, no entitlements." (MSS-midwife, Nwezenyi)*

> *"This MSS is not a permanent work. It's just like it is based on contract. So, working with this MSS especially for we new starters…[pause] it is better I look for work. It is important for those that have retired from let's say state or federal. But for we that we are just starting, we have to look for work." (Post-basic midwife, Kurmin-Kogi)*

Poor health facility infrastructure and working tools

The majority of midwives interviewed reported poor health facility infrastructure as a source of work dissatisfaction in both states. The concerns included inadequate space for services, the state of disrepair of many facilities and lack of equipment and supplies. Lack of electricity was a major problem and midwives often relied on lanterns to assist deliveries at night.

> *"Even the facility, the rooms are not enough. We are using one of them as our office and at the same time the delivery room. Look at [points towards the waiting area], on ANC*

day if you come here you will see our patients sitting on the bare floor. Even when we are having a delivery in the night, there is no light to do it…we use lanterns." (MSS-midwife, Kurmin-Kogi)

A central concern was the negative effect of these shortages on their ability to deliver services. There were also broader effects; some midwives observed an association of poor working conditions and poor attendance at the facility, which undermined the goal of the MSS to increase coverage of essential care.

"Our delivery [rates] is just coming down because of the… our building. Even though we have cot… the cot does not enter [fit into] the house, we only deliver in this small bed. We only want to repair it so that our waist won't break. So, our output of delivery is due to our building lying like that, not because of no manpower." (MSS-midwife, Ezzamgbo)

Lack of supervision and personal recognition
Midwives considered supervision by their superiors to be an important mechanism for getting feedback on their performance. Although every facility had a manager, midwives expressed a preference for external supervision by technical rather than managerial staff, for example supervision by senior midwives was preferable.

"Nobody has come here to supervise us since I came. It's like they have forgotten us here. Whether we are doing the right thing we don't know. We prefer if we can have senior supervisors from the state or [midwifery] council." (Basic midwife, Gubuchi)

Post-basic midwives, in particular, were discouraged by the inability to demonstrate their achievements to those at higher levels of hierarchy and the possibility of receiving recognition, as a result of external supervision by superiors. When asked about recognition within the community, midwives in some facilities noted satisfaction of community members with their services. However, this was perceived not to be highly important since it was unlikely to influence their careers.

Unfair allocation of workshop and training opportunities

Midwives reported that they were informed that the Scheme would offer opportunities for training and participation at capacity building workshops as a part of its incentives package. However, many midwives had only received one-off training preceding their placement at the inception of the Scheme. While all midwives expressed interest in the opportunity for improving their professional knowledge, the overwhelming interest was due to extra financial benefits from transportation and subsistence allowances associated with participation in training and workshops. For some midwives, a reduced workload as a result of being away from the facility was an added advantage. Though demotivated by the lack of opportunities to participate, the greater concern was the lack of transparency in allocating the training slots. They observed that while some midwives were never given opportunities, others were frequently away from the facilities, attending workshops even if not directly related to their current work.

> *"Some that know the ogas [bosses], almost every week they are going for workshop. Even some of them going are not working in this MSS. We that don't have anybody, nothing." (MSS-Midwife, Nwezenyi)*

Poor security in many communities

Overall there were security concerns. This was especially commonly reported by younger midwives in the most remote rural communities who described this as discouraging their continued stay in the rural locations. The main concerns were armed robbery and rape. Midwives reported incidents mostly based on experiences of other facility staff which left them concerned about their safety.

> *"Another challenge is woman rape. Before, we heard that it was armed robbery but now it is rape; even up to raping married women in the community, so it really scared us. Even one of our nurse, they were about sleeping with her when she started crying. We are really scared, if they can sleep even with married women, are we safe? We are not." (MSS-midwife, Gwagwada)*

Similarly, federal managers confirmed receiving frequent complaints about security issues from midwives in many states including Kaduna and Ebonyi; however, they were unable to help due to weak intersectoral collaboration. They reported that midwives were particularly concerned about working in north-eastern states most affected by the 'Boko Haram' insurgency and in communities of the Niger-Delta region with long-standing oil-related conflicts and hostage-taking by militant groups.

> *"We get daily complaints of insecurity from those in North East. Also, in Niger Delta…news of abductions. Naturally, midwives are worried." (Federal PM)*

7.1.3 Retention – midwives remaining in rural posting

The vision of the MSS was to contribute to health systems strengthening through the deployment and retention of midwives in frontline health facilities in rural communities, capacity building to improve quality of care and support to facilities with basic equipment/commodities and supplies[105]. However, the findings (summarised in Table 7.1) showed that by the end of the second year of implementation retaining midwives in their locations of posting had become a problem. Federal managers reported high midwife turnover rates with increasing shortages in many locations, especially in the north-east and north-west where it was more difficult to attract midwives due to increasing security problems. According to federal managers, all southern states had experienced less significant turnover, compared to the north, with the exception of Ebonyi, which has many remote locations and communities with difficult riverine terrain notably in the Niger delta region.

> *"I believe we have experienced the highest turnover in the north-east because of the perceived insecurity. Mainly those in the south have been more stable. Except for those in Niger Delta…it is the same security problem and difficult terrain." (Federal PM)*

Retention rates were 29% and 40% lower than expected in Ebonyi and Kaduna respectively. As shown in Figure 7.1, the lowest rates were found in the states of the North East (range 0.1–

26.3%) and North West zone (range 4.1–60.7%). In all zones except the North East, the number of midwives grew initially then stagnated or declined by 2013. However, in the North East the rate of increase in the number of MSS midwives from the starting point compared to 2013 was only 26%.

Figure 7.1: Zonal trend of midwives in post
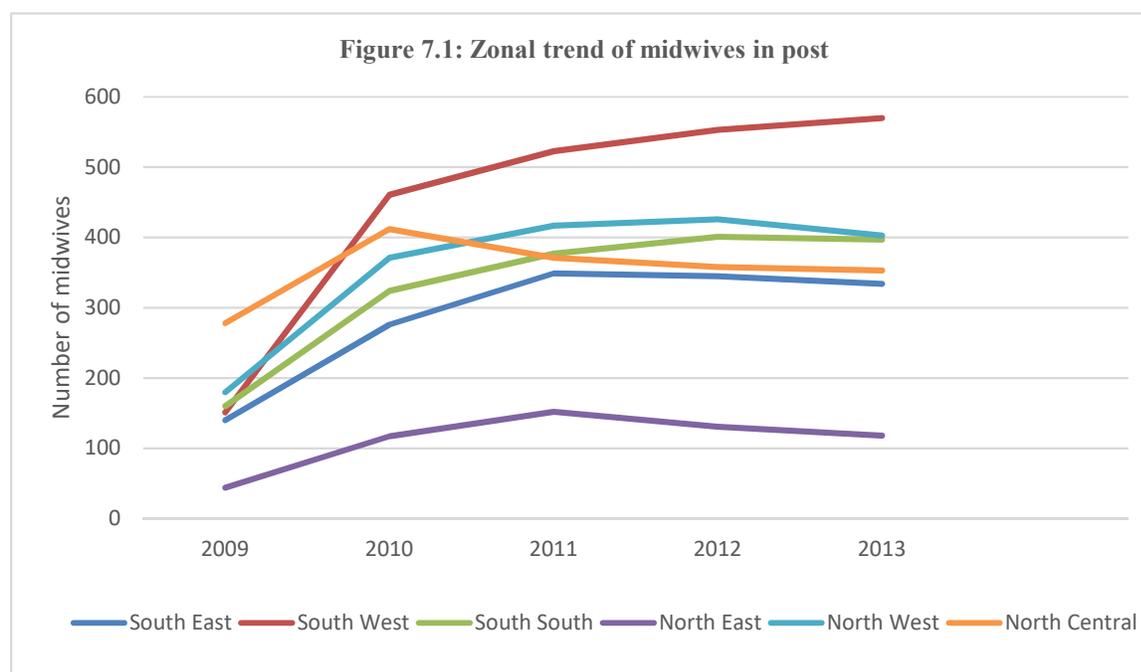
The findings suggest both Ebonyi and Kaduna had a range of midwives in terms of age ranges, levels of experience and geographical location. Generally, only older midwives (50–59 years) mostly in the retired category reported participating on the Scheme since its inception. They were less inclined to leave the Scheme regardless of the facility location (semi-rural, rural or hard-to-reach).

> *"The retired 'machines' are mostly grandmothers who may have aged husbands. Moving them was not as easy as we thought. For those that accepted, they been more stable than the younger ones even when they are in very interior [remote] places." (CT member)*

There was a general understanding among this group that leaving the Scheme would mean losing the benefit of the current albeit low salaries. Having retired, many of these midwives reported

having little or no income prior to the Scheme and had either worked in poorly paid private sector positions or were self-employed petty traders. It appears they were incentivised by factors such as the possibility of a public-sector position rather than by the incentives offered by the Scheme per se.

"Me, I have retired before coming here. Where do I want to go to? There is no job for people like us. Half bread is better than none." (Retired MSS-midwife, Kurmin-Kogi)

"In short, I used many years with them [private hospital] as a midwife, but when it was getting too burdensome, I now opened a little shop for myself and life goes on. Although I have never worked in a rural setting before, but it's better than nothing." (Retired midwife, Gwagwada)

Table 7.1: Number of MSS Midwives in post by end of year

S/N	ZONE	STATE	NUMBER EXPECTED	NUMBER OF MIDWIVES IN POST BY END				
				2009	2010	2011	2012	2013
1	SOUTH-EAST	Abia	80	51	70	72	72	71
2		Anambra	81	43	30	83	84	75
3		Ebonyi	80	14	77	69	68	56
4		Enugu	81	20	27	45	50	52
5		Imo	80	12	72	80	80	80
6	SOUTH-WEST	Ekiti	80	62	98	110	112	117
7		Lagos	80	14	96	97	98	98
8		Ogun	80	14	60	82	106	117
9		Ondo	82	28	58	71	74	76
10		Osun	80	20	80	87	87	88
11		Oyo	80	13	69	76	76	74
12	SOUTH-SOUTH	Akwa- Ibom	96	0	86	90	90	91
13		Bayelsa	96	34	52	56	56	56
14		Cross- River	96	38	66	80	90	89
15		Delta	96	7	27	47	57	53
16		Edo	96	81	85	85	85	85
17		Rivers	96	0	8	19	23	23
18	NORTH-WEST	Jigawa	144	11	42	79	88	92
19		Kaduna	150	28	142	121	91	73

S/N	ZONE	STATE	NUMBER EXPECTED	NUMBER OF MIDWIVES IN POST BY END				
				2009	2010	2011	2012	2013
20		Kano	146	0	5	9	9	7
21		Katsina	144	55	67	79	80	71
22		Kebbi	144	18	35	47	56	59
23		Sokoto	144	12	14	24	33	34
24		Zamfara	144	56	66	58	69	67
25		Adamawa	144	13	28	33	28	19
26		Bauchi	144	0	0	1	0	0
27	NORTH-EAST	Borno	144	0	38	43	31	30
28		Gombe	144	7	8	19	18	18
29		Taraba	144	24	40	42	42	41
30		Yobe	144	0	3	14	12	10
31		Benue	96	34	60	76	80	84
32		FCT	96	61	68	72	70	67
33		Kogi	96	12	77	24	24	23
34	NORTH-CENTRAL	Kwara	96	43	30	28	20	12
35		Nasarawa	96	33	33	13	10	9
36		Niger	96	54	82	87	83	88
37		Plateau	96	41	62	71	71	70

Conversely, attrition levels for the younger midwives were the highest – possibly because they felt that they had more options. Interviews with midwives who had left the Scheme showed that they were all below 35 years; data showed that they 'shopped around' for better pay and work conditions. Interestingly, five had been attracted by a new government scheme with similar conditions and the hope of regular payment, while two had returned to private sector employment. The rate of attrition seemed to increase over time as the Scheme progressed. However, the retention rates were not tracked by the Scheme. Except for one, all young midwives on mandatory pre-registration service planned to leave at the end of the period.

> "Nooo!! [laughter]. Nooo, once my posting has ended I don't want to stay here." (FGD, MSS-Midwives, Izzi)

Further analysis showed that the midwife who was an exception had become engaged to be married to a local community member. Other young midwives not on mandatory service also

expressed the desire to leave the Scheme if other opportunities arose and frequently discussed options for exit among themselves. The top preference was for a public-sector position, which would offer some long-term financial security and pensions. In the interim, many were willing to accept a job in a private health facility because of higher pay.

> *"I got a job in a private hospital. They are paying me better. Although I prefer government ...at least pension and other things." (Former MSS midwife)*

Difficulties with retention remained a concern at all levels and in all facilities visited. These difficulties were exacerbated by the inability of the state governments to absorb MSS midwives into the public service. None of the two states in this study had absorbed midwives into their services due to a freeze in new employments. Federal managers reported that out of the country's 36 states, only four had employed midwives from the MSS pool. Despite the willingness of retired midwives to remain in rural locations, they were the least likely to be employed by either states or LGAs because of the policy restricting employment of retirees into full-time positions.

> *"In many cases the absorption is not really happening. It was dependent on the states to decide if they required the services of a retired midwife. The few states that have absorbed such as Kebbi, Jigawa took on the younger midwives." (Federal PM)*

Notably, in the few cases where absorption into state service took place, they were mostly re-posted to secondary facilities, thus depleting the pool of midwives available within the PHC system. As a result, the numbers absorbed had minimal positive impact on overall midwives' retention in rural areas. Due to the falling numbers of midwives within the Scheme, in the second year of implementation, a decision was made by federal managers to train and deploy two Community Health Extension Workers (CHEWs) per facility as an emergency stop-gap measure. The CHEWs were to complement the services delivered by midwives, and were thus trained to provide basic delivery, conduct outreach services, follow up women for post-natal, and provide health education and promotion. However, program managers felt uncertain in the quality of delivery services the CHEWs were able to provide given that they lacked midwifery training.

"We trained them [CHEWs] to do basic delivery and outreaches. But the fear is whether they can cope. You know they were not originally trained as midwives." (Federal PM)

7.2   Changes in health systems performance

This section explores the intended and unintended changes in the national and district health systems perceived by the respondents to link to the package of interventions implemented under MSS. The implications for the six building blocks of the health system – governance, service delivery, logistics, medical products, financing and information – are examined.

7.2.1   Governance

The analysis examined the MSS-related changes in health systems governance predominantly in relation to accountability and community participation (often a proxy for effective local governance). The analysis showed minimal changes in accountability at national, state or LG level, but more positive changes at the community level. A high-level technical working group (TWG), comprising of program managers from the relevant federal institutions and development partners, was set up to provide strategic direction for the Scheme's implementation at national level. According to federal managers, the TWG did not become institutionalised, as they noted that a few meetings of the TWG took place at inception but became irregular as implementation progressed.

"We were more regular with some very strategic members of TWG in the beginning. But now meetings are maybe annually." (CT member)

According to federal managers, meetings were irregular because there were many other competing implementation priorities and so they lacked funding for the meetings. Consequently, the formal participation of development partners and other actors in decision-making was not sustained. Despite the decentralised nature of the health systems, there were no similar TWGs at the state and local government levels as a part of the governance structure for MSS. As discussed in Chapter 5, the non-inclusion of state or LG-level structures as part of governance or

management of the Scheme in MSS design, created a gap in participation and ownership of the programme by sub-national actors. Thus, MSS did not seem to have any effect on governance for the health system at state or LG-level. The study did not find any established mechanisms for sharing information on decisions made at national level, nor mechanisms to channel feedback from local and state to federal level, reflecting views from the ground, for example from local committees such as Ward Development Committees (WDCs) and LG health committees.

> *"Apart from PLA training for WDC, we do not meet with WDCs. They are many, so it would have been too cumbersome." (CT member)*

WDCs were supported within the MSS programme to play their pre-existing role as part of the governance structure of the health facilities. The capacity of members of the community to hold health workers accountable varied across communities, based on the strength and commitment of the WDC. Many WDC members did not know how health workers performed their duties and therefore felt they were in a weak position to hold them accountable for services and resources such as drugs. However, in some communities WDCs understood their role in overseeing the functioning of the health facility. The study found that male community members in both states were more likely to participate in WDC activities and were well-informed about the services available.

> *"We assist by showing midwives the road. We the WDC we don't have mobility of the vehicle but I have bike of my own that I used to carry them sometimes to go to outreaches." (WDC Chair, Nwezenyi)*

> *"We have some women but they cannot come here always. When we finish and go back home we can explain things to them." (WDC member, Kurmin-Kogi)*

In contrast, most female members in Kaduna State had poor information about available services and activities of the WDC, mainly relying of male family members for such information. Interestingly, communities in which the WDCs were better informed also reported more frequently better utilisation of services by the community. The findings also showed that

information about services and accountability to communities regarding MSS remained weak. Public information related to MSS was provided through print and electronic media. However, the majority of community members reported that they mostly lacked access to information via these channels but generally obtained information from informal networks in the community. Despite the opportunities presented by informal and traditional communication systems described by community members, the MSS did not leverage or strengthen these.

7.2.2 Service delivery

The analysis here focuses on the changes in frontline service delivery at health facilities. Table 7.2 and Figures 7.2 to 7.5 present summaries of data extraction from routine facility-based records and is used here for descriptive purposes only. It is important to note that the data may have been affected by multiple factors not just the MSS. For example, the presence of a midwife is accepted as a key determinant of utilisation[50, 363, 364] and can be seen as a proxy for the functioning of the Scheme. The number of MSS facilities was constant in each state (Ebonyi = 19, Kaduna = 24) throughout the period under review, 2008–2013. The data suggests a progressive increase in the number of first-time antenatal care (ANC) visits from 409 in 2008 to 3,023 in 2013 in Ebonyi and for Kaduna, from 2,264 in 2010 to 21,624 in 2013 (Figure 7.2). For those attending ANC at least four times during the course of a pregnancy, there was an increase from 329 to 1,564 in Ebonyi and from 3,697 to 12,430 in Kaduna (Figure 7.3). Similarly, there were some positive changes in the number of births attended by a skilled birth attendant (SBAs) (Figure 7.4), and in referrals of complications and postnatal care within two days of delivery (Figure 7.5). Deliveries by SBAs in Ebonyi increased by 85%, whereas in Kaduna they increased by 72%. Overall, the data suggests greater improvements in services utilisation in Kaduna compared to Ebonyi State (Table 7.2). There appears to be evidence of very low skilled attendance at deliveries especially in Ebonyi. A range of factors identified in the study may be responsible for this picture including generally low utilisation of services, under-reporting and constraints related to data collection and aggregation (discussed in section 6.2.6).

Table 7.2: Service utilisation and outcome data from Ebonyi and Kaduna states

	Ebonyi State (MSS facilities = 19)						Kaduna State (MSS facilities = 24)					
	2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*
New ANC Visits	409	940	1823	2237	2710	3023	0	0	2264	4702	18030	21624
4 ANC visits or >	329	795	1209	1791	1776	1564	0	0	3697	4202	13537	12430
Women receiving at least 2 doses of tetanus toxoid	518	792	1388	1697	1707	1557	0	0	615	2039	7280	9810
Deliveries by Skilled Birth Attendants	0	10	43	25	52	69	0	0	982	1087	7511	6069
EmOC and newborn complications referrals	0	2	5	3	2	2	0	0	24	267	554	1221
Postnatal care within 2 days of delivery	34	516	664	636	739	715	0	0	197	352	4549	3579
Maternal deaths	0	0	0	0	0	0	0	0	0	0	3	216
Live births	91	745	943	1043	1220	1166	0	0	974	1076	7355	6263
Still births	3	4	33	38	49	66	0	0	9	13	471	401
Early neonatal (=1 week or <)deaths	0	0	0	0	0	0	0	0	0	0	1	2

Figure 7.2: New ANC visits

Figure 7.3:Women attending ANC four times or more

Figure 7.4: Deliveries by skilled attendants

Figure 7.5: Newborn care within two days of birth
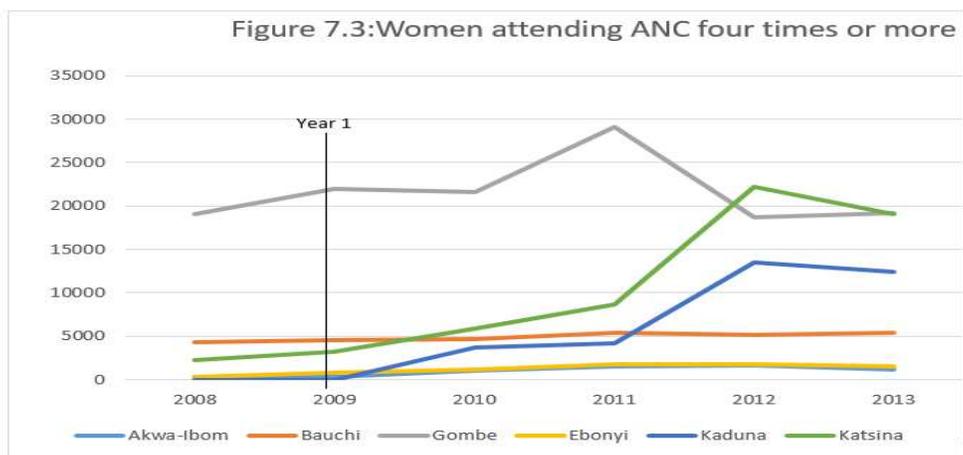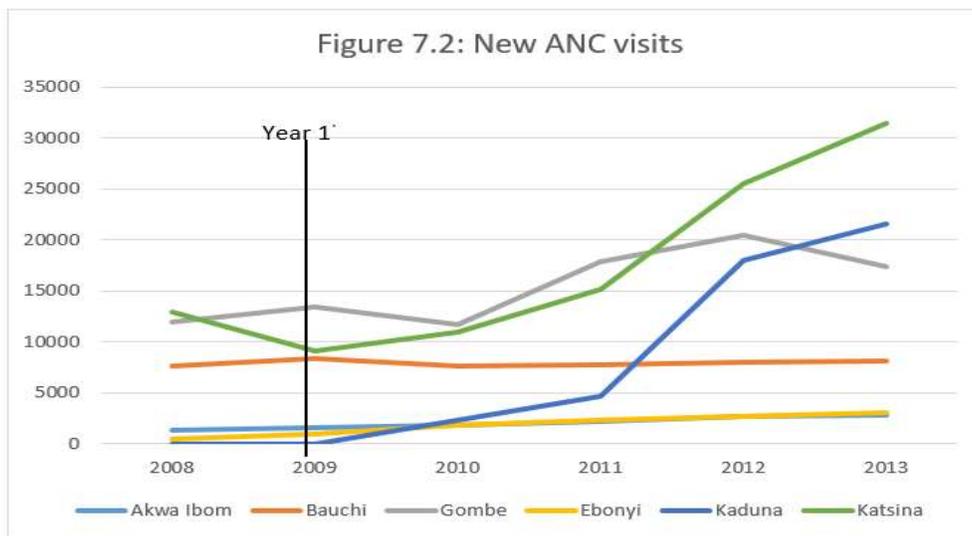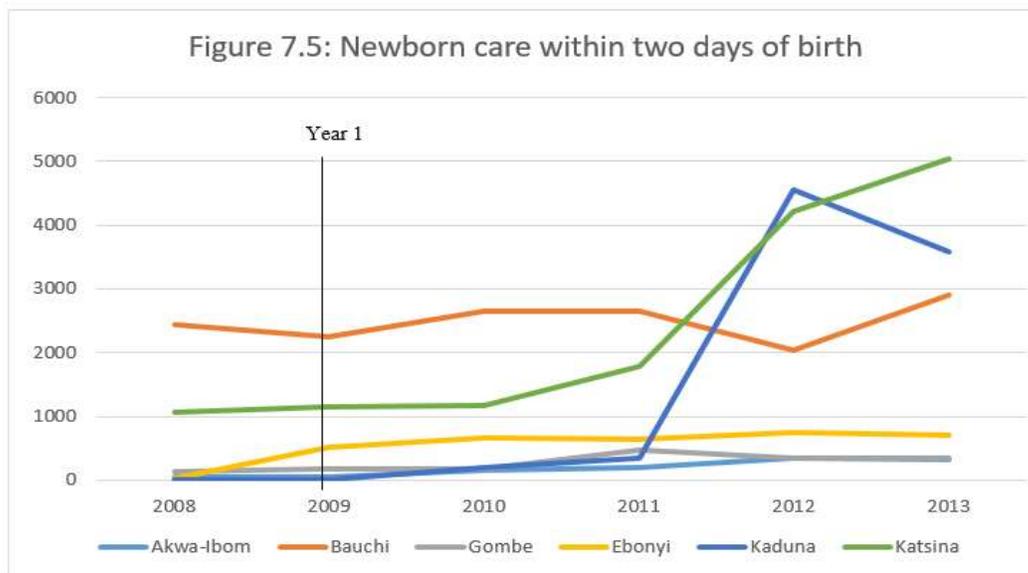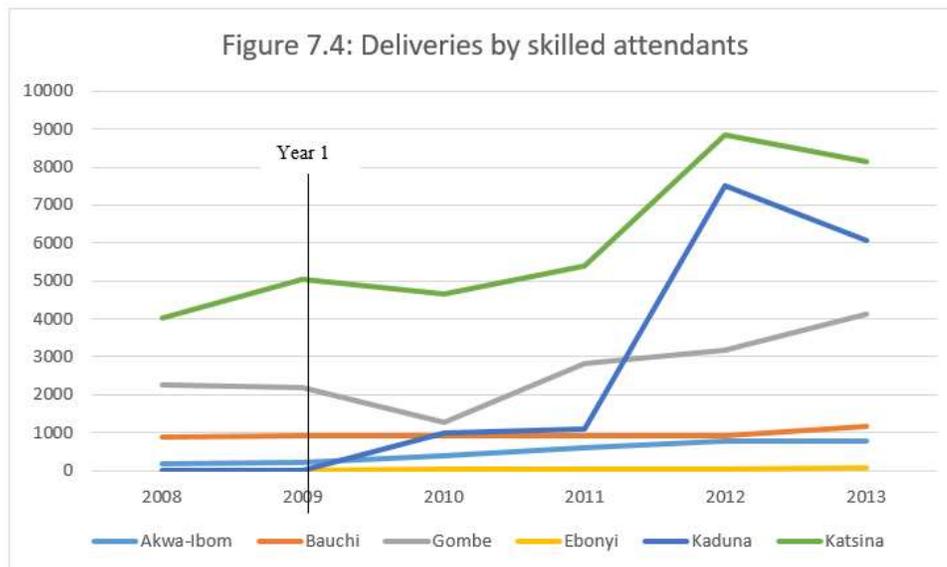
Community members lacked confidence in PHCs because services were mostly provided by CHEWs who were perceived to be less well trained than nurses or midwives. In effect, Traditional Birth Attendants (TBAs) remained a common choice because of their longstanding traditional role and belief among the communities that they have a lot of experience.

> *"It is the same person that delivered my three children. She knows exactly what to do. My mother was delivered by her." (Community member, Ebonyi)*

Facility staff and community members noted that in some instances, women attended the facility once and did not return for further care or delivery.

> *"You know all these women how they used to behave. They are poor people and the place is interior [laughs]. You know these village people they used to have people that when a woman is in labour they would just rush the person to them... that's why they don't come." (non-MSS midwife, Ntezi)*

Prior to MSS, TBAs were included as WDC members because they are often considered by the communities as being part of the mainstream health team. However, they were not given a formal role linked to the MSS. Interviews with facility staff revealed that in the course of implementation, some adjustments were made to incorporate TBAs in the work of the facility maternal teams. For example, facility staff reported that TBAs were assigned supporting roles such as identifying and mobilising pregnant women to access facility-based services, alerting the facility when women who choose to deliver at home went into labour, and helping with postnatal follow-up to ensure attendance at the facility for immunisation and a routine check at six-weeks.

Midwives complained of conflict of interest among the TBAs, especially in the most remote locations. Despite their expected role of mobilising women to access services at the facility, it was a common practice among TBAs to seek to attract women and assist deliveries but refer them to formal services in case of complications.

> *"They [TBAs] do bring their patients... You find out that those ones they bring is when they encounter problems." (MSS-midwife, Gwagwada)*

The study also found that some facility attendants and cleaners were known TBAs themselves who continue to engage in informal dual practice. Thus, in many places they were disruptive rather than supportive of the Scheme's implementation.

"Like our facility attendant, she is a TBA. Instead of convincing the women to come to the facility, they [TBAs] will tell them to come to her house and deliver." (MSS-midwife, Nwezenyi)

The perception of high costs of care in facilities due to unavailability of free government drugs and other charges imposed by facility staff was also an important factor.

"The poverty thing is the excuse they do give sometimes for not going to the facility to deliver. We tell them that if you come here it is not as it looks, but if you look at the big house you may think you have to bring big money before you enter there, but it is not as so as you are looking." (WDC Chair, Ebonyi)

The changes were explored using qualitative methods allowing a detailed exploration of informants' views and experiences. Quantitative data from all facilities was collected but was not used in the analysis because the available data was incomplete and unreliable. Findings show that perceptions of changes in service delivery varied from facility to facility.

The implementers of the Scheme did not track client satisfaction. However, where positive changes in service delivery were reported, community members also mentioned valuing the Scheme because more of their needs were being addressed. A specific service identified as having led to higher client satisfaction was the improvements in immunisation services, which were seen as poor prior to the MSS. The midwives participated in delivering immunisation services because it was part of the package of services provided in PHCs under NPHCDA leadership. Client turnout on immunisation days had been decreasing over time but significant improvements were recorded with the Scheme as a result of community mobilisation and home visits by the MSS midwives.

"Like immunisation… You know then the immunisation aspect is somehow poor but you know after midwives started health education, mobilisation, home visit and other things, they seem like coming out more." (Facility manager, Ezzamgbo)

At each facility, however, there was convergence of opinion among providers and clients in terms of their insights on improvements in service delivery.

> *"… like [for example] those people [Midwives] at Ezza Ofu[PHC] they are doing deliveries almost everyday. They are saving women from maternal death. They are doing wonders at Nwofe[PHC]…" (PHCC Ebonyi)*

Overall, positive changes were reported for most facilities in Ebonyi State compared to only a few in Kaduna. In contrast to this finding, available facility data suggested more improvements in services in Kaduna. In both states, several supply and demand side barriers were identified as continuing to hinder access to services; these mitigated the effects of the Scheme. For example, in facilities where midwives were hardly present, over time community members become discouraged from seeking services.

> *"People are tired of going to the health centre. You go today no nurse. Tomorrow nobody. What is the gain?" (Community member, Ebonyi)*

On the demand side, the most rural communities described difficulties with transportation and related costs such as paying for drugs and commodities in the facilities.

> *"In this community, they have a lot of problems, the health centre is very, very poor. There are a lot of things lacking. Though sometimes they will tell you they don't have money to transport themselves to this place..." (Facility manager, Gubuchi)*

Patient referrals remained weak despite the Scheme's intent to improve referral linkages with secondary facilities for emergency obstetric care [105]. Where referrals were made, patients had to arrange their own transportation since there were no ambulances. Particular difficulties were reported with getting transportation in emergencies and the associated costs of reaching the referral centre, resulting in many community members preferring to go back home to *"wait for death"*. Issues in Kaduna State included cultural practices which restricted women from seeking

health care without their husband's permission, concerns about availability of a female health worker, not wanting to go alone, and lacking personal funds.

> "If the woman wants and the man does not agree, you as a woman, you do not have the money to buy the things that you will be told to buy… we do not have the means, right? You must stay home and deliver. What else would you do? They [husbands] say after all their own mother did not deliver in the hospital?" (Female FGD participant, Kurmin-Kogi)

7.2.3 Logistics, medical and drug supplies

The logistics for drugs, medical and drug supplies was not to a large extent affected by the MSS. Most facilities continued to experience shortages of essential drugs including those for emergency obstetric care. Facility managers reported improved attendance in facilities whenever drugs were available and expressed disappointment at the failure of the Scheme to maintain regular drug supplies. As expected, the most remote rural facilities seemed to have the worst supplies. As explained in section 6.2.4, this situation occurred because drug supplies were not ensured by the federal/state/LGAs as planned. This, coupled with a weak supply chain management system, meant that available drugs appeared to be distributed based on proximity rather than need. Thus, facility managers in remote facilities felt they were forgotten because of their hard-to-reach location. A minority of semi-rural locations felt more fortunate since they had received occasional supplementary supplies from other interventions like the DFID supported PATHS2 project.

> "Some [drugs] are free and some are for sale. We had to explain to both husband and wife so that it won't create conflict in the house. We are lucky, we are near the road so they remember us and we get the free ones sometimes from PATHS." (Facility manager, Kurmin-Marshi)

Many facility managers did not know that states/LGAs had a role in providing MSS drugs and commodities. Thus, they attributed the shortages, irregular supplies and stock-outs in the most

part to poor management by the federal level. In some facilities, managers suggested that drugs may have been handed directly to MSS midwives because federal managers frequently bridged the protocol at facility-level by dealing directly with midwives.

> *"No drugs. Unless if they are given and they don't really give it to me. Do you understand? So, it is only delivery kit, they call it Mama Kit, that they showed to me. So, if they are provided with drugs, I don't know; unless if you ask them [MSS midwives]." (Facility manager, Gubuchi)*

Federal managers confirmed that in contrast to the existing system in which supplies are received in state or LG medical stores then distributed to facilities, under MSS, independent contractors made one-off supplies directly to facilities. This was justified on the grounds of weaknesses in the existing system and a need to deliver initial supplies rapidly to facilities. They explained that the separate system was not set up intentionally, but rather it evolved due to the contracting process, which required federal-level contractors to deliver directly to the facilities.

Federal managers also stated that synergies with the existing systems were not sought. For example, the supplies were not used as seed drugs to restart the Drug Revolving Fund (DRF)[13] mechanism which was no longer operational in all facilities visited. MSS did not interface with the national or state storage, distribution or logistics reporting system; thus, it could not strengthen the ability of the system to return critical information regarding need, demand and consumption to health planners. Consequently, it may have deepened the difficulties with overall accountability and monitoring of supplies.

7.2.4 Financing

Despite the fiscal decentralisation, sub-national governments rely primarily on the central government transfers and expect to receive additional financing to implement federal programmes such as the MSS. As reported by state and LG program managers, despite the

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[13]Adopted in Nigeria as an approach for sustainable financing of drug supplies at local level. Initially introduced through the WHO/UNICEF supported 1988 Bamako Initiative.

increased responsibility of the sub-national governments required by the Scheme, there were no improvements in the levels of budgetary allocations from the national government. Thus, state and LG managers complained that the federal government transferred no funds specifically for MSS.

> *"According to the chairman, the allocation is not regular. Sometimes they will cut the money. Because of that we cannot plan anything for MSS. If we are lucky federal or state will come to implement one thing or the other." (PHCC Ebonyi)*

Federal managers reported that 100% of the funds from Debt Relief Gains (DRG) allocated centrally to MSS were directly allocated and transferred from the centre and all spending decisions made at that level. This suggests that the expected positive impact on service delivery through empowered decision-making at district level may have been lost. For example, the lack of funding for LGs impacted on their autonomy in expenditure and in the allocation of funding based on local preferences and needs.

Financial barriers to access remained an issue. Out-of-pocket payments for drugs and commodities, charges for delivery and other cash payments meant that services continued to be unaffordable to the poor despite the 'free' services offered by the Scheme and the existing policy abolishing user fees at the PHC level. Although facility managers generally indicated that services were free, the non-availability of drugs and commodities which were to be provided by the government required community members to purchase drugs out-of-pocket from outside the facility and in some cases from the parallel market created by facility staff (including midwives). None of the communities visited had access to any community pooled financing mechanism. Although Nigeria has a National Health Insurance Scheme (NHIS) most of its beneficiaries worked within the formal sector and as such NHIS covered only a small segment of mainly urban population[365]. Facility managers also observed that their facilities were not registered by NHIS to provide services covered by it.

7.2.5 Health information

The study found that the Scheme was successful in improving the submission of timely reports in the initial months after deploying mobile phones to 652 facilities as part of its Mobile Application Data Exchange System (MADEX) for reporting. The mobile phones were used by the midwives to provide reports including key MSS indicators to the central level. Core team members reported that during the one-year period (2010) of its use, positive changes were noted in quality of data reported and the timeliness of its receipt. Although MADEX could not be sustained (see Chapter 6/section 6.2.6), participants noted that the Scheme had demonstrated the potential for use of digitised health data and lessons can be drawn from this experience to guide further action.

Overall, the generation of information under MSS and its use to enable evidence-based decision-making at all levels of the health system was weak. LG staff expressed dissatisfaction at the weakness of the reporting system under the Scheme. The main criticism was that it was not integrated with the routine reporting system at facility level such that MSS reported on their activities while other data were reported via a separate route.

> *Me I don't want all these temporary things. We already have [reporting] structures on ground, whether there is politics or whether there is no politics, it always exists. So why not build on that permanent structure." (PHCC, Kaduna)*

In addition, the LG health department was not included as a recipient of reports or feedback. There was also no evidence that the MSS improved health information flow from the facilities to the communities and vice versa. Information flow to communities remained weak as it was entirely dependent on social networks in communities rather than on formal processes supported by the Scheme, thus many community members lacked correct information about the existing services.

7.3 Conclusions

In this chapter, an analysis of changes and developments in the district and national health systems which can be tentatively associated with the MSS's operation was presented in two parts: MSS effects on attracting, motivating and recruiting of midwives in rural locations and its discernible contribution to overall health systems performance.

The MSS was successful in attracting midwives including those employed in the private sector due to the promised pay package and capacity building opportunities offered under it. This was expected to override midwives' preference for work in urban locations. Older midwives held the most positive views about being posted to a rural location. The findings provide some insight into the role of age (and prior situation, retirement) in influencing midwives' decisions to serve in rural locations. Regardless of age and state of origin, security concerns made affected locations unattractive to all categories of midwives.

The study identified several factors which affected motivation of midwives. These include low and unpaid salaries and incentives, housing difficulties and distance of housing from the facility, travel costs and hardship due to long inconvenient commute to the facilities. Unmet career development priorities were an added source of demotivation. A lack of absorption of midwives into mainstream public-sector positions reduced the prospects of promotions and career progression. Other factors included a lack of supervision or personal recognition from senior nursing staff, unfair allocation of training and capacity building opportunities, and concerns for security. All these factors interacted to influence motivation and reduced the intention to stay on in the rural location. The findings also point to retention challenges in both states and according to federal managers, this was a common feature across other states especially those faced with security challenges. Retention was better among retired midwives, who were less likely to leave regardless of how remote the location, compared to other categories. Younger midwives were more mobile and exited the Scheme mainly to the private sector and were more open to the best offer.

Given the multi-component nature of the Scheme, it is expected to have consequences for health systems strengthening through its influence on the broader health systems, particularly at district and local level. The findings indicate an initial positive impact on health systems governance at national level where a TWG was established as part of the governance structure for MSS. However, this was not sustained in the long term. Considering the health systems decentralisation, one weakness was its inability to significantly strengthen governance structures at lower levels, especially WDCs, which are a critical part of the community health systems. Several supply and demand side barriers impacted negatively on accessing the Scheme's services. Service utilisation data suggests greater improvements in Kaduna compared with Ebonyi State, especially in skilled birth attendance. Factors noted in Ebonyi include lack of confidence in PHCs because service were mostly provided by CHEWs perceived to be less qualified than midwives and nurses, preference for TBAs and perceptions of high cost of services. Positive changes in service delivery reported in some facilities were linked to improvements in immunisation, community mobilisation activities and home visits by midwives. Nevertheless, weaknesses in implementation were noted to have had negative consequences on service delivery. Short-lived positive changes were also found in the area of health information but could not be sustained because the system established by MSS was not integrated with established reporting mechanisms for the health sector.

The findings show a nuanced picture: positive changes in one health systems building block had cross-cutting effects on other blocks either directly or indirectly, for example strengthened governance role of WDCs improved health information and service delivery. Similarly, weakness in one building block also impacted on others, for example non-availability of drugs in facilities negatively affected service delivery. These findings provide some insight into the conditions that would have enabled the Scheme to contribute more to strengthening the health system and suggest the need for consideration of possible positive and negative consequences in planning a given intervention.

Chapter 8: Discussion, contribution to knowledge and policy development

Despite economic growth and significant national wealth, Nigeria has failed to improve maternal and child health indicators and faces multiple health systems constraints to expanding access to essential services[43, 61]. While this situation has reflected a slow pace of improvement across many LMICs, it has been incommensurate with Nigeria's economic development. The rural/urban inequalities in distribution of midwives in particular, has constituted a major barrier to improving access to maternal care in rural communities[345]. To this effect, the MSS was introduced in 2009 and implemented in all 36 states. The aim of the MSS was to improve rural midwife retention by providing financial and non-financial incentives, and upgraded facilities and systems level support, and to improve capacity to provide good quality essential services[105], with the objective of improving population maternal and child health outcomes.

This study sought to examine the extent to which the design of the programme drew effectively on the local context, resources, needs and population preferences, and to elicit factors that promoted or constrained its implementation. It also sought to identify changes and developments in the district and national health systems attributable to the Scheme, including changes in attractiveness and retention of midwives in rural locations, health systems governance, service delivery and availability of medical products.

This chapter synthesises the key findings from this study, setting them in the context of the broader literature on design and implementation of interventions for improving retention of health workers and health systems strengthening in LMICs. Section 8.1 provides a summary of the key findings, section 8.2 then highlights the limitations of the study, section 8.3 discusses the contributions of this study to knowledge and practice, and finally, section 8.4 identifies recommendations for policy and practice and areas for further research.

8.1 Key findings

This section provides an integrated summary of the study findings in alignment to each of the following four propositions of this study: 1) The more consistent the MSS design is with the local health systems context, available resources, midwife and population preferences, the more likely it is to function effectively; 2) The (perceived) effect of the MSS will be greatest where the elements of the intervention package are delivered as planned; 3) Midwives for whom the benefits of the MSS is greater are more likely to be retained in the rural location; and 4) The MSS will contribute to improved health systems performance and greater utilisation of PHC maternity services, provided that effective processes are in place and that the Scheme fits into the administrative framework at federal, state and local levels.

Proposition 1: The more consistent the MSS design is with the local health systems context, available resources, midwife and population preferences, the more likely it is to function effectively

This study has shown that the broad principles of the MSS were widely supported by national-level decision makers, program managers and facility staff and welcomed particularly by communities who perceived maternal mortality as a major problem in their localities. The Scheme's design was based on program managers' knowledge of maternal health and health worker issues, but did not sufficiently consider its appropriateness given the decentralised nature of the health systems, or take into account local contextual factors such as individual states' economy, cultural preferences and local evidence.

A specific factor that was insufficiently foreseen in planning and implementing the MSS was the conflicting incentives created by decentralisation. Decentralisation aims to expand the decision-making space at the different tiers of government relevant to the intervention that is being implemented, in order to increase responsiveness to local needs[366, 367]. However, when designing the MSS, measures were not taken to ensure inclusion of the viewpoints of sub-national actors in the design process, which prevented the identification of some constraining factors that hindered

implementation. The centralised decision-making and prescriptive nature of planning regarding all dimensions of the Scheme was led from the federal level, and was in fact a top-down approach which ignored the role of front-line workers and managers[368]. The lack of involvement of lower levels of government resulted in clashes in views between national and sub-national levels regarding the model of recruitment and deployment of midwives, the centralised management of midwives and payment of monthly emoluments. For example, sub-national actors identified the recruitment of midwives from southern states and posting them to northern states as unacceptable because this was perceived not to have considered language, religious and cultural differences.

In contrast to the design of the MSS, federal managers envisioned implementation as a decentralised effort envisaging a bottom-up approach. The extent of participation of sub-national actors was not well defined, including specifying who should be involved in what activities, and how the responsibilities should be shared. For example, there was a general lack of understanding among Local Government (LG) Primary Health Care Coordinators (PHCCs) and state-level managers of their respective roles in implementation, thus undermining their ability to effectively support the process. On the other hand, community-level governance groups for example, Ward Development Committees (WDCs) made significant contributions to solving implementation problems especially where they had appropriate skills and were knowledgeable about their role in implementation.

Many countries have experienced challenges in the effective functioning of decentralised health systems and realising its goal of increasing decision space[369-372]. Attributes of decentralisation such as setting a shared direction, improved accountability, and stewarding resources at sub-national levels are particular problems. Similar to what was seen in the case of the MSS, there has been an increase in 'recentralisation' of key functions within the health system in several African countries[373]. It has been argued that the upsurge of 'recentralisation' in LMICs relates to concerns about institutional weaknesses of local governments and the poorly developed local health care financing[373]. This raises fundamental questions about the overall strategy of decentralisation within the health sector and how best to attempt it to ensure fit with local conditions. Importantly, decentralisation in the health system cannot be isolated from the broader

distribution of power and can be a sensitive topic because it involves shifting resources and management decision-making closer to the communities, thus challenging historical administrative arrangements in the country. The MSS may have created a power conflict as higher levels of government funded it, while the regulatory power was located at the lower level, with LGs and states.

A second factor that was not sufficiently planned for was the weak generation and use of local evidence to inform the MSS design, thus corroborating previous findings of poor use of evidence in health policy-making in Nigeria[374] and other LMICs[375]. This factor was reported as the main reason for the sub-optimal effect of a retention scheme in South Africa[288]. An audit of available health workers conducted by one of the LGAs in this study shows there was existing capacity that could have been leveraged by the Scheme in improving the quality of evidence used in its design and in tailoring the intervention to better respond to the local context. Facilities were in a variety of locations: semi-rural, rural and hard-to-reach, yet they were all treated alike. Furthermore, midwives were concerned with equity challenges created by the uniform financial package implemented across states irrespective of the local pay structure. This suggests that based on the structure of the health system, analyses of contextual issues should have been conducted by LGAs.

Proposition 2: The (perceived) effect of the MSS will be greatest where the elements of the intervention package are delivered as planned

For a programme to achieve its goals, it requires investment of a set of inputs, and then these should be fully utilised; in essence, the programme needs to be implemented in full in order to achieve its expected outcomes[221, 376, 377]. The findings of this study suggest weak and incomplete implementation across all MSS components. The situation, however, was different between the two study states and, in rural areas, between more accessible and hard-to-reach locations, with poorer implementation processes reported in more remote locations. This study highlights the effects of weak implementation on attainment of expected service delivery outcomes. For instance, the intention to provide 24-hour services in all the facilities could not be achieved in most locations because of shortfalls in recruitment and poor housing arrangements. An important

factor that helped to mitigate some implementation problems was adopting a flexible approach enabling policy-makers to constantly make changes to address bottlenecks. For example, a cluster monitoring system was introduced when problems were encountered with the MADEX mobile platform for implementation monitoring.

Shared responsibility for Scheme implementation across the different levels of the health system, together with unclear implementation guidelines and operating procedures, led to poor coordination of the MSS roll-out. Similar fragmentation has also been observed in the implementation of financial incentives for nurses in South Africa and was seen as a barrier in health coordination in Brazil[163, 289, 378]. In this Scheme, financing and management responsibilities for incentive payments and provision of drugs and commodities to facilities were to be shared by the federal, state and LG councils. Most midwives did not receive the full package of promised financial incentives largely because states and LG councils defaulted on monthly payments due to a lack of funds. Similarly, expected supplies of equipment, drugs and commodities by states and LGs were not made, so essential drugs were out of stock in most facilities and had negative consequences on service quality. Kenya and Uganda experienced similar effects on service quality due to shortage of drugs and commodities[379, 380]. In the MSS, some of these implementation challenges can be linked to poor information flow including logistics management information, as in the Zambia Better Health Outcomes through Mentorship Project (BHOMA)[202]. As in other LMICs[381-383], implementation was constrained by alternative providers like TBAs, perceptions of low quality of service and cultural norms. Given the significance of TBAs in many communities, there was a gap in not assigning a specific and formalised role to them in the Scheme. Although the TBAs became increasingly involved in referring women and helping to collect health information, this was done incrementally in the course of implementation. This led to a conflict of interest in terms of the TBAs' role as they continued to assist deliveries but referred patients only in cases of complications.

The lack of attention to 'implementation readiness' was another factor that may have contributed to the difficulties in implementation. This includes better planning of the implementation process, clarity on what constitutes full and complete implementation at the various levels, development of guidelines for implementation and management capacity of individuals to lead

the process. Few of these steps were taken. These findings suggest that assessment of readiness should be a critical part of pre-implementation activities. The need to assess and monitor 'readiness' has been emphasised by WHO's work on service delivery[384, 385]; however, there is little information on how readiness applies to the governance function of the health system. Studies have examined readiness to implement evidence-based practices[386-388], focusing on organisational difficulties in systematically implementing new practices and the challenge of coordinating change within a practice setting[386]. As reported elsewhere, organisational factors in bureaucratic institutions and capacity gaps may limit the ability and willingness to respond to new mandates[234, 389]. While capacity can be addressed through training and engaging expertise that is lacking, the political will to implement, which underlies an implementer's compliance with policy goals and strategies, is less amenable to policy intervention[222]. In addition, in this study the critical importance of the 'readiness to implement' for advancing new initiatives is emphasised.

Proposition 3: Midwives for whom MSS benefits are higher are more likely to be retained in rural locations

This study also explored the changes and developments in the human resources building block, namely the retention of the midwives with specific focus on two MSS components: capacity building and financial incentive payments. Both sought to change the intentions of the midwives at the individual level and were expected to lead to improvements in rural retention[127]. However, other demotivating factors, identified by midwives as critically influencing their behaviour, such as poor health and social infrastructure and fear of professional exclusion, were not addressed by the Scheme. This echoes the findings of studies from other LMICs which suggest that insufficient attention is paid to ensure that the strategies deployed closely match the problems they are trying to address[103]. For example, the Burkina Faso regionalisation policy aimed at improving rural retention of midwives and nurses but had no associated financial or non-financial incentives[390]. The findings confirm that both financial and non-financial incentives were important in persuading midwives in the two states to express interest in rural postings. The MSS financial incentive package was designed to be the most important pull factor for the midwives; however, it was perceived to be inadequate by its beneficiaries especially by older

midwives with greater family responsibilities. In Burkina Faso and Malawi, nurses and midwives were demotivated by the size of the salaries, also by the differences in earning compared to doctors and other nurses with international Non-Governmental Organisations (NGOs)[172, 391]. In Malawi[392], Zambia[171], Uganda[391] and Kenya[393] the lack of non-financial incentives such as continuous education, career progression, personal and professional support have been reported as significant demotivating factors.

This study found that despite successful recruitment of midwives by the MSS, there were difficulties with their retention in rural areas beyond two years. Intention to stay was reported mostly by older midwives who were also found to have valued the Scheme most and to have spent the longest period working under the Scheme. This may be explained by the fact that experienced health workers tend to be more familiar with their professional prospects, and recognising the steps that are required for career advancement[172]. Similarly, in South Africa and Lebanon younger (newly graduated) midwives were less likely to report intention to stay after the period of mandatory service[394, 395]. In contrast to findings elsewhere, altruism played no apparent role in the choice of a rural posting under MSS[396, 397].

The introduction of another government scheme which promised higher financial incentives and housing for midwives in 2012 may have mediated the exit of many midwives from MSS. This raises an important concern regarding negative effects of competition for human resources between government programmes; it suggests competition for resources and leadership role rather than cooperation between public institutions. However, it shows that consideration should be given to the duration for which the incentive package is motivational, and makes a case for the need to adapt incentive packages to respond to changing circumstances. For example, evaluation of the medicalisation policy in Mali found that it was only successful in retaining doctors for four years[398] because the incentives remained the same despite changing expectations. Payment of incentives to only MSS midwives created a dichotomy at facility level with negative impact on the motivation of non-MSS facility staff and service delivery. This shows that strategies to improve retention in rural areas may exacerbate inequities between health worker cadres, if the impact of differential payments is not taken into account when planning how they would be implemented.

Other demotivating factors revealed by midwives and also reported in Burkina Faso[172], Ghana[399], and Tanzania[173] included shortfalls and irregular payments, housing and transportation difficulties, poor security in some of the communities and poor health infrastructure. The unavailable medical equipment, including the promised delivery kits, were important demotivating factors, as the lack of this equipment affected midwives' ability to provide quality services. Similar demotivation factors were also reported in Ghana[400] and Mozambique[401]. Studies from Nigeria[402] and other LMICs[290, 403, 404] pointing to essential human resource management issues being demotivating factors were also cited by MSS midwives, including lack of a career development path, lack of supervision and recognition as well as unfair allocation of workshop/training opportunities. Score cards have been introduced in some countries to give formal recognition of health workers if their performance is appreciated by the users[405]. Particular note should be taken of how what is motivational for one cadre may differ for another as well as differences within cadre, and the role of differences in age and marital status as seen here and in other studies[382, 391, 406, 407].

Proposition 4: The MSS will contribute to improved health systems performance and greater utilisation of PHC maternity services, provided that effective processes are in place and that the Scheme fits into the administrative framework at federal, state and local levels

In addition to findings on human resources, the study found a number of changes in district and national health systems that can be tentatively associated with the Scheme. The MSS is a complex intervention comprising components, which address four of the six health systems building blocks (human resources, service delivery, health information and medical products/technologies), therefore having the potential to bring about system-wide changes. There are indications that the Scheme had both positive and negative effects on other health systems building blocks. Expected improvements in governance, service delivery, medical supplies, financing and health information were severely hampered by weaknesses in design and implementation. The Scheme was not sufficiently embedded within the health system as demonstrated by the poor integration with established administration and governance structures. The findings suggest that despite its ambitious scope, in practice the Scheme was established and

functioned more as a vertical disease-specific programme since it operated in relative isolation to the existing health systems context. This hampered the achievement of significant improvements in the overall health system performance. The literature in this area is well-established case studies on the Global Fund to fight AIDS, Tuberculosis and Malaria (Global Fund) investments in Indonesia, Papua New Guinea and Nepal and other places and these have shown that positive synergies are minimal when programmes are vertical and isolated[408-411]. This study revealed that during the design process, existing health system structures were not assessed to identify those which can support MSS implementation or which may impact its success. For instance, the design of the Scheme did not anticipate human resource management issues such as welfare and motivation. Conversely, possible spillover effect beyond the Scheme, and other elements of the health system, were not actively sought and capitalised on.

The findings from this study therefore provide empirical support for the need for systems thinking in design and implementation of complex programmes within a decentralised system, particularly when a strengthened health system is the desired outcome. A systems thinking approach enables consideration of how programme components are interlinked and how they will interact with each other and the health systems blocks[186, 412]. First, systems thinking will permit assessment of the programme with consideration for both intended and unintended effects. Second, it will help in predicting and designing mechanisms to address unintended programme effects and how to respond to them. Third, it will help to think through about the broader question of how the interventions might work, for whom and under what conditions. While the chosen bundle of interventions may already be known to be effective in improving retention in some settings, there might be important barriers within the implementation milieu that need to be identified and addressed; this needs to be sensitive to difference between geographical, administrative and cultural localities. Fourth, a key principle of systems thinking and systems change requires the design of reinforcing elements within the system to effect meaningful change. In the light of this, rather than utilising parallel systems, embedding programme implementation within existing structures and systems, such as monitoring, procurement and logistics management and HR management, can bring advantages.

In addition, concerns about sustainability were widely raised by program managers because of the unsuccessful strategy of midwives becoming a part of state-level health service, whose salaries and incentives would, after two years, be paid by the state governments. In contrast to the MSS approach, other studies suggest that in the light of strengthening health systems, pro-sustainability approaches need to be robust and address not only financial sustainability but sustainability of outcomes[413]. In the context of the MSS this would have meant prior agreement with sub-national authorities, especially with the LG councils, on what they should consistently support over time, and what elements should transition to them over time to achieve the desired benefits of the Scheme.

Inadequate funding had a substantial negative impact on the Scheme's implementation. The findings in this thesis demonstrate that where retention schemes are not financially sustainable they would be disrupted and become ineffective, even where the chosen interventions had the potential to be effective. Thus, judging whether longer term predictable financing can be secured for the scheme is a critical decision at the time of choosing the interventions[414]. Experience has shown that substantial long-term financing is particularly important for such schemes especially where financial incentives are involved[102]. In addition, central-level factors external to NPHCDA, such as the roles of Parliament and the Ministry of Finance, seemed to have influenced MSS funds allocation and releases. Lack of openness in discussing budgetary allocations and expenditure hindered adequate comparison of the need versus actual investments into the Scheme. Poor health sector funding, lack of political will, corruption and poor management of funds have previously been reported as hindering initiatives to improve the rural workforce in Nigeria[415] and may have compounded the financial problems faced by the MSS. Donor aid has been suggested as an alternative, but it is noted that many donors rarely support financial-incentive programmes[416]. Indeed the extent of investment in human resources by disease-specific aid agencies has been a subject of debate, as this is deemed to undermine the government role in resourcing the health sector[194, 417].

Despite the importance for sound selection and planning of incentives, many retention policies are made without full insight into the full costs involved[414]. Furthermore, a lack of information has meant that only a few studies have fully discussed details of resource use, financing and costing of similar human resource retention schemes[102, 134, 418, 419]. This gap emphasises the need for systematic approaches to costing of recruitment and retention policies, including add-on costs that come from decentralised programmes such as MSS. Zurn's framework[414] for costing of retention schemes in rural areas provides a great starting point for use by policy-makers in LMICs, as it helps assess key start-up and incremental costs required, accounting for variations in the source and mode of financing over time.

Finally, the findings open up the debate of how to finance retention policies in LMICs in an era of dwindling national budgets and health sector funding, donor aid reductions and reluctance to invest in long-term health worker programmes. Options of financing could include adopting contributory models, which allow various sectors to fund elements of the package relevant to their sector. For example, housing and housing loans from ministries of housing and education loans from education ministries could contribute to health worker programmes and provide important non-financial incentives, while ministries of health retain financial payments. Arguably the extent to which such financing arrangements can be coordinated within fragmented systems is questionable. Other possibilities are earmarking portions of tax revenues[420], bonds, certificates and low interest loans, and user fees[421]. All these options may have consequences for increasing complexity given the decentralised health systems of Nigeria, as different sectors may allocate key functions at different levels.

8.2 Limitations

Several limitations of this study need to be acknowledged. Given the qualitative design, there may have been biases due to: a) selective memory of past events; b) recalling events that occurred at a point in time and relating it to a different period of time (telescoping); c) attributing positive events to oneself and negative events to external forces; and d) perceiving events to be more significant than they are, according to the respondent's own characteristics. In addition,

some respondents' accounts may appear to be more valid than others if they have more knowledge, strong opinions, and immediate experience of the issues of interest. This problem was addressed by using multiple sources of data to validate and cross-synthesising themes to ensure that conclusions are drawn with caution[422, 423].

The choice of a purposive sampling strategy may limit the generalisability and the relevance of some of the findings to other Nigerian states. Therefore, the author included states from zones with different maternal mortality levels. Diversity of health care settings was also important, and different kinds of PHC facilities located in a variety of settings – geographical, cultural, religious, were included. The details of these contexts have been provided to enable the reader make judgements on generalisability; however, it should be noted that analytical generalisability may be more appropriate for qualitative research[295].

Another limitation was the poor availability and completeness of information, including documents related to the MSS at the state and LGA levels. Quantitative data related to the Scheme operation was collected from all facilities and the federal level, but available data was incomplete and unreliable so it was used in an illustrative manner only. Availability of plans and policy documents would have facilitated an understanding of how states adopted and translated the policy into action; however, the very poor documentation of the Scheme became apparent only in the course of the study, and despite the willingness of local authors to provide it. Information sharing and data on the financing of the Scheme was also scant, creating constraints in analysis of financing and expenditure related to the Scheme.

Thirdly, security, time and resources were critical challenges[424]. Due to the emerging Boko Haram insurgency in Northern Nigeria at the time, there were uncertainties regarding safety in one of the study states, which caused delays in data collection.

8.3 Contribution of the study

The purpose of this study was to contribute to the discourse on designing and implementing successful human resource recruitment and retention programmes in Nigeria and other LMICs, while also providing recommendations for health system strengthening. This section first discusses the conceptual contribution of the thesis, reflecting on the application of the conceptual framework developed for this study, and presenting a modified version that can inform further research. Second, it highlights the policy implications of the findings, with particular relevance to decentralised health systems.

8.3.1   Critique of the conceptual framework and contribution to theory

As part of this study, a conceptual framework for measuring the results of rural retention intervention for midwives was developed and tested. The framework developed for this study (presented in Chapter 3) is based on the systems thinking approach[69] and seeks to capture dynamic process through which the MSS is to improve recruitment and retention as well as health systems performance. The framework was essential in guiding data collection and analysis, enabling the analytical separation of the processes of MSS design from its implementation, and the potential outcomes of these. Although this framework has been applied and developed in a qualitative study, it is applicable to mixed methods study designs.

Nevertheless, the appropriateness of the framework to the study focus and objectives was critically appraised in the final stages of the research. First, conceptualising the key elements of the framework as a linear chain of activities suggested a series of well-defined stages, whereas in reality the process is non-linear, with each stage overlapping or drawing on the previous. For instance, improved health systems performance was dependent on midwives' retention, which was in turn dependent on full implementation of MSS components. Also, when the implementers observed poor retention results, the one-off recruitment plan was adjusted such that recruitment became an on-going activity to replace exiting midwives. The implementation components are depicted as independent and unconnected, whereas in practice the components were interdependent. The effect of recruitment on the implementation of the capacity building

component is one example; the multiple rounds of recruitment, instead of the single planned round, led to multiple training activities starting at different times and having a knock-on effect on follow-on trainings. This need for continuous feedback from performance to design, to inform modifications and future design, is not fully captured.

Second, the conceptualisation of the framework did not allow for potential adjustments to the design based on learning during implementation or adaptations, which are a likely consequence of differences in states and LG context. Since the thesis focuses not only on the results of the Scheme but on what happened during implementation, the analysis sought to uncover and explain institutional and external dimensions in context that influenced implementation. Third, the framework did not permit an assessment of the choice of intervention to ensure that the chosen interventions are appropriate and adequate to address identified problems (poor maternal mortality and midwife availability in rural areas). For example, the findings showed the importance of understanding midwives' preferences and factors influencing their decision to stay in a rural location (different in each midwife category) and how this shaped the choice of interventions.

The fourth shortcoming of the framework was related to its ability to capture correctly the stated components of the Scheme. Whereas management and coordination, building partnerships and programme communication were included as vertical input, in practice they were cross-cutting horizontal processes that facilitated implementation. A recognition of these as cross-cutting processes required detailed, continuous analysis of the actors involved at the implementation stage, particularly examining the actions expected at the national, state, LGA, facility and community levels, due to a lack of clarity in the Scheme's organisational role and processes. Lastly, the framework did not sufficiently address the exploration of the contextual factors across all domains: design, implementation and results, and explain how these affect implementation and outcomes, supporting the development of planned and actual theory of change. Figure 8.1 presents the revised framework incorporating the considerations discussed above.

Figure 8.1: Revised conceptual framework
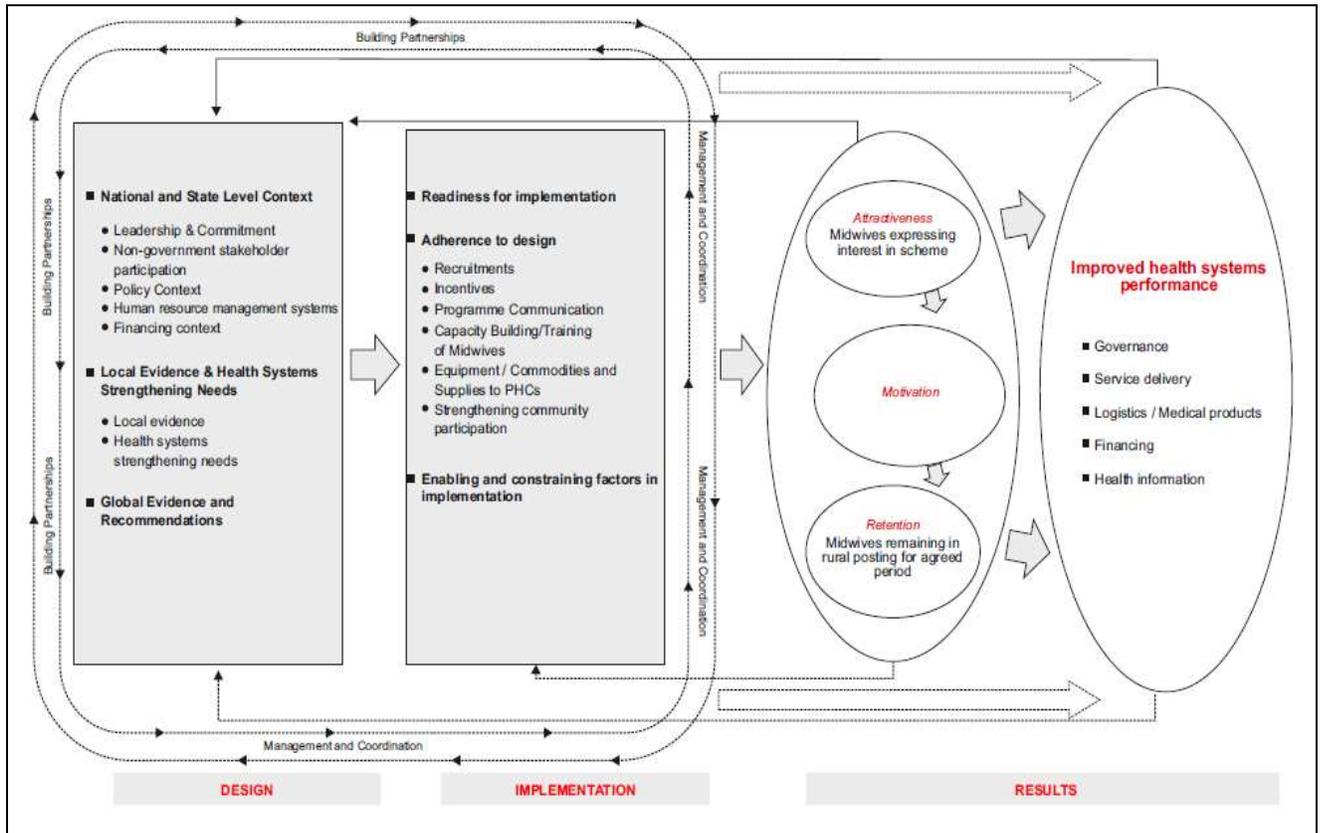
8.4 Policy conclusions and recommendations

Based on the findings from this thesis, several recommendations for health worker retention schemes in other LMICs can be identified for consideration by policy-makers and researchers.

First, it is recommended that in designing health worker retention schemes, especially in a decentralised health system, all actors be enabled to participate in decision-making processes, reflecting the structure of the health system. This should include not only policy-makers at the various levels, but frontline health workers, managers and beneficiary communities.

Second, since packages tailored to local conditions are more likely to be effective, schemes need to be informed by local evidence, including health worker availability, policy context, and the financing capabilities at various levels where multi-tier funding is anticipated.

Third, careful analysis of health worker preferences and their motivational drivers should be conducted, taking note of the differences in what is motivational for different health worker cadres, age, marital status and career stage. Furthermore, chosen intervention packages should be further analysed to ensure they are appropriate to the specific problems they seek to address. Intervention packages should include both financial and non-financial incentives, since health workers are not only concerned about earnings but also about career progression, personal and professional support.

Fourth, there is a need to address pre-conditions required for successful implementation. Some conditions identified in this study include better planning, improving management and coordination, better communication between and across all levels of the health systems, provision of clear implementation guidelines and agreeing what outcomes are sought. Clarity on the roles of all actors in implementation and their commitment to the process is essential. Embedding processes and indicators for monitoring implementation into the framework will help to identify early problems.

Fifth, if strengthening the health system is a desired outcome of the intervention, applying systems thinking to the design and implementation is critical in order to identify potential synergies and unintended consequences and to maximise the potential benefits across all health system building blocks.

Sixth, financial sustainability of the chosen interventions should be an important consideration. The cost of selected strategies should be calculated from the start, especially where financial incentives are included. This will prevent disruptions during implementation and the potential for interventions to appear ineffective due to unpredictable or inadequate financing.

Finally, the findings reveal that designing and implementing midwife retention schemes is an under-researched area, although it is of high practical value for policy development in Nigeria and other LMICs. Further research needs to include the following areas:

- Systems thinking needs to be applied in identifying which bundles of interventions are more effective at a large scale, with a particular emphasis on what conditions make a scheme effective and which cadre are likely to benefit or lose out, including modelling the implication and impact of various policy scenarios including cost projections.
- Implementation research to investigate the outcomes of decentralised versus centralised designs of retention programmes, in administratively decentralised contexts.
- Studies to provide a better understanding of the local health worker situation at LGA level, including working conditions, preferences and links with communities. This includes the use of discrete choice experiments and other methods for investigating preferences of different cadres of health workers and factors in the decision to stay in or leave rural and underserved areas,
- Further exploration of retention schemes and understanding the mechanisms through which they can strengthen health systems is required; the evidence in this area is particularly limited.

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APPENDICES

Appendix 1: Meeting human resource needs for maternal health

Health worker availability and maternal health outcomes

Human resources have been described as the 'heart of the health system in any country'[166] and a prerequisite for improving population health outcomes [79, 425]. They are also a critical component in health policies and health policy making [426]. The broad classification of health workers includes all people engaged in actions whose primary intent is to enhance health [427]. Within maternal and child health, they can be made up of medical, nursing and midwifery professionals and support workers for the delivery of medical and clinical care. Some cross-country studies tested the extent to which human resources affect population health outcomes using maternal, infant and child mortality as the standard health measures [428-433] with conflicting results. Two showed that a high density of doctors has a positive effect on maternal, infant and child mortality [428, 429]. Kim and Moody[431] reported no significant association between doctor density and infant mortality. By contrast doctor density was found to have a negative effect on infant and perinatal mortality [430]. Hertz and colleagues found no association between doctor density and infant or maternal mortality [432]. Three of these studies [428, 429, 431] concluded that nurses were 'invisible' since there was no association between nurse density and maternal, infant or child mortality. Major methodological shortcomings in these studies were identified as responsible for the contrasting findings. For example, the measurement of national income using US dollar at market exchange rate instead of purchasing power parity (PPP) rates, the procedures for selecting independent variables, and the process of regression which may not allow accurate generalization to the populations studied [79]. The more recent cross-country econometric study by Anand and Baernighausen [79] which addressed these and other methodology issues, strongly confirms the importance of human resources in affecting health outcomes. An implication of this result was the need to invest in human resources as part of strategies to achieve the MDGs. This thesis focuses on Skilled Birth Attendants (SBA) as defined in section 1.

Although there are regional disparities in the causes of maternal deaths [434], the most recent systematic analyses indicate that direct obstetric complications including haemorrhage, infection, eclampsia, obstructed labour and unsafe abortion are still responsible for more than half of maternal deaths worldwide [435, 436]. This is consistent with previous findings on causes of maternal deaths [14, 434, 437-439]. There is no one intervention that can reduce maternal mortality by itself. However, many of the complications are preventable by providing quality maternal health care that includes early detection and appropriate timely interventions [440-444]. Variations in maternal mortality across regions and countries depend on how well and timely these complications are dealt with [445, 446]. A major factor in the difference in maternal morbidity and mortality rates between developed and developing countries is attributed to the different rates of utilisation of modern obstetric services [447, 448]. Globaly, 34% of women, which is an estimated 45 million mothers, deliver with no skilled attendant[444]. While 97% of pregnant women in developed countries receive antenatal care and 99% of them utilise skilled service at delivery, 65% and 35% of women in developing countries use antenatal care and skilled obstetric care respectively[444].

Deliveries at home and without the assistance of a skilled professional is associated with adverse pregnancy outcomes [449, 450]. An analysis of the Demographic and Health Survey (DHS) of 40 developing countries collected between 1995 and 2003 showed that 50% of neonatal deaths occurred after deliveries at home[451]. From the timing of maternal deaths also, 11–17% of maternal deaths occur during the delivery process and between 50–71% take place during the post partum process revealing that attention should be focused both on the delivery and post-partum processes [452]. In Nigeria, for example, 62% of deliveries occur at home in the absence of a skilled attendant [453] hence the high maternal mortality ratio in Nigeria. About seven hundred thousand (700,000) midwives are needed worldwide to ensure universal coverage with maternity care, currently there is a shortfall of 50% [427]. These shortfalls are felt more in rural areas than urban areas[1]. Also, women in rural areas are less likely to receive antenatal care than women in urban areas [453-455]. By improving availability, utilisation and quality of skilled birth attendance, more than 80% of maternal deaths in developing countries can be prevented [456, 457] using available cost-effective interventions [63]. The percentage of deliveries attended by a skilled health

professional has therefore become a proxy indicator for reducing maternal mortality in developing countries [458, 459].

In the early 20th century, developed countries halved their maternal mortality ratios by providing professional midwifery care at childbirth [444, 460]. The well-documented experience of Sri Lanka indicates a reduction in MMR from over 1500 per 100,000 live births in the first half of the 20th century to below 30 per 100,000 births in the early 90s [450, 461, 462]. Malaysia's MMR reduced from above 500 in the 1950s to below 50 per 100,000 live births by 1990s [450]. In Thailand, MMR of above 400 per 100,000 live births was reduced to below 50 per 100,000 between the 1960s and 1990 [68]. Between 1983 and 2000, Egypt doubled the proportion of deliveries assisted by a skilled birth attendant and succeeded in reducing its maternal mortality ratio by 50% [444, 463]. More recent evidence about the effectiveness of skilled attendants at birth has shown consistent reductions between 1990 and 2010 in Burkina Faso, Cambodia, Indonesia and Morocco. A common feature among them was a substantial increase in facility deliveries and the proportion of births attended by SBA. Deployment of SBA was a core component of their strategies [50, 74, 464]. In contrast, slower declines in maternal mortality, for example in Nigeria, Niger, Tanzania, Uganda and Kenya have been attributed to persisting low coverage (<50%) of skilled care [50, 107]. A case controlled study in rural India reported that women who delivered with a skilled attendant were twice more likely to survive than those who delivered without professional help [465]. Marginal progress has been made globally in the proportion of births attended by skilled attendants from 59% to 68% between 1990 and 2012 [5]. In SSA where the greatest number of maternal deaths occurs, still fewer than 50% of births are attended by skilled personnel. Thus it remains a concern in the most affected areas.

Other models for meeting HRH needs for maternal care

There is no single model that has been employed to increase access to maternal care internationally. Rather, efforts have taken many forms and varied across countries because of the

deficit of doctors, nurses and midwives in many countries. Efforts have included training of Traditional Birth Attendants (TBAs)[14] to provide quality services and task shifting.

In the 1970s the international response to maternal mortality included TBAs [467]. TBAs continue to provide birthing services in many developing countries [36] to up to two-thirds of the 45 million women delivery without SBA [468-471]. Their continued popularity in many settings is attributable to barriers in accessing SBA including affordability, accessibility and cultural acceptability of TBAs [472-474]. On the strength of previous guidance [466], many countries initiated TBA training as a strategy for meeting the gaps in skilled care. Findings from several studies have contested the effectiveness of TBA training and TBAs in reducing maternal mortality. A Cochrane systematic review [475] covering studies in Bangladesh, Democratic Republic of Congo, Guatemala, India, Pakistan and Malawi made no recommendations because the results were based on single studies. However, there was no significant difference in maternal mortality between trained and untrained TBAs [476] or between additionally trained versus trained TBAs [477]. Similar conclusions were made from studies in Somalia, [478] Bangladesh [479] and Ghana [480]. Thus it has been argued that the trained TBA's greatest contribution may lie in health promotion and increasing linkages to SBA when they are integrated with the formal health system [467, 479, 480]. A policy shift towards promoting SBAs, prompted by lack of evidence in support of the role of TBAs alone in reducing maternal mortality, was made [30, 48]. Universal skilled attendance is challenged by persistent shortages in health workers [98, 117, 481, 482].

'Task-shifting', a process of moving specific tasks where appropriate to health workers with shorter qualifications and shorter trainings, was proposed as another model for meeting health workforce needs with its policy roots in HIV and AIDs treatment and care [483-485]. A key concern has been how to maintain quality of care [485-487]. Increasing coverage and improving overall outcomes [488, 489] are very strong points in its favour plus growing evidence from systematic reviews in support of its effects and safety [160, 490-493]. It is proposed that task-shifting be part of an overall strategy to address human resource challenges [485]. Varying forms of task-shifting are

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[14] A Traditional Birth Attendant (TBA) is a person who assists the other during childbirth and initially acquired her skills by delivering babies herself or through apprenticeship to other TBAs 466. World Health Organization, *Traditional birth attendants: a joint WHO/UNICEF/UNFPA Statement*. 1992, World Health Organization: Geneva..

described in the literature in the context of obstetric care. Shifting tasks horizontally from midwives to other nurses like in the Guatemalan midwife training program [494] and from community midwives to midwives in maternities in Angola [495]. It also occurs vertically to more junior health-care workers or lay health workers [496-498] or by the creation of new cadres trained for a specific task [492]. Historically, there is evidence of task shifting for provision of anaesthesia in over 100 countries including the United States, Europe and in SSA in Ghana, Malawi and South Africa[499, 500]. In Senegal, emergency obstetric surgery was delegated to non-obstetricians[501]. Pakistan's Lady Health Workers for family planning and primary health care was created to help improve health care access in rural communities and urban slums. It made use of the 80,000 lady health workers to provide basic health care to about 70% of the country's population. A strong association was found between the presence of these health workers and improved community health[476, 502]. Although task-shifting is recognised as an important option for addressing health worker shortages for maternal health, it is argued that training, ongoing supervision and support are critical requirements [495, 503]. Several studies describe initiatives in which this requisite support is lacking[504] identifying the need for sound policies, regulatory frameworks, attention to qualification and responsibilities, education and training, and service delivery support [492, 505, 506]. Based on current WHO guidance on SBAs, task-shifting may be viewed as less of an option in the light of improving skilled attendance.

Human resources for health (HRH) shortage in maternal health

The importance of skilled attendants was underscored by its use as a global marker for HRH in maternal health in measurement of progress for MDG 5 and the Countdown to 2015 coverage target [12, 21, 507-513]. HRH challenges are a concern in virtually all countries and relate more to nurses, midwives and other classes of health workers who form the bulk of the workforce [87]. The shortages are particularly acute in Sub-Saharan Africa, and in relation to maternal health service providers [58, 166, 425, 427]. Three key dimensions emerge from this literature; availability, which relates to supply of qualified health workers; distribution, which relates to the recruitment and retention of workers where they are most needed; and performance, in terms of productivity and the quality of care they provide [95, 96, 514-518].

HRH Availability

The current global shortage is estimated at 7.2 million [519] representing a 67% increase from 2006 estimates of 4.3 million [520]. Recent data indicates progress by some of the 57 countries identified in the *World Health Report 2006* [518] as having critical shortages due to their low HRH densities and low skilled attendance coverage [519]. Despite observations that the absolute numbers of skilled professionals may have increased, 32 of these countries' workforce densities remain low due to the effects of population growth [519]. The bulk of this shortfall occurs in SSA which has 70% of countries with a density below 22.8 per 10,000 population and coverage of births by SBA below 80% (31 countries, 57%) [288]. The association between the density of the health workforce and health outcomes is well established [433, 521]. Although new estimates suggest deepening global deficits of up to 12.9 million by 2035 [519], estimating the numbers required at country-level to aid planning in view of implications for 'promoting healthy lives for people of all ages' in the era of sustainable development goals [522] and universal health coverage [519] poses a challenge.

Figure: Density of nursing and midwifery personnel in Africa
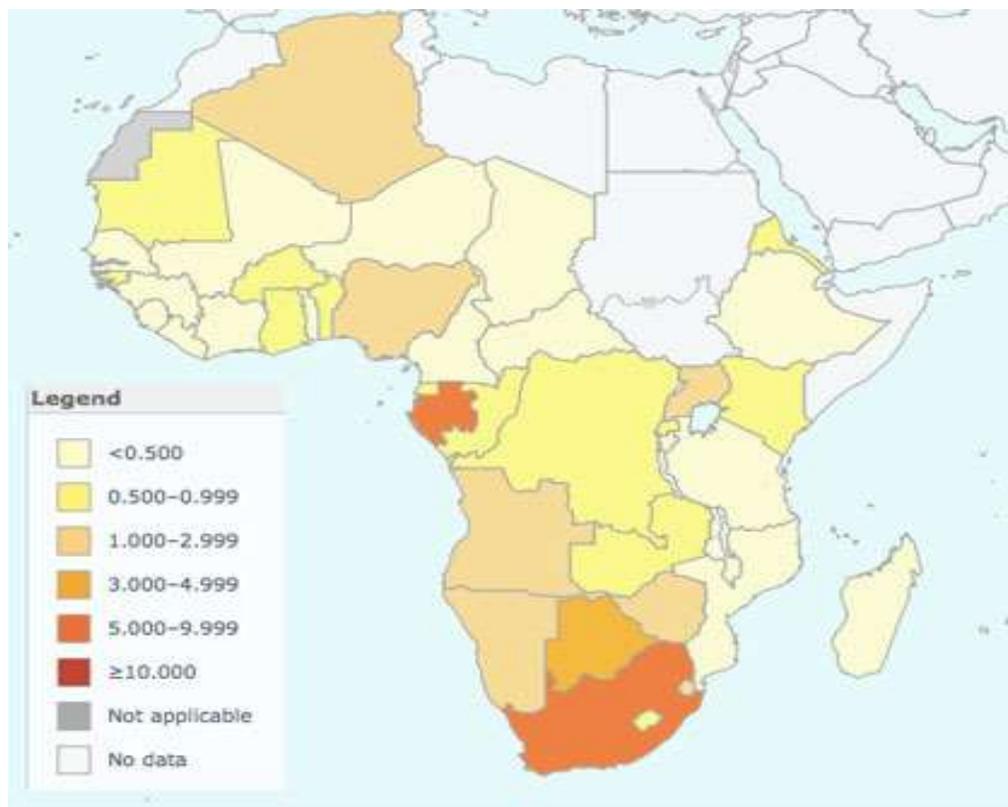
Source: World Health Organization, Global Health Observatory: Data Repository (accessed 13 July 2015)

The accuracy of available HRH estimates and projections of HRH requirements are contested[523][525]. Criticisms have centred on the fragmented nature of data sources used in computations. First, because data comes from a variety of sources including: labour surveys, population surveys and administrative records of professional and regulatory bodies, quality of information, manner of collection and coding may vary [523]. Second, due to differences in the definition of health workers and other health occupations across countries [525]. The main approaches used to estimate HRH requirements are: demand side approaches, supply side approaches and approaches that combine both [526]. The health needs based approach assumes that resources should be allocated to meet the health needs of the population, thus it is also described as the 'what ought to be model' [527]. Characteristically, this methodology allocates resources according to the health needs of the population and assumes that resources will be prioritised based on need [526]. Demand or utilisation based approaches project future health service requirements based on present utilisation with the assumption that the population currently uses a suitable mix of services [526]. Health workforce-to-population ratio models estimate the current ratio as well as the desired future ratio of health worker-to-population. It assumes that the relative proportion of health workers is the most important determinant of the ability to deliver health services [526]. This method has been commonly adopted (typically used by WHO) for benchmarking HRH sufficiency[81]. Lastly, service target-based approaches, which set targets for specific health services based on health workers supply or health services demand. In this method, targets are created using information about current services provided, technologies in use and expert opinion [81]. In practice, estimations have differed significantly when different projection methodologies are applied thus highlighting methodological issues and limitations of different models [81]. The methods chosen often reflect the political and economic choices and social values that underlie a particular health care system [81]. For example, where health care is publicly funded and the access to services is allocated on the basis of need, epidemiology is the main determinant of HRH requirements. Whereas, if health care is privately funded and access to services is based on ability and willingness to pay, economic factors are the main determinants of HRH requirements [528]. Therefore, the value of projections lies in their usefulness in identifying current and emerging trends to enable policy makers respond [529] and in their relevance to social, economic, political and health systems context.

The availability of health workers in SSA is shaped by many entry and exit factors. These include low production of health workers and under-investment in pre-service training, international migration, career changes among health workers, premature retirement [96, 530-533], poor morale and motivation [533]. Other factors indicated are the global rise in chronic diseases [84] and HIV and AIDS [110, 534]. Dussault and Franceschini [535] review broadly categorised these into five; individual factors, the organisational environment including incentives and career structures, education and training determinants, institutional environment and the socio-cultural environment. The rate of production of new health workers in many SSA countries is low compared to the requirement [536] and the number of training institutions and their production capacity do not align with countries' population size or their disease burden [537]. For example, 11 countries have no medical school and 24 have only one each [538]. Other authors have also noted that professional education has not kept pace with HRH challenges because of fragmented, out-dated and static curricular and advocate instead for a transition towards more system-based curricular which are better adapted to specific contexts and needs [537, 539]. However, policies which focus mainly on needs-based production have been shown to be too narrow (for example, in Kenya, Mali, Senegal) thus pointing to the importance of considerations for labour market dynamics including the behaviour and preferences of health workers [518]. Factors such as employment opportunities, employment conditions and preferences are not always aligned with priority health needs thus calling for more studies of labour market dynamics in LMIC for better understanding of the forces that drive health worker availability [518].

A further challenge is posed by the international migration of nurses and other health professionals out of many SSA countries to find more lucrative health positions in high income countries [427]. The significance of migration has sparked debate on its effects on health systems in LMIC [540]. For example, despite already stressed health systems, Zimbabwe, Nigeria, Ghana, Zambia and South Africa experience a net outflow of health workers [541]. Although the problem of out-migration is well appreciated, most available data is described as being of poor quality with most of it coming from recipient countries [145, 542]. There are few peer-reviewed articles that provide quantitative data to inform policy analysis [542]. Most analysis of migration of health workers has been based on a 'push' and 'pull' framework [145]. Push factors are influences that

arise within the source country and which facilitate health workers' decision to leave their country. Pull factors are factors in the recipient country that facilitate the movement of health workers towards that country [145, 543]. Padarath et al. [543] describe the migration flows of health workers as a global conveyor belt moving health workers from rural and remote areas in low-income countries via urban areas in these countries to high income countries. According to them, push and pull factors interact with and relate to each other. For example, using a push-pull framework in a study of six African countries (Cameroon, Ghana, Senegal, South Africa, Uganda and Zimbabwe) [418] found that reasons contributing to the intention to migrate vary from country to country. In addition, how these factors influence health workers' intention to leave vary between countries and may not be totally attributable to observed differences in countries' working conditions but are also influenced by cultural, economic and political factors such as health worker expectations and labour market dynamics [544].

Mal-Distribution

In addition to shortfalls in the absolute numbers required globally, at regional and national levels, the HRH crisis is marked by geographic maldistribution between rural and urban settings [545, 546], the public and private sectors and between rich and poorer countries partially due to migration flows. Ideally, regions with the highest disease burden should have the greatest numbers of skilled workers[547], instead, urban concentration of health workers is a problem everywhere [58]. Reports from several countries demonstrates this situation for different cadres of health workers[546]. In Cote d'Ivoire, about 70% of doctors work in urban regions where only 40% of the population lives [548]. In Ghana 87.2% of general physicians work in urban areas whereas 66% of the population reside in rural areas [549]. A similar situation is recorded for Zambia [170]. National aggregates of HRH to population ratios often mask the geographical imbalances when compared to results from disaggregated analyses. In Kampala, Uganda, the number of doctors is 4.5 times the minimum benchmark and 45 times that of rural Kamuli district. Similarly, in Sudan, the doctor-to-population ratio in urban areas is 24 times that of rural areas, and the nurse-to-population ratio 20 times than in rural areas [550]. There are no single definitions of rural or urban areas that can be applied across countries. However, it is globally understood that the term 'rural' is specific to a county's context and usually takes account of settlement profile, availability of

economic structures and accessibility or distance from urban areas [551]. 'Push' and 'Pull' factors play an important part in health worker decisions to come to, stay in or leave rural areas [552, 553].

Rural and remote areas have greater difficulties attracting, recruiting and retaining nurses and other health workers when compared to urban areas [124, 554, 555] because health workers in these areas often face higher workloads, unsustainable work environments and poor infrastructure causing them to search for more satisfactory working and living conditions in urban areas [290, 554]. Labour economics theory has been used to explain the uneven distribution of HRH. First, there is a reduced demand for HRH in rural areas in SSA countries which does not often reflect needs for HRH, instead it reflects the reduced hiring ability of employers and individuals' willingness to pay for health services [550]. The second explanation centres on reduced supply of HRH due to insufficient numbers, other preferences and characteristics that make them reluctant to work in rural areas [550]. The evidence suggests that willingness to serve in rural areas differs across cadres, gender and age, among other factors. These are reviewed in section 2.3 of the literature review.

Appendix 2: Factors that shape entry and exit of health workers from rural locations

Motivation in the work context is described as an individual's degree of willingness to exert and maintain an effort towards organisational goals [556] and is determined by determinants of motivation and translated into outcomes such as performance and job satisfaction [290]. The association between job satisfaction and intention to leave has been demonstrated [544, 557-561]. The factors affecting motivation of health workers and which influence their decisions to work in rural areas are also well documented [110, 143, 248, 398, 562, 563]. The major factors driving out health workers include weak health systems, insecurity including violence in the workplace, poor living conditions, low remuneration, lack of professional development opportunities and career development paths [564] and the risk of HIV infection due to inappropriate protection methods [565]. Professionals in developing countries are pulled to developed countries, and from rural to urban areas because of better conditions of service and working conditions [146], good living conditions and opportunities for intellectual growth [565]. These findings are similar to those in other studies in SSA [143, 544, 566-568]. The complex interaction between these factors implies there is no single solution [569]. It is noted that motivation factors may vary from time to time and from one location to the other and are therefore contextual [552, 570-572]. The period during which an incentive is motivational is important as the duration of motivation may require that packages for retention be reviewed to adapt to changes. A number of common themes have emerged from studies on motivation factors and retention in low and middle income countries (LMIC) and are summarised here:

Demographic and personal characteristics

Demographic and personal characteristics such as age, gender and marital status play a role in intention to stay in rural areas. A national study on nurses' retention in health facilities in underserved areas in Lebanon found a direct association between age/years of experience and intent to stay. More experienced nurses were typically older and more likely to stay [207]. This association has been reported in other studies [394, 573]. In a Ghana cross-sectional study, being older than 39 years and working more than 5 years in the current facility significantly reduced the odds for turnover intention [290]. In contrast, evidence from Ethiopia suggests that younger health workers may be more willing to work in rural areas. An Ethiopia study tracking 2004

class of graduating nurses found 34% willing to accept a rural posting in 2004. By 2007 this proportion declined to 18% [555]. Evidence also points to gender differences in willingness to work in rural areas. When compared to men, women are generally less motivated to accept rural postings due to family considerations [172]. A Mexican study of migration and mobility in the life course of female physicians found they were more likely to undertake some form of migration while training than at any other time in their career and were strongly influenced by family needs in their choices [574]. Dussault and Franceschini [575] review suggests that female doctors are more likely to want to live near their husband's place of employment. Married nurses especially those with children also show a preference for staying in their current rural jobs compared to their unmarried contemporaries[207,394]. Other characteristics such as a rural background, education in rural location and preference for life in smaller communities have been linked to acceptance and longer stay in rural postings [97, 576-579]. People originally from urban areas are less willing to accept rural postings even when offered comprehensive incentive packages [580]. A Ghana study found greater willingness to work in rural areas among lower professionals. Reasons include that they are given duties higher than their skill levels, have more opportunities to manage teams and have higher recognition within communities (sometimes called doctor) [580].

Career and professional development

Health workers greatly value opportunities for continuing education, training and professional development. Thus, lack of professional development is frequently cited as a reason for demotivation [581-584]. A qualitative study conducted in Ghana highlighted the importance of career advancement and a learning environment for rural service [209]. A more recent cross-sectional study in Ghana also identified this as a major disincentive to accepting rural postings [290]. The findings were consistent with those of studies in Kenya, Ghana and Benin which underscored career development incentives as motivation for rural service [562, 579], job satisfaction and support recruitment and retention [207]. Professional development opportunities seminars and short-term training enhance job satisfaction and are often valued higher by nurses than material rewards.[157, 585]. Good supervision and adequate technical support, recognition of achievements and feedback are also critical elements to performance [427].

Research findings suggest that those in rural locations face a lack of supervision. Weak support, supervision and management have been identified as important factors in motivation in many countries [581, 586, 587]. Snow et al. [209] found in a Ghana study that this was especially important to women. Case studies in several LMIC have noted that supportive supervision helps to improve quality of care and motivation among health workers and also help to retain workers in rural underserved areas [588-591]. A study of rural Vietnam health workers revealed that appreciation by managers, colleagues and the community was a major motivator; however, in many contexts positive feedback is lacking when health workers perform well [111, 587, 592]. Despite lack of financial incentives and difficult working conditions, health workers in remote locations in Zimbabwe exhibited high levels of motivation due to good leadership and supportive management among other factors [593]. Similarly, in Cameroon, a lack of promotional opportunities and a desire to gain experience ranked above wages given as reasons why health care professionals migrate [594]. Other issues highlighted from studies are the importance of clear terms of appointment with a reliable end-point [595]. Health workers in rural posts have reported being 'forgotten' when it came to promotions and career development opportunities, such as fellowships or specialty training opportunities [209]. A combination of these factors have been described by some as 'professional isolation' [596].

Salaries, wages and other financial incentives

Financial incentives have been shown to be an important motivating factor for health workers, especially in countries where government salaries and wages are insufficient to meet the basic needs of health workers and their families. These incentives include higher salaries, salary supplements, benefits and allowances [111]. Low wages have been identified by health workers in many countries as an important motivating factor [146, 568]. Evidence from Samoa, Papua New Guinea, Vietnam, Cambodia and Thailand show low salaries as a major reason for dissatisfaction and migration [247, 586, 597, 598]. The importance of wage differentials in attracting people to rural jobs has been debated in the literature. Findings in Ghana showed that a large wage increase was required to change health worker preference; however, a difference of 50% was valued almost as highly as provision of free housing [599]. While some studies suggest that small increments have a large effect [600], others posit that large increments are required to make the difference [601]. Yet other authors have noted that the importance of financial rewards as a motivating factor holds

varying levels of importance for health workers in different locations thus ranked different [403]. For example, studies in Zimbabwe [602] , Malawi [392], Kenya [393], Ghana [290], Mali [122], Pakistan [603] and India [604] showed differing importance of financial rewards as a motivating factor. Based on evidence from South Africa George et al. [605] argue that the extent to which remuneration is a key motivating factor behind health worker movement is often overrated. Only 24% of respondents in a six-country study in SSA quoted better remuneration as a reason for leaving [418].

Besides a high wage, satisfaction with the wage and factors related to work-time are essential in analysing retention [606]. It is often difficult to increase salaries in resource constrained settings and wage structures are not easily restructured due to expenditure ceilings [607]. There are also potential challenges within the larger public sector from raising the salaries in one sector alone. Payment reforms targeting health workers in rural areas have been applied in some countries to address this, for example Papua New Guinea's introduction of a domestic market allowance to supplement public sector salaries and a performance-based management system in Cambodia to enable higher pay in accordance with high performance [111].

Working and living environment

Further barriers to recruitment and retention of health workers identified in the literature are poor working conditions [103, 608] and general lack of services in the living environment [609]. Health workers value working conditions that include appropriate infrastructure, water, sanitation, good lighting, drugs, equipment, supplies and transportation. Availability of quality work equipment is thought to strongly influence workers' motivation to provide quality care [579, 580, 601] and in turn motivate them to stay in a rural location. In Ghana, availability of infrastructure was one of three predictors of motivation and retention in district hospitals [287]. In addition, access to basic social amenities, clean water, adequate housing and schools for children have been cited [103, 610]. A Bangladesh study found that absenteeism was linked to remoteness and difficult road access when compared to other rural locations with roads and electricity [611].

Free basic housing is also considered a prerequisite to rural practice by many health workers because of the awareness of the standard of housing available in rural areas of SSA [400].

Accommodation was scored highest and the most important factor in determining acceptance of a rural posting by Ghanaian physicians, medical students and student midwives [287, 400]. The importance of housing as a motivating factor in the decision to relocate to or stay in a rural area has been corroborated by several studies including those in Tanzania, Burkina Faso and Ethiopia [173, 612-614].

Appendix 3: Search strategy

The strategy used to review the literature on all relevant topics was based on text words and medical subject headings (MESH) covering topics related to maternal mortality, maternal health outcomes, skilled birth attendance, midwives, health worker availability, recruitment and retention, rural retention schemes, health systems and health systems strengthening, program design and implementation. The databases included were: Medline, CINAHL Plus, Global Health, Popline, Pubmed, Trip, Psychinfo and Africa-wide Information. Manual searching of the citations of key articles, researching named authors and 'snowballing' emerged as the study progressed. Grey literature was identified from online libraries like the Global Human Resources for Health (HRH) Resource Centre and from websites of organisations (for example, WHO, World Bank). Additional searches were conducted in the Google Scholar search engine. Citations of articles identified through electronic databases were imported into EndNote citation manager while those identified through manual searches were entered manually or identified online and imported into EndNote.

Examples of search terms used (within PubMed)

Maternal mortality	"maternal mortality"[MeSH Terms] OR maternal mortality[Text Word]
Maternal death	"maternal death"[MeSH Terms] OR "maternal death"[All Fields]
Human Resourc* Health	"Hum Resour Health"[Journal] OR ("human"[All Fields] AND "resources"[All Fields] AND "for"[All Fields] AND "health"[All Fields]) OR "human resources for health"[All Fields]
Health manpower	"health manpower"[MeSH Terms] OR Health manpower[Text Word]
Health manpower or health workforce or	("health manpower"[MeSH Terms] OR Health manpower[Text Word]) OR ("health manpower"[MeSH Terms] OR health

health worker or health care professional	workforce[Text Word]) OR (("health"[MeSH Terms] OR health[Text Word]) AND worker[All Fields]) OR "health personnel"[MeSH Terms]
Skilled Birth Attendant or SBA	(Skilled[All Fields] AND ("parturition"[MeSH Terms] OR Birth[Text Word]) AND Attendant[All Fields]) OR SBA[All Fields]
Nurse	"nurses"[MeSH Terms] OR nurse[Text Word]
Midwi*	midwife[All Fields] OR midwifery[All Fields] OR midwives[All Fields]
Nurse midwi*	nurse midwife[All Fields] OR nurse midwives[All Fields]
Retention scheme or retention intervention or retention programme or retention program or worforce intervention	(("retention (psychology)"[MeSH Terms] OR Retention[Text Word]) AND scheme[All Fields]) OR (("retention (psychology)"[MeSH Terms] OR retention[Text Word]) AND intervention[All Fields]) OR (("retention (psychology)"[MeSH Terms] OR retention[Text Word]) AND programme[All Fields]) OR (("retention (psychology)"[MeSH Terms] OR retention[Text Word]) AND program[All Fields]) OR intervention[All Fields]

("midwifery"[MeSH Terms] OR "midwifery"[All Fields] OR "midwives"[All Fields]) OR (heath[All Fields] AND worker[All Fields]) OR ("health personnel"[MeSH Terms] OR ("health"[All Fields] AND "personnel"[All Fields]) OR "health personnel"[All Fields] OR ("health"[All Fields] AND "professional"[All Fields]) OR "health professional"[All Fields]) OR ("manpower"[Subheading] OR "manpower"[All Fields] OR "workforce"[All Fields]) OR ("nurses"[MeSH Terms] OR "nurses"[All Fields] OR "nurse"[All Fields]) OR ("physicians"[MeSH Terms] OR "physicians"[All Fields] OR "doctor"[All Fields]) OR (skilled[All Fields] AND ("parturition"[MeSH Terms] OR "parturition"[All Fields] OR "birth"[All Fields]) AND attendant[All Fields]) OR SBA[All Fields] OR (("health"[MeSH Terms] OR "health"[All Fields]) AND worker[All Fields]) OR ("health personnel"[MeSH Terms] OR ("health"[All Fields] AND "personnel"[All Fields]) OR "health personnel"[All

Fields] OR ("health"[All Fields] AND "care"[All Fields] AND "worker"[All Fields]) OR "health care worker"[All Fields]) OR ("health personnel"[MeSH Terms] OR ("health"[All Fields] AND "personnel"[All Fields]) OR "health personnel"[All Fields] OR ("health"[All Fields] AND "professional"[All Fields]) OR "health professional"[All Fields]) AND (rural[All Fields] AND ("retention (psychology)"[MeSH Terms] OR ("retention"[All Fields] AND "(psychology)"[All Fields]) OR "retention (psychology)"[All Fields] OR "retention"[All Fields])) OR ("retention (psychology)"[MeSH Terms] OR ("retention"[All Fields] AND "(psychology)"[All Fields]) OR "retention (psychology)"[All Fields] OR "retention"[All Fields]) OR (rural[All Fields] AND ("geographic locations"[MeSH Terms] OR ("geographic"[All Fields] AND "locations"[All Fields]) OR "geographic locations"[All Fields] OR "area"[All Fields])) OR (remote[All Fields] AND ("geographic locations"[MeSH Terms] OR ("geographic"[All Fields] AND "locations"[All Fields]) OR "geographic locations"[All Fields] OR "area"[All Fields])) OR ("motivation"[MeSH Terms] OR "motivation"[All Fields]) OR (("manpower"[Subheading] OR "manpower"[All Fields] OR "workforce"[All Fields]) AND performance[All Fields])

Appendix 4:   What features make retention schemes successful?

This section discusses the main features required for a successful retention scheme. Despite the dearth of evaluated retention strategies[100, 117, 615] which makes it difficult to compare strategies or lessons[100, 153], several common themes can be drawn from programmes which are either single interventions or incorporate multiple strategies. The first principle to consider is weaknesses in policy design and implementation. Different results have been obtained from similar strategies in terms of intervention effectiveness, with differences attributable to weaknesses in policy design and implementation linked to insufficient account of the context[616, 617]. Liu[175] posits that despite frequent reference to the importance of context in interventions to improve attractiveness and retention in rural areas, authors infrequently define the meaning of context. He defines it to include situational, structural, cultural and environmental factors, which many operate at the macro, meso and micro-levels. At the macro level, political conditions such as conflict or post-conflict situations would usually be accompanied by fragile supporting systems. The timing of the introduction of a scheme may be politically motivated[618]. For example, the introduction of a rural allowance in South Africa in 2004 just before the general elections suggested a political motivation and impacted on success[619]. Economic factors are especially important for financial incentives since these require financial commitments[157, 165, 620]. Social and cultural considerations are also key considerations because of the need for social acceptance of interventions[269]. For instance, cultural reluctance in some parts of Asia to borrow money from outside the family circle can impact on loan programmes[621]. The lack of design based on context was accounted as the main reason for sub-optimal effects of a South African retention scheme. The financial incentives were not deemed sufficient to retain staff and incentives were not graded according to the degree of 'ruralness' of the location as perceived by the nurses[288]. The relevance of context is discussed in greater detail in section 2.3.

The second principle relates to the process of choosing the intervention, including the need for wide consultation and engagement of all actors. The need for balance between central and district-level participation more so in decentralised health systems has been shown[292, 356]. Government rigidity in facilitating decentralisation of decision-making and power to allow lower level management roles can impact on success[370]. Greater participation at the district level based

on decentralisation policies in Zambia and Senegal was reported to have provided greater flexibility for meeting needs of local communities in terms of local training and recruitment of health workers[112, 139]. Furthermore, the economic development and financial capacity of the district or local governments should be considered.

Third, emphasis is also placed on undertaking a comprehensive situation analysis[127] to understand the health workforce and distribution of health professionals, and to investigate specific local challenges[175]. The development of retention strategies also requires an understanding of the preferences of health workers[172]. Human resource management plays a pivotal role in successful retention programmes, in particular a lack of career guidance, mentoring and on-going support and monitoring of problems have been identified as issues impeding success[171, 622]. Other studies also found that a lack of interaction with participants at different stages can adversely affect retention schemes and their uptake[110]. Bureaucratic structures also negatively affect the performance of retention programmes[171] through their effect on delays in payments and placement on pay-rolls.

Fourth, improved planning with linkages to national plans, clear definition of implementation parameters and a strong monitoring and evaluation mechanism have also been cited as important elements for success[175, 288]. An evaluation of the aforementioned Malawian programme[623] identified its pillars of success to include its situation within a broader program to improve health services and management systems. A review of other retention programmes in east and southern Africa found that schemes that have had some success have been linked to long-term strategic plans within the framework of health sector planning[162]. In addition, the use of a phased approach combining short- and long-term measures, salary top-ups and expanding training capacity were found to improve the programme. Like the Zambian experience, institutional capacity was identified as a weakness in coherent implementation[171].

Fifth, sustainability should be considered when planning retention schemes since withdrawal of incentives will be perceived as a change in conditions of service by health workers thus affecting the programme's success[624]. A key ingredient is sustainable financing to pay for incentives and program administration[625]. From a policy perspective, insight into the costs of policy

interventions could prove to be a major determinant of the success[414]. Emphasis should be placed on clearly identifying and understanding the financing sources and mechanisms related to the policy interventions as well as assessing their sustainability. Success in terms of retention is associated with length/duration of practice, therefore accounting for the time-span of both effectiveness and costs is important[414]. Most LMICs supplement their national budget with donor funding. In Zimbabwe, joint donor and budget support for health worker financing lend stability and sustainability to the financing of health worker retention programmes and may be preferable to localised project initiatives[347]. Additional resources have been identified and used by some countries. For example, Zambia used resources released from debt relief under the Highly indebted poor countries Initiative (HIPC)[171].

Finally, there is relative silence in the literature on the approaches to introducing retention programmes. The approaches have been identified as a possible determinant of success[623]. Some of the approaches identified include integration into health sector development plans as seen in the Malawi case. Similar examples were found in South Africa, Lesotho and Zambia retention programmes[162]. Other approaches are through consultations with stakeholders, including development partners and health workers, and introduction of policy measures at times negotiated between government and trade unions.

Appendix 5: Health systems frameworks and their suitability for the study

Framework	Suitability for study	
	Pros	**Cons**
WHO Building Blocks framework [177]	Simple, incorporates all important health systems functions thus it is able to provide a common language for researchers. Enables the assessment of process (e.g. access, coverage, quality) and outcome (e.g. improved health, equity) elements. Widely used to evaluate the impact of various interventions on health systems so allows easier comparison between studies. Useful for locating, describing and classifying health system constraints and for identifying where and why investments are needed.	Focuses mostly on supply-side service delivery issues but less so on demand-side aspects. Does not include social mobilisation activities, which are critical components of health systems in LMICs. It does not allow evaluation of linkages between input, output and outcomes. It does not allow for addressing the complexity of the health systems and the interaction between the building blocks. Thus, limits its use in analysing the impact of interventions on the health system as a whole. The segmentation of blocks suggests static elements; therefore does not clearly reflect the dynamism of the health system.
Systems Thinking Framework [265]	Enabling an understanding of the participation of individuals, community groups and other key actors. Useful for illuminating the full range of effects and potential synergies within the systems. In particular, the effects of implementation of different components of MSS on individual health system. Provides possibility for identifying unintended consequences Facilitates consideration of contexts, processes, and feedback loops.	It is critical that the right line of inquiry is followed. Where wrong models are followed, it can complicate things.
Health Dynamics Framework [257]	Builds on the health system as a complex adaptive system thus recognises the dynamic, non-linear interactions between the elements and upholds the feedback loops between them. Useful in analysing health systems strengthening because it links	Considers some elements of the health system more important than others.

Framework	Suitability for study	
	Pros	**Cons**
	governance, human resources, service delivery and the population as a central axis in the framework. Emphasises that health systems should be geared towards outcomes and goals. Facilitates comprehensive analytical view of the health system, its composing parts and the functioning at macro, meso or micro-level.	
Conceptual Framework for Measuring Health System Performance[258]	Facilitates analysis of health systems processes and mechanisms for change.	The main dimensions focus on effectiveness, equity and efficiency. Suggests uni-directional linear interactions without feedback loops.
Framework for Scale-up for Better Health		
Conceptual Framework for measuring results of increasing to health workers in underserved areas[261]	Specifically designed to guide assessment of interventions to increase access to health workers in rural and underserved areas. Supports examination of all states of policy development following a logical sequence. Goes beyond the traditional evaluation approach of input-outcome-impact to include the important dimensions of design and implementation of the intervention and enables assessment at the different levels. Permits exploration of what works or not and the related contextual factors. Enables examination of whether the intent of the intervention has been achieved. Its flexibility enables its application in many different contexts.	It is static therefore does not show the interactions between the various levels.

Appendix 6: Theoretical insights for investigating design and implementation

The relevance of a theoretical base in understanding how policy change processes influence outcomes has been identified in the literature and has been underscored as an important factor bridging the divide between knowledge of what works, practice and its evaluation [269]. A review by Gilson and Raphaely [243] highlights the need for deliberate effort in implementation studies to examine the appropriate use of relevant theoretical frameworks. This section considers theoretical works relevant to this study and draws lessons for the approach for investigating design and implementation.

Insights from design theories

An important starting point for improving intervention design is the need for a systematic method for identifying and applying theories and frameworks that are appropriate [626, 627]. Michie et al. [628] noted that interventions are commonly designed without evidence but rather based on implicit common sense of what would work [629]. Nonetheless, some advances have been made in the application of behavioural and social science theories in intervention design [630] and evaluation studies [631].

Theoretical Domains Framework (TDF) integrates and simplifies behaviour change theories to make them more usable by other disciplines and in intervention design [632]. It presents an integrated theoretical framework of 14 domains synthesised from psychological and organisational theories to inform the design of interventions or to identify theoretical explanations for implementation difficulties. These include: knowledge, skills, social/professional role and identity, beliefs/capabilities, beliefs about consequences, social influences, and environmental influences among others. TDF has been applied to a wide range of clinical quality interventions [633], in developing theory-informed behaviour change interventions[627], in empirical studies to explore implementation problems in different clinical areas [634-636] and in process evaluation [637] but there are no examples of its use in the design of interventions with system-wide effects.

In applying theory to intervention design, there is a risk of missing relevant constructs or basing interventions on overlapping theoretical constructs, making it difficult to identify what processes underlie success [632]. With its origins in health education program development, Intervention Mapping (IM) presents an option for logical program development based on core processes. It is a comprehensive approach that enables the linking of intervention development and design with needs assessment, program implementation and evaluation [630]. IM describes a protocol for the development of a theory and evidence-based intervention in five steps: 1) needs assessment, 2) identification of outcomes and change objectives, 3) selection of theory-based methods and practical applications, 4) designing an intervention, and 5) creation of an implementation plan. This approach has previously been used to develop a range of health interventions including those to tackle childhood obesity [638-640]. IM is demonstrated to be a feasible and helpful method for providing evidence-based and structured approach to intervention design.

Program theory is reported as very useful in ascertaining the theoretical appropriateness of a program [270, 271]. They take root from theories of change and also form the crux of theory-driven evaluations [272]. Program theory consists of statements that describe the pathway to achieving the anticipated effects and explain why, how and under what conditions the program's effects occur[273]. Three components are used to describe the program: the activities or inputs, the intended outcomes and the mechanisms through which the intended outcomes are achieved [274]. Program theory is usually illustrated as a logic model – a drawing depicting how one component leads to the next. As identified by Funnell and Rogers [275], program theory is useful in planning and designing interventions, engaging stakeholders, and for evidence-informed practice and adaptation of program elements as well as future evaluation of the intervention. Application of program theory in intervention design can guide the analysis of the context, and provide a clear hypothesis of change and an assessment of evidence for the design of the intervention. This approach has been applied in the design of interventions in different settings for instance to: improve the quality of general education in Ethiopia and in purveyor programs for HIV prevention interventions in South Africa [641].

Theories and frameworks of policy implementation

There has been an ongoing debate in the literature regarding what would be the most appropriate approach to policy implementation. Two paradigms have remained prominent in the literature for studying and describing implementation: top-down and bottom-up approaches. Top-down implementation occurs when a policy decision is taken by centrally located actors [277]. There is a clear stream of command from the government to the project. Advocates of top-down approaches view policy designers as the central actors and focus their attention on factors that can be changed at national or central level [277]. A top-down approach is consistent with the view that the policy process is a linear sequence of activities with a clear division between formulation and execution [246]. Prerequisites for successful implementation include having goals that are clearly defined and widely understood, and having the necessary political, administrative, technical and financial resources, as well as an established chain of command [246]. On the other hand, failing to plan adequately will result in implementation failure [642].

The main criticisms against top-down approaches come from its strong reliance on the perspectives of central decision makers [276]. According to Hogwood and Gunn [278], top-down implementation is unrealistic because it assumes a control perspective often with special interest in higher-level decision makers. Consequently, it neglects the reality of policy modification or distortion that may happen at the hands of implementers [279]. The authors make a distinction between 'non-implementation' (where policies are not put into effect as intended) and 'unsuccessful implementation' (where the policy is fully implemented but fails to achieve intents)[163]. DeLeon and DeLeon [280] argue that policy implementation has too often been practiced as a top-down or 'governing elite' phenomenon and that it would benefit from a more democratic orientation which emphasises citizens' participation at the 'street-level'.

Proponents of a bottom up led by proponents like Lipsky and Brandon [281] and Hjern and Hull [282] in contrast view local implementation actors, networks and implementation managers as active and important participants in the complex implementation process. Following this logic, implementation strategy formulation should begin with the target groups and service deliverers because they would be the actual implementers [277]. In his analysis of the behaviour of front-line

staff (who he calls 'street-level' bureaucrats) Lipsky and Brandon [281] argue for some power to be granted them given their influence in policy delivery. Furthermore, bottom-uppers see policy implementation as a more interactive and dynamic process [242] in which gaps between objectives and implementation outcomes are viewed as a process of re-creation not implementation failure[643]. There is general agreement that bottom-up approaches are more suited to the delivery of health care and social services, because the providers of these services must have discretion in taking decisions that allow them to effectively respond to client needs [243] and are better able to capture the full range of the implementation's intricacies [280].

On the other hand, several arguments have been proposed against bottom-up approaches. First, they have been criticised for their inability to respond to expeditious implementation [282]. Second, without clear objectives or policy goals, it is difficult to determine the effectiveness of the policy being implemented [643]. Third, the over-emphasis on local level actors and consequently play-down on the role of central decision makers and their influence on local level organisations [644], especially in political systems where power and authority is shared among several units [241].

The debate between bottom-up and top-down perspectives was followed on by efforts to synthesise the two approaches. A middle-ground is taken by theorists who agree that there is a meeting point between the two, and propose different ways of tying up the macro and micro-level variables [277]. A second approach was taken by Elmore [645] who combined the two perspectives through his work on 'backward' and 'forward' mapping. In this approach, forward mapping consists of stating precise policy objectives and specifying explicit outcome criteria by which to judge each stage of implementation. In backward mapping, the precise behaviour to be changed at the lowest level is stated, describing a set of operations that can ensure change. The procedure is repeated upwards by steps until the central level is reached [646]. The third approach attempts to identify conditions under which one approach is more appropriate than the other and selects the best features of the two perspectives. Consistent with bottom-up approaches, it starts from a policy problem or sub-system rather than a policy decision, and examines the strategies employed by relevant actors in public and private sectors, and at various levels of government[646]. Some authors have criticised this approach [228, 647], leading to O'Toole's (2000) conclusion that the two schools of thought simply viewed the same issue from different points. Finally, other

writers conclude that different conditions require different strategies rather than a 'one-size-fits-all' approach [277, 648].

Appendix 7: Distribution of MSS facilities per state

Geo-political Zone	Maternal mortality classification	State	Number of MSS facilities in State
North East	Very high maternal mortality zone (MMR >1,000/100,000 live births)	Borno	24 per state (144)
		Yobe	
		Gombe	
		Adamawa	
		Taraba	
		Bauchi	
North West	Very high maternal mortality zone (MMR >1,000/100,000 live births)	Kaduna	24 per state (168)
		Kano	
		Kebbi	
		Katsina	
		Sokoto	
		Zamfara	
		Jigawa	
North Central	High maternal mortality zone (MMR between 500-1,000/100,000 live births)	Plateau	16 per state (112)
		Benue	
		Nasarawa	
		Kogi	
		Kwara	
		Niger	
		Federal Capital Territory	
South South	High maternal mortality zone (MMR between 500-1,000/100,000 live births)	Delta	16 per state (96)
		Edo	
		Rivers	
		Bayelsa	
		Cross River	
		Akwa Ibom	
South East	Moderate maternal zone (MMR >500/100,000 live births)	Abia	12 per state (60)
		Imo	
		Anambra	
		Ebonyi	
		Enugu	
South West	Moderate maternal zone (MMR >500/100,000 live births)	Lagos	12 in each state (72)
		Oyo	
		Osun	
		Ekiti	
		Ondo	
		Ogun	

Appendix 8: Interviews and Focus Group Discussion (FGD) Guides

The following instruments utilised for the study:

1. Key informant interview guide for policy makers on MSS/health care delivery
2. In-depth interview guide for members of MSS core management team and program managers
3. Key informant interview guide for members of MSS TWG and development partners
4. In-depth interview guide for members of MSS management team at state/LGA levels
5. In-depth interview guide for MSS facility managers
6. In-depth interview guide for non-MSS facility managers
7. In-depth interview/FGD guide for midwives on the MSS
8. In-depth interview guide for midwives not on the MSS
9. In-depth interview guide for midwives who have left the MSS
10. Focus group discussion guide for members of community groups, VDC/CDC and WDC
11. Focus group discussion guide for service users
12. In-depth interview guide for community-based organisations providing health services in the locality of MSS facilities
13. Desk reviews guide

Key Informant Interview Guide

Policy Makers on MSS/Health Care Delivery

1. What are the strategic roles and responsibilities of your office to the MSS?
2. How has your office influenced policies and programmes in the MSS at national and state levels?
   - What policies exist in relation to health systems strengthening and how do these link with the MSS?
   - What are the policies and frameworks on allocation of resources (finances, human capacity, equipment/commodities, supplies, etc.?)
   - How have these policies enhanced or constrained the implementation of the Scheme?

3. How would you describe the overall performance considering the strategic thrusts and objectives?

4. In your view, what are the major strengths and weaknesses of the Scheme?

5. What would you consider as the major challenges of the Scheme?

6. What would you do differently to increase the present level of effectiveness of the Scheme?

In-Depth Interview guide MSS Core Management Team Members

(National Level)

1. The initiative of the MSS is said to be an emergency stopgap to shortage of skilled attendance at the primary health care level. How was the Scheme designed?
   - What steps were taken in designing the Scheme?
   - What are the linkages if any with the National Human Resource for Health strategic plan?
   - What was your role in its design?
   - Does the Scheme have an operational plan?

2. Who participated in its design/development (individuals/organisations)?

   - How were the stakeholders selected and engaged?
   - What steps were taken to ensure their participation?
   - What has been the role of the various stakeholders so far?

3. How is the Scheme designed to meet the health needs in the target communities?

   - How is the programme addressing the health needs in the target communities?
   - What was the role of the community in identifying these needs?
   - In your view, what alternative programme would better address the health needs, and why?

4. What is the current human resource management capacity at federal and state levels?

   - In the context of expansion through the MSS, how was the HRM capacity analysed prior to implementation?
   - How was this used to inform the MSS plan?

5. What will you consider as the key achievements in the management and coordination of the Scheme (both at central and local levels)?

- What is the current management and coordination structure for the Scheme?
- Has the management and coordination structure/team ever changed, why?
- How does the management/coordination structure enhance the operations and effectiveness of the Scheme?
- How would you rate the performance of the management/coordination structure?

6. What mechanisms are in place for building partnership and consensus among key stakeholders?

- Who are the collaborators and strategic partners on the Scheme?
- What kinds of relationships do the collaborators and partners maintain on the Scheme?
- How receptive are these collaborators to the Scheme?
- What are the gains and the challenges of the present partnership maintained on the Scheme?
- What mechanisms are in place to ensure that community members actively participate in the Scheme?
- How has the mechanism enhanced community participation and the effectiveness of the Scheme?

7. How will you describe the human resource situation for the Scheme?

- How many midwives did you plan to deploy to MSS facilities?
- How many qualified midwives have been deployed to the MSS PHC facilities?
- How many MSS PHC with 4+ midwives?
- How many MSS PHC with less than 4 midwives?
- How many midwives deployed have stopped working under the Scheme, and why?
- What are the strategies in place to retain and attract midwives to the Scheme?
- How many midwives deployed are trained on all LSS and IMCI?
- How many are not trained on all LSS and IMCI, why?

8. What is the incentive package for midwives on the Scheme?

- How was the incentive package to midwives agreed?
- How does this differ from the package for midwives not on the Scheme?
- Who is responsible for providing the incentives and were these obligations met in a timely manner?
- What plans are in place to sustain this in the long term?

9. What mechanisms are in place to ensure PHCs are supported with basic equipment/commodities and supplies?

- How does the mechanism ensure PHC support with basic equipment/commodities and supplies?

10. What are the mechanisms in place to ensure effective monitoring, evaluation and ICT support system?

- How are these mechanisms enhancing regular data collection, reporting, analysis and use in the Scheme?
- What proportion of facilities regularly submits timely, complete and accurate reports?

11. What strategies are employed to ensure effective programme communication?

- What mechanisms are in place to disseminate information and receive feedback on the Scheme?
- How are the communication strategies influencing attraction to the Scheme?

12. How many PHC are supported on the MSS?

- What would you consider as the strengths and weaknesses of the criteria for selection of health facilities?
- What improvements would you like to make in the process for selection of health facilities?

13. Identify sources of resource supports received so far and details of such supports to the Scheme:

- Does the Scheme have a budgetary allocation at the federal, state and local levels?

- What are other finances and resources available to the Scheme?

- What measures are in place to maintain regular finances and resources to the Scheme?

14. How has the Scheme made progress towards the core objectives? (Data from existing reports)

15. Identify areas in which the Scheme would have to reposition to ensure optimal results:

- What specific actions are taken to overcome specific areas of need, e.g. technical/capacity building, funding, leadership, infrastructures, human resources etc.?

- What challenges do you foresee in meeting the goals of the Scheme?

- What specific steps will be required for the Scheme to meet the goals?

In-Depth Interview Guide MSS Core Management Team Members (State & Local Levels)

1. The initiative of the MSS is said to be an emergency stopgap to shortage of skilled attendance at the primary health care level. What role did you play in its design?

- Which stakeholders participated in its design/development (individuals/organisations)?
- How were the stakeholders selected and engaged?
- What steps were taken to ensure their participation?
- What has been the role of the various stakeholders so far?
- What are the linkages if any with you state's Human Resource for Health plan?
- Do you have an operational plan for implementation of the Scheme in your state?

3. How is the Scheme designed to meet the health needs in the target communities?

- How is the programme addressing the health needs in the target communities?
- What was the role of the community in identifying these needs?
- In your view, what alternative programme would better address the health needs, and why?

4. What is the current capacity human resource management capacity in your state/LGA?

- In the context of expansion through the MSS, how was the HRM capacity analysed prior to implementation?
- What steps have been taken as a result of the MSS?

5. What will you consider as the key achievements in the management and coordination of the Scheme in your state/LGA?

- What is your role/other players' role in your state/LGA in managing and coordinating the MSS implementation in your state?
- Has the management and coordination structure/team ever changed? Why?
- How does the management/coordination structure enhance the operations and effectiveness of the Scheme?
- What would you change in the mechanism for management and coordination of the Scheme?

6. What mechanisms are in place for building partnership and consensus among key stakeholders in the state/LGA?

- Who are the key partners on the Scheme?
- Do you have a forum in which stakeholders regularly meet to discuss the MSS implementation? What are these?
- How receptive are these collaborators to the Scheme?
- What are the gains and the challenges of the present partnership maintained on the Scheme?
- What mechanisms are in place to ensure that community members actively participate in the Scheme?
- How has the mechanism enhanced community participation and the effectiveness of the Scheme?

7. How will you describe the human resource situation for the Scheme?

- How many qualified midwives have been deployed to the MSS PHC facilities?
- How many MSS PHC with 4+ midwives?
- How many MSS PHC with less than 4 midwives?
- How many midwives deployed have stopped working under the Scheme, and why?

- What are the strategies in place to retain and attract midwives to the Scheme?

- How many midwives deployed are trained on all LSS and IMCI?

- How many are not trained on all LSS and IMCI, and why?

8. What incentives does your state/LGA provide for midwives on the Scheme?

- How does this differ from the package for midwives not on the Scheme?

- How well did the state/LGA meet the obligations for providing incentives and what were the challenges?

- What plans are in place to sustain this in the long term?

9. What basic equipment/commodities and supplies do you provide to PHCs as part of the MSS implementation?

10. What are the mechanisms in place for reporting progress on the Scheme?

- What proportion of facilities regularly submits timely, complete and accurate reports?

11. What mechanisms are in place to disseminate information and receive feedback on the Scheme?

- How are the communication strategies influencing attraction to the Scheme?

12. How many PHC are supported on the MSS and what was your role in selecting these?

- What would you consider as the strengths and weaknesses of the criteria for selection of health facilities?

- What improvements would you like to make in the process for selection of health facilities?

13. Identify sources of resource supports received so far and details of such supports to the Scheme?

- Does your state/LGA have budgetary provisions for the Scheme?

- What are other finances and resources available to the Scheme from your state/LGA?
- What measures are in place to maintain regular finances and resources to the Scheme?

15. Identify areas in which the Scheme would have to reposition to ensure optimal results?

- What specific actions are taken to overcome specific areas of need, e.g. technical/capacity building, funding, leadership, infrastructures, human resources etc.?
- What challenges do you foresee in meeting the goals of the Scheme?
- What specific steps will be required for the Scheme to meet the goals?

Key Informant Interview guide for members of MSS TWG/ development partners

1. What would you consider as the focus and strategic thrust of the MSS?
   - How has the TWG directed the operationalisation of the Scheme?
   - How have the Scheme's strategic thrusts been effectively implemented?
   - Does the Scheme have an operational plan?
   - What was the process of developing it and who were involved in its development?
2. How is the Scheme designed to meet the health needs in the target communities?
   - How is the programme addressing the health needs in the target communities?
   - In your view, what alternative programme would better address the health needs, and why?
3. What are the key responsibilities of the TWG to the MSS?
   - How has the group discharged these responsibilities to the Scheme?
   - How have these roles enhanced the smooth implementation and effectiveness of the Scheme?
   - Has your organisation committed any resources to the MSS implementation? What are these (quantify where possible)?
   - How will you describe the overall performance of the working group?
4. How does the TWG operate?
   - What is the mode of operations of the group?
   - Does the group have operational guidelines?

- Is the group operating according to these guidelines?
- How often does the group meet mandatorily?
- Is the group able to meet this mandatory meeting requirement? If No, why?

5. What are some of the challenges facing the group in performing its other mandatory functions?

6. How does the Scheme's structure enhance the operations and effectiveness of the group?
   - Identify areas of conflicts in roles and responsibilities of the group and the management and coordinating team? Why are these conflicts?
   - What actions are taken to minimise the negative effects of conflicting roles?

7. What would you consider as the key achievements of the MSS?
   - What are the outcomes of the programme activities under the MSS?
   - How would you describe the overall performance considering the strategic thrust and objectives?

8. In your view, what are the major strengths and weaknesses of the Scheme?

9. What would you consider as the major challenges of the Scheme?

10. What are the critical and strategic issues you think the Scheme should address in the years ahead?
   - How should the Scheme be repositioned to remain relevant in the scheme of health systems strengthening?
   - What would you do differently to increase the present level of effectiveness of the Scheme?
   - What should the Scheme management do differently to increase the effectiveness of the Scheme?

In-Depth Interview Guide: Midwives under the MSS

1. Can you tell me how long you have been working on the MSS? How did you become involved in the MSS and what motivated you to enrol in the Scheme?
   - What was your status (what were you doing) before you enrolled in the MSS?

2. How does the Scheme differ from your previous experience as a midwife (if previously practicing)?

3. What training or capacity building have you received since joining the Scheme?
   - How has this enhanced your skills and ability to provide services?

4. What services do you provide as an MSS midwife?

- How many deliveries have you taken in the last month?
- What changes in your opinion have taken place in terms of service utilisation since the start of the Scheme?
- Who provides guidance to you for service provision and how often is this provided?
- What do you do with clients who have complications?

5. What working materials if any were you provided when you joined the Scheme?

- Does the facility have all the essential equipment/commodities/drugs for providing services?
- Who is responsible for providing these?
- How long does it take to restock when you run out?

6. How do you keep records of your work?

- What forms do you have for reporting?
- How often do you fill these?

7. What incentives do you receive from the MSS? (salary top-up, housing, transportation, training, other allowances)

- Who is responsible for each of these?
- Are the financial components paid regularly? If not do you know why?
- Do you reside in accommodation provided as part of the Scheme? Where?
- How does your pay and incentive package differ from those of your non-MSS contemporaries?

8. What do you consider to be your major challenges?

9. In your view, what aspects of the Scheme can be improved to make your work more effective?

Focus Group Discussion Guide for Midwives under the MSS

4. Can you tell me how you became involved in the MSS and what motivated you to enrol in the Scheme?
   Probes:

   What was your status (what were you doing) before you enrolled in the MSS?

   Are you achieving/not achieving your aim of enrolling in the MSS and why?

5. Can you describe how you have worked to support the achievements of MSS objectives over the years?
   Probes:

   What are the specific activities you carried out in support of the Scheme objectives?

   Do you know any midwives who have left the Scheme? What was the reason for leaving?

6. Can you describe specific landmark achievements of the MSS over the years you have been on the Scheme and the factors that have contributed to these achievements?
   Probes:

   Who are the people that have made these achievements possible?

7. In describing the operations of the MSS, what is the chronology of events that has helped to shaped the Scheme over the years?
   Probes:

   What are the events that marked key developments of the Scheme?

8. In what ways have the Scheme activities matured or evolved over the years?
   Probes:

   Are there changes to the Scheme activities and what are the changes?

   What key factors are responsible for modification or sustenance of the activities?

9. What were the key challenges affecting the Scheme operations over the years?

   Probes:

   How were these challenges resolved? (Capacity, service delivery, result and sustainability)

10. Describe some of the lessons learnt over the years and how these have resulted in best practices in the Scheme?

    Probes:

    What should be changed? What should be continued… as is (keep it the same) or with revision (continue it but change some things)?

In-Depth Interview guide: Midwives not under the MSS

1. Can you tell me what you know about the MSS?

   - Why are you not part of the Scheme?

2. How does your facility differ from MSS facilities?

   - What advantages or not do you perceive the MSS facilities to have?

3. What training or capacity building have you received since you commenced work as a midwife?

   - How has this enhanced your skills and ability to provide services?
   - (Why have you not received any training?)

4. What services do you provide as a midwife?

   - How many deliveries have you taken in the last month?
   - Who provides guidance to you for service provision and how often is this provided?
   - What do you do with clients who have complications?

5. Does your facility have all the essential equipment/commodities/drugs for providing services?

   - Does the facility have all the essential equipment/commodities/drugs for providing services?

- Who is responsible for providing these?

- How long does it take to restock when you run out?

6. How do you keep records of your work?

- What forms do you have for reporting?

- Can you describe how you complete these? How often?

7. What pay/incentives do you receive? (salary top-up, housing, transportation, training, other allowances or non-financial benefits/incentives)

- Who is responsible for each of these?

- Are the financial components paid regularly? If not, do you know why?

- Do you reside in accommodation provided as part of the Scheme? Where?

- How does your pay and incentive package differ from those of your MSS contemporaries?

- How does your pay and incentive package differ from those of your non-MSS contemporaries?

8. What do you consider to be your major challenges?

9. In your view, what aspects of your work can be improved to make your work more effective?

- If given a choice, would you like to join the MSS? Why?

- Would you like your facility to be included in the Scheme? Why?

In-depth interview guide for midwives who have left the MSS

1. What are your thoughts on the MSS?

2. How was your experience working on the Scheme?
   - Can you tell me how long you worked on the MSS? How did you become involved in the MSS and what motivated you to enrol in the Scheme?
   - What was your status (what were you doing) before you enrolled in the MSS?

3. What were your reasons for leaving the Scheme? (Explore these in detail)

4. What training or capacity building have you received on joining the Scheme?

- In your opinion, did this enhance your skills and ability to provide services?

5. What services did you provide as an MSS midwife? In your opinion,

- How has the MSS affected service utilisation?
- Who provided guidance to you for service provision and how often was this provided?
- What did you do with clients who had complications?

6. What incentives did you receive from the MSS? (salary top-up, housing, transportation, training, other allowances)

- Who was responsible for each of these?
- Were the financial components paid regularly? If not, do you know why?
- Where did you reside in when you were part of the MSS? Who provided this?

7. Do you think the MSS is achieving the goals for which it was set up? How?

- What do you consider to be your major challenges of the MSS?

8. In your view, what aspects of the Scheme can be improved to make it work more effectively?

Focus Group Discussion Guide: Members of Community Groups, VDC/CDC and WDC

1. What would you consider as the focus and intention of the MSS?
   - To what extent have these intentions been effectively implemented or achieved?
2. What are your roles and responsibilities in the implementation of the MSS?
   - How have you discharged these responsibilities to the Scheme?
   - How are you involved in the planning and operations of the MSS programme?
   - What kinds of relationship do you have with the managers in the LGA headquarters/state/federal levels?
   - What other special health/related interventions are domiciled in your facility? Who do you relate to in terms of reporting your activities? (Describe by activity)

3. How is the Scheme designed to meet the health care needs in the community?

- What was the process of developing it and were you involved in the development?

- How is the programme addressing the health care needs in your community?

- How will you describe the overall impact of the Scheme on service provision in your facility?

4. How does your community group operate?

- What is the mode of operations of the group?

Does the group have operational guidelines?

5. What would you consider as the focus and intention of the MSS?

- To what extent have these intentions been effectively implemented or achieved?

6. What are your roles and responsibilities in the implementation of the MSS?

- How have you discharged these responsibilities to the Scheme?

- How are you involved in the planning and operations of the MSS programme?

- What kinds of relationship do you have with the facility managers and the managers in the LGA headquarters?

- What other health activities does your group participate in? Who do you relate to in terms of reporting your activities? (Describe by activity)

- How have your roles enhanced the smooth implementation and effectiveness of the Scheme?

- Is the group operating according to these guidelines?

- How often does the group meet mandatorily?

- Is the group able to meet this mandatory meeting requirement? If No, why?

7. What are some of the challenges facing your group in performing other mandatory functions?

8. How does the MSS structure enhance the operations and effectiveness of your group?

- Identify areas of conflicts in roles and responsibilities of your group and other groups? Why are there conflicts?

- What actions are taken to minimise the negative effects of conflicting roles on the MSS activities?

9. What would you consider as the key achievements of your group since inception on the MSS?

- What are the outcomes and impact of your activities?

- How would you describe your overall performance considering the level of effectiveness of MSS?

10. In your view, what are the major strengths and weaknesses of the Scheme?

11. What would you consider as the major challenges of the Scheme?

12. What are the critical and strategic issues you think the Scheme should address in the years ahead?

- How should the Scheme be repositioned to remain relevant in the scheme of health care to the community?

- What would you do differently to increase the present level of effectiveness of the Scheme?

- What should the Scheme management do differently to increase the effectiveness of the Scheme?

Focus group discussion guide for service users

1. What would you consider as the focus and intention of the MSS?

- To what extent have these intentions been effectively implemented or achieved?

2. How is the Scheme addressing your health care needs?

- In terms of services, has anything changed since the onset of the MSS? In what ways?
- What services do you receive here?
- How are the drugs and other materials for your treatment here provided?
- Apart from this facility, what other places do women go to for health care, pre-delivery care, delivery, and post-delivery care?
- What are the best days or times of the day to come for services?
- How will you describe the overall impact of the Scheme on health care in your community?
- In your view, what alternative programme would better address your health care needs, and why?

3. What are some of the challenges you face in coming here to receive services? (Explore each one)

4. In your view, is the Scheme relevant to health care to the community?

- What would you do differently to increase the present level of effectiveness of the Scheme?
- What should the Scheme management do differently to increase the effectiveness of the Scheme?

In-depth interview guide for community-based organisations providing health services in the locality of MSS facilities

1. What would you consider as the focus and strategic thrust of the MSS?

- How have the Scheme's strategic thrusts and activities been effectively implemented?

2. What is the focus of your organisation's work?

- How do you fund the organisation's work
- What linkages exist between you and public/private/other providers of health services in this community?

3. What are your roles and responsibilities in the implementation of the MSS?

- How have you discharged these responsibilities to the Scheme?
- How are you involved in the planning and operations of the MSS programme?
- What kinds of relationship do you have with the management team on the MSS/facility managers?
- How have your roles enhanced the smooth implementation and effectiveness of the Scheme?

4. How is the Scheme designed to meet the health care needs in this community?

- What was the process of developing it and were you involved in the development?
- How is the programme addressing the health care needs in your community?
- How will you describe the overall impact of the Scheme on health care in your community?
- In your view, what alternative programme would better address the health care needs, and why?

4. How has the MSS impacted on the operations of your organisation?

- Identify areas of conflicts which may have arisen as a result of the MSS

- What actions are taken to minimise the negative effects of conflicting roles on the MSS activities?

5. What would you consider as the key achievements of your organisation since inception on the MSS?

- What are the outcomes and impact of your activities?

6. In your view, what are the major strengths and weaknesses of the Scheme?
7. What would you consider as the major challenges of the Scheme?
8. What are the major issues you think the Scheme should address in the years ahead?

- How should the Scheme be repositioned to remain relevant?

In depth interviews: MSS Facility Managers

1. What would you consider as the focus and strategic thrust of the MSS?

- How have the Scheme's strategic thrusts and activities been effectively implemented?

2. What are your roles and responsibilities in the implementation of the MSS?

- How have you discharged these responsibilities to the Scheme?
- How are you involved in the planning and operations of the MSS programme?
- What kind of relationship do you have with the management team on the MSS?
- How have your roles enhanced the smooth implementation and effectiveness of the Scheme?

3. How is the Scheme designed to meet the health care needs in your community?

- What was the process of developing it and were you involved in the development?

- How is the programme addressing the health care needs in your community?

- How will you describe the overall impact of the Scheme on health care in your community?

- In your view, what alternative programme would better address the health care needs, and why?

5. How long you have been working on the MSS as a facility manager?

- What training or capacity building have you received since joining the Scheme?

- How has this enhanced your skills and ability to provide services and support midwives on the Scheme?

- What remuneration do you receive as an MSS facility manager (salary top-up/accommodation/others)? Who is responsible for these?

- What processes are in place for providing oversight to your work in this facility? Explain in detail

- What linkages exit between your facility and other facilities in the locality/ other service providers, e.g. CBO/NGOs/ the WDC?

4. How would you rate the MSS midwives compared to those not on MSS?

- How many MSS and non-MSS midwives work in this facility? What services are provided by each category?

- In your opinion, what are the differences if any in terms of their skills?

- What changes in your opinion have taken place in terms of service utilisation since the start of the Scheme?

- What challenges, if any, do you experience with having MSS and non-MSS midwives in your facility?

5. What working materials if any have been provided to this facility as part of the MSS? (check list)

- Does the facility have all the essential equipment/commodities/drugs for providing services?

- Who is responsible for providing these?

- How long does it take to restock when you run out?

6. What would you consider as the key achievements of your facility since inception on the MSS?

- What should be done differently to increase the present level of service delivery at the facility?

7. In your view, what are the major strengths and weaknesses of the Scheme?

- What would you consider as the major challenges of the Scheme?

8. What are the major issues you think the Scheme should address in the years ahead?

- How should the Scheme be repositioned to remain relevant?

Desk Review Guide

1. What are the overall health indicators of the communities in MSS target areas?
2. What are the key health needs of the communities in MSS target areas?
3. What is the health care delivery situation in the MSS target areas?
4. What is the estimated population of the communities in the MSS target areas?
5. What is the number of health facilities (PHC, General, Specialists, etc.) in MSS target areas?
6. What is the overall infrastructural, personnel, basic equipment/commodities and supplies situation of the PHC facilities in MSS target areas?
7. What is the existent health service utilisation level in the target areas?
8. What are the strategic thrusts and priorities of the MSS?
9. What is the baseline situation of the MSS core indicators?
10. What are the guiding principles, policies and legislation for the MSS?
11. What are the resources channels to the MSS initiatives?
12. Who are the stakeholders on the MSS initiative?
13. What are the stakeholder interests and commitments to the Scheme?
14. What is the process taken to develop the MSS initiative?

15. How is the initiative designed to respond to the health needs of communities?

16. What are the operational and implementation plans for the Scheme?

17. What are the activities carried out and how are they aligned with the plans?

18. What are the major changes to the operations of the Scheme and how did the changes come about?

Appendix 9: Overview of Framework Analysis steps undertaken

Research Objectives 1,2,3&4	Data Analysis Steps
Objective 1: To examine the Midwives Service Scheme and evaluate the extent to which the design of the intervention draws effectively on local context, resources, needs and population preferences.	Step 1: Familiarisation with data. Reading transcripts, listening to tape recordings, studying observational notes, defining concepts, listing key ideas and recurrent themes.
Objective 2: To identify and describe factors that promoted or constrained implementation of the Scheme in two states.	Step 2: Identifying thematic framework. Identification of key issues, concepts and themes, and emergent issues. Setting up a thematic framework within which the data can be sifted and sorted. Also analytical themes arising from recurrence.
Objective 3: To assess changes (intended and unintended) in the district and national health systems as a result of the Scheme in terms of: a) attractiveness, recruitment and retention; b) leadership/governance, service delivery, logistics/medical products.	Step 3: Categorisation and coding of data including data drawn from observation, interviews and document reviews.
	Step 4: Charting and comparison of codes to identify patterns, commonalities, differences and associations.
Objective 4: To provide evidence-based and feasible recommendations for programme managers, policy makers, and researchers in the design and implementation of rural retention interventions.	Step 5: Mapping and interpretation. Seeking explanations explicit or implicit and drawing conclusions.

Appendix 10: Start list of Codes

DESIGN

CONTEXT	
LED-FED	Federal-level leadership and commitment
LED-STATE	State-level leadership and commitment
LED-LG	Local government leadership
POLICY-CXT-FED	Policy context at federal level
POLICY-CXT-STATE	Policy context at state level
POLICY-CXT-EB	Policy context in Ebonyi state
POLICY-CXT-KD	Policy context in Kaduna state
POLICY-CXT-LG	Policy context at LG level
ENG-FED	Engagement and participation of federal level actors
ENG-STATE	Engagement and participation of state level actors
ENG-LGA	Engagement and participation of local government actors
ENG-COMM	Engagement and participation of community-level actors/WDCs
ENG-DEVPT	Engagement and participation development partners
HRM-FED	HRM systems/context at federal level
HRM-STATE	HRM systems/ context at state level
HRM-LGA	HRM systems/context context at local government level
FIN-FED	Federal level financing context and financing of MSS
FIN-STATE	State level financing context and financing of MSS
FIN-LGA	Local government financing context and financing of MSS
FIN-DEVPT	Financing from development partners and donors
FIN-COMM	Financial contribution from communities
PROCESS	
PART-DSG-FED	Participation/role in design process – federal actor
PART-DSG-STATE	Participation/role in design process – state actor

PART-DSG-LG	Participation/role in design process – LG actor
DSG-PROCESS-PUB	Official process taken in the design
DSG-PROCESS-PRIV	Subterranean/unofficial processes taken
LOCAL EVIDENCE	
EVID-GEN	How evidence was generated
EVID-MM	Evidence on maternal mortality
EVID-HR	Evidence on human resources for health availability, distribution and other related factors
EVID-COMM-PREF	Evidence related to community needs and preferences
EVID-MW-PREF	Evidence related to midwife preferences in terms of what their needs are and what will make them stay in rural locations
EVID-USE	How evidence was used
CHOICE OF INTERVENTION	
IC	Intervention choice
IC-MW	Incentives for midwives
IC-MW-EDU	Education incentive
IC-MW-FIN	Financial incentive
IC-MW-WORK	Working environment
IC-MW-LIVING	Housing and living environment
IC-MW-CAR	Professional and career development
IC-FS	Support to facilities and other health systems strengthening measures
IC-FS-INFR	Infrastructure upgrade
IC-FS-DRUGS	Logistics, medical products and drug supplies
IC-FS-REF	Referral systems and related support

IMPLEMENTATION

IMPL-READY	Implementation readiness

| IMPL-FAC	Facilities selection
IMPL-START	Implementation commencement process
IMPL-RECRUIT	Recruitment and posting of midwives
IMPL-CHALL	Implementation challenge
IMPL-ENABLE	Factor enabling/supportive of implementation
MOU-FED	Implementation of MOUs by federal government
MOU-STATE	Implementation of MOUs by state government
MOU-LGA	Implementation of MOUs by LGA government
IMPL-FUND-FED	Funding of implementation by federal government (elements other than financial payments to midwives)
IMPL-FUND-STATE	Funding of implementation by state government (elements other than financial payments to midwives)
IMPL-FUND-LGA	Funding of implementation by local government councils (elements other than financial payments to midwives)
IMPL-INCENTIVE-FED	Payment of monthly remuneration by federal government
IMPL - INCENTIVE-EB	Payment of incentives by Ebonyi State government
IMPL - INCENTIVE-KD	Payment of incentives by Kaduna State government
IMPL-INCENTIVE-LG	Payment of incentives by local government council
IMPL-OTHER	Other financial incentives
IMPL-ACCOMM	Implementation of accommodation component for midwives
IMPL-EDUCATION	Capacity building and training for midwives
IMPL-MGT	Management and coordination
IMPL-EQUIP	Implementation of logistics, medical supplies and drugs component
IMPL-WDC	WDC and community participation in services at facility level and community mobilisation activities
IMPL-REPORT	Monitoring and reporting at all levels of implementation

IMPL-FAC-DELIVERY	Deliveries in the health facilities
HOME-DELIVERY	Deliveries at home
ROLE-TBA	Participation of traditional birth attendants and other community-based resource persons and their formal or informal roles
IMPL-FAC-ATTEND	Facility attendance
IMPL-SERV	Implementation of services planned under the Scheme
IMPL-MW-AVAIL	Midwives availability at facilities and implementation of 24-hr services
IMPL-SUPERVISE	Mentoring and supervision of midwives
IMPL-REF	Referrals from PHC facilities
REF-FOLLOW	Follow up of referred clients to referral centres/community
IMPL-MW-CHAL	Challenges experienced by midwives in the course of implementation
IMPL-COMM-CHAL	Challenges experienced by community members in accessing services in the facilities

RESULTS

ATTRACT-MW	Midwives expressing interest in MSS
RECRUIT-MW	Contracting and posting of midwives
RETAIN-MW	Retention of midwives in location of posting
ABSENT-MW	Absence of midwives from posting location without appropriate clearance
OUT-LEAD	Positive health systems strengthening outcome of MSS implementation on leadership and governance
OUT-SERV	Positive outcome on service delivery
OUT-DRUG	Positive outcome on logistics/drugs/supplies

OUT-FIN	Positive outcome on financing
OUT-INFO	Positive outcome on health information
OUT-AVAIL-MW	Midwife availability
UNINTEDED	Unintended and negative outcomes of implementation
CHALL-HS	Challenge to health system as result of MSS implementation

Appendix 11: Sample text search query

Text Search Query - Results Preview

supervision
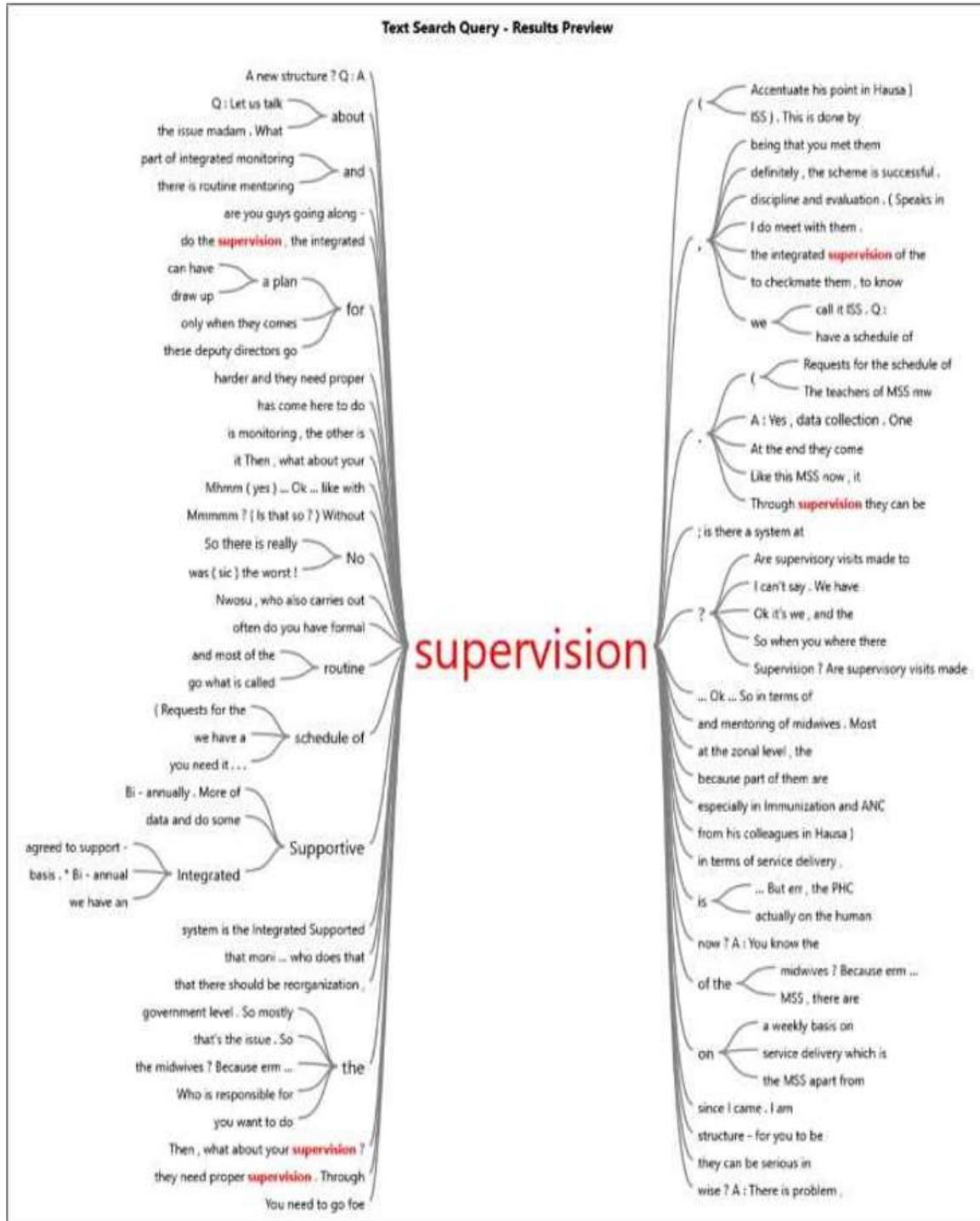
Appendix 12: LSHTM Ethics approval

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
United Kingdom
Switchboard: +44 (0)20 7636 8636

www.lshtm.ac.uk

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Observational / Interventions Research Ethics Committee

Akudo Ikpeazu
DrPH student
GHD/PHP
LSHTM

7 August 2012

Dear Dr Ikpeazu,

Study Title:	Can the Midwives Services Scheme (MSS) present an effective and systems strengthening response to the shortages in human resources for maternal and child health services in Nigeria?
LSHTM ethics ref:	6230

Thank you for your letter of 3 August 2012, responding to the Observational Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

Approval is dependent on local ethical approval having been received, where relevant.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
LSHTM ethics application	n/a	02/07/2012
Protocol		28/03/2012
Information Sheet	V2	03/08/2012
Consent form	V2	03/08/2012

After ethical review

Any subsequent changes to the application must be submitted to the Committee via an E2 amendment form. All studies are also required to notify the ethics committee of any serious adverse events which occur during the project via form E4. At the end of the study, please notify the committee via form E5.

Yours sincerely,

Professor Andrew J Hall
Chair
ethics@lshtm.ac.uk
http://intra.lshtm.ac.uk/management/committees/ethics/

Improving health worldwide

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Appendix 13: NHREC Ethics Committee Approval

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- 07/05/2012
NHREC Approval Number NHREC/01/01/2007-10/06/2012
Date: June 16, 2012

Re: Can the Midwives Services Scheme (MSS) present an effective and systems strengthening response to the shortages in human resources for maternal and child health services in Nigeria?

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

Name of Principal Investigator: Akudo Ikpeazu

Address of Principal Investigator: Department Global Health and Development
Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine
Cell Phone No+234 803 787 9884

Date of receipt of valid application: 07-05-2012
Date when final determination of research was made: 10-06-2012

Notice of Full Committee Approval

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

This approval dates from 16/06/2012 to 15/06/2013. If there is 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, endeavor 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 NHREC. No changes are permitted in the research without prior approval by the NHREC except in circumstances outlined in the Code. NHREC reserves the right to conduct compliance visit your research site without previous notification.

Signed

Clement Adebamowo BMChB Hons (Jos), FWACS, FACS, DSc (Harvard)
Honorary Consultant Surgeon, Director, West African Center for Bioethics and
Chairman, National Health Research Ethics Committee of Nigeria (NHREC)

Appendix 14: Institutional approval from NPHCDA

National Primary Health Care Development Agency

Office of the Executive Director

Ref No ....

Date 23rd July, 2012

Plot 681/682 Port Harcourt Crescent,
Off Gimbiya Street,
Area 11,
P.M.B. 367, Garki, Abuja
Tel: 09 - 670 - 1778
Tel/Fax: 09 - 314 - 3630
E-mail: nphcdaabuja@yahoo.com

Dr. Akudo Ikpeazu
London School of Hygiene and Tropical Medicine
Keppel Street
London
WC1 7

APPROVAL TO CONDUCT YOUR PROPOSED RESEARCH PROJECT

Thank you for your interest in the Midwives Services Scheme (MSS) and refer to your request for permission to conduct a research project in our organization as part of your doctoral research work at the London School of Hygiene and Tropical Medicine (LSHTM), London, United Kingdom.

I hereby convey the Executive Director's approval for your research. We would provide the necessary linkages with our zonal offices to facilitate this process. We hope that the findings and recommendations would be shared with the organization at the end of the research.

I wish you the very best in your research.

Best wishes,

Dr M J Abdullahi.
Director
PHC Systems Development

* To develop a Sustainable Primary Health Care Service System which is equitable, affordable & qualitative through the participation of all Nigerian people, in partnership with all levels of Govt. And NGOS

Information sheet

Study title: Can the Midwives Services Scheme (MSS) present an effective and systems strengthening response to the shortages in human resources for maternal and child health services in Nigeria?

Principal Investigator (PI): Akudo Ikpeazu

Email contact: Akudo.Ikpeazu@lshtm.ac.uk; aikpeazu@yahoo.com

Phone contact: +44 (0) 755 306 4441 or +234 (0) 803 787 9884

Background

This study is a component of a doctoral degree being undertaken by the Principal Investigator (PI) at the London School of Hygiene and Tropical Medicine. The PI is currently conducting research as part of her doctoral degree requirements.

Study aim and conduct

The Midwives Service Scheme (MSS) was started four years ago to improve the number of trained midwives available to rural communities thereby improving maternal health. The aim of this research is to understand the successes and failures of the MSS in providing trained midwives in rural areas and in improving the health care systems. It aims to provide recommendations and lessons to guide the design and implementation of other interventions aimed at improving the number of trained health workers in rural areas. At the end of the study, the PI will write a report and articles to share with public health managers, policy makers and the wider public.

Your participation in this study is important to provide input on your thoughts of how the Scheme is performing in relation to its aims and objectives as well as recommendations for effective delivery of its goals.

Your participation

Your participation in this study via interviews is entirely voluntary and confidential. You may withdraw at any time without having to give a reason. If you choose to take part, you will be asked to sign a consent form before you are interviewed. If you agree, the interview may be tape-recorded. You may choose not to have the interview recorded and still participate. You may be asked for a second interview. You may choose not to have this second interview without reason.

How confidentiality will be ensured:

The PI will be responsible for maintaining confidentiality and would keep all records of interviews, focus group discussions and consent forms in a secure area. The transcripts of interviews and focus group discussions are available to only the PI. Participants will only be identified by a study number, not by name. Information obtained through interviews and observation will be used in aggregate form. No quotes or other results arising from your participation in this study will be included in any reports, even anonymously, without your agreement. Where transcripts are quoted no reference will be made to your name, age, gender or job title and only following your approval. All transcripts will be kept by the PI in a secured file and for the duration of the doctorate candidature after which they will be destroyed.

Compensation:

You will not receive any compensation or financial reimbursement for taking part in the study. Your participation is entirely voluntary.

Benefits:

You and your office will have access to the final report of this study. The recommendations from the study may help to strengthen the MSS, Nigeria's approaches to improving maternal health and some aspects of your work.

Ethical approval:

This study has been approved by the London School of Hygiene and Tropical Medicine's Research Ethics Committee and the National Health Research Ethics Committee (NHREC) in Nigeria.

If you have any further questions or queries about the study please do not hesitate to contact me at Akudo.Ikpeazu@lshtm.ac.uk or my supervisor Dr. Dina Balabanova on +44 (0) 207 927 2104; Dina.Balabanova@lshtm.ac.uk

Consent Form

Study title: Can the Midwives Services Scheme (MSS) present an effective and systems strengthening response to the shortages in human resources for maternal and child health services in Nigeria?

Principal Investigator (PI): Akudo Ikpeazu

Email contact: Akudo.Ikpeazu@lshtm.ac.uk; aikpeazu@yahoo.com
Phone contact: +44 (0) 755 306 4441 or +234 (0) 803 787 9884

I have read the information sheet concerning this study and I understand the reasons for the study and what would be required of me if I take part in it.

All my questions concerning this study have been answered by Akudo Ikpeazu

I understand that at any time I may withdraw from this study without giving a reason and without affecting my work or my normal care and management.

I agree to take part in this study

Yes_____   No_____

I agree that any information from my interview may be used in this study

Yes_____   No_____

I am aware that I will not be mentioned by name in this study, but my role in the design and implementation of the Midwives Service Scheme may be mentioned

Yes_____   No_____

I agree that I may be anonymously quoted in the report

Yes_____   No_____

I agree that my interview may be tape-recorded

Yes_____   No_____

Signed_____ Date_____

Appendix 16: Overview of Nigeria's geographical, political and health systems context

Geographical and political context

Nigeria is a large and ethnically and culturally diverse county in West Africa. The current estimated population of 168.8 million based on the most recent national census conducted in 2006 makes it the tenth most populous country in the world[341]. There are about 374 identified ethnic groups but three are considered to be majority: Hausa, Igbo and Yoruba. The population remains largely rural, with 30% living in urban areas.

Political map of Nigeria

Source: http://www.un.org/Depts/Cartographic/map/profile/nigeria.pdf
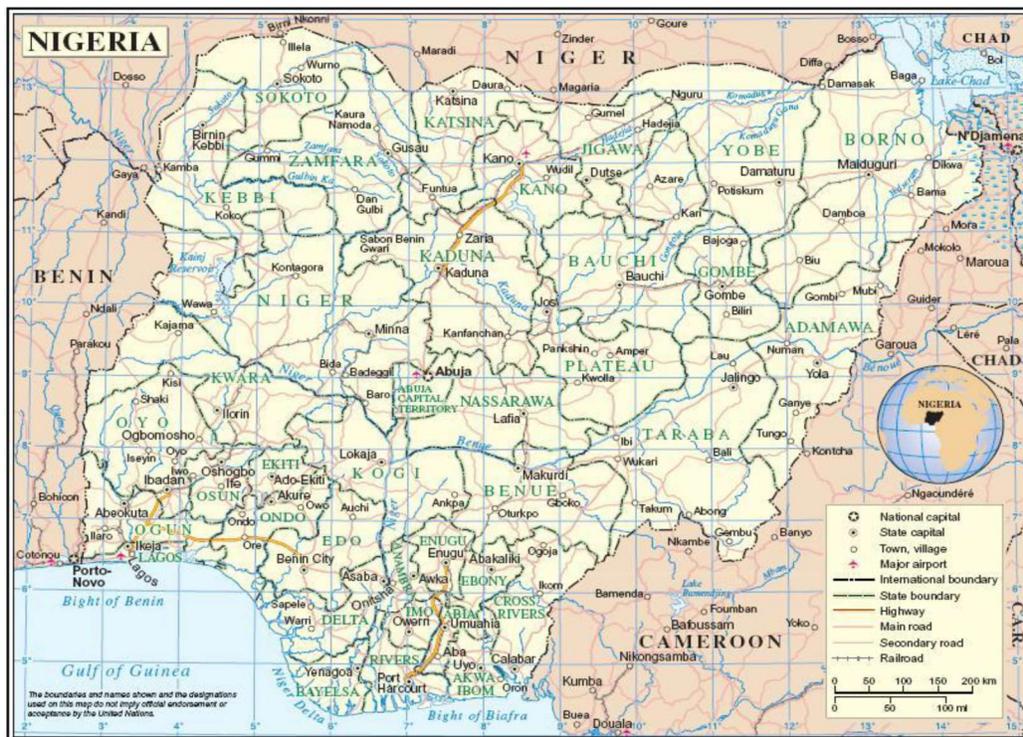
Nigeria is divided into 36 autonomous states and a Federal Capital Territory (FCT). These are grouped into six geopolitical zones: North East, North West, North Central, South South, South

East and South West. States are further divided into local government areas (774 in total) and political wards, based on size and population.

After about 30 years of military dictatorship ending with the adoption of democratic leadership in 1999, four consecutive national elections have been conducted. The national constitution of 1999 provides the current legal framework for the federation and divides power to the three tiers of government: federal, state and local government. There is a three-arm presidential system made up of the executive, legislature and judiciary. The country has enjoyed relative political stability but has recently experienced growing incidents of violence with underlying sectarian strife. Despite increasing attention to governance issues, the 2014 World Justice Report Rule of Law Index (2014), which includes measures for absence of corruption, openness of government, order and security and fundamental rights, ranks Nigeria in the bottom five of 99 countries.

Economic context

In 2010 Nigeria was reclassified as a lower middle-income country (LMIC). It ranks as the second largest economy in sub-Saharan Africa. Gross National Income (GNI) is estimated at US$ 1,440 per capita[650]. Nigeria recently rebased her Gross Domestic Product (GDP) to better reflect the structure of the economy. Official statistics indicate the economy has shown strong growth over the last decade and is believed to be well on the way to accelerated economic growth. Current GDP growth is estimated at 6.7% with marginal increases predicted for 2015 and 2016[650]. Over the years, agriculture has shifted from its dominant position in providing over 75% of employment and foreign exchange earnings, as the country has become more dependent on crude oil production. Non-oil products now account for only 5% of all exports[342]. The oil sector comprises 40% of the GDP but has shown slow growth in recent years raising concerns about continued dependence on oil[342].

In contrast to the official statistics reporting strong growth in the economy, indicators of the welfare of the population remain poor[342] with the human development index ranking 153 out of 186 countries[343]. Poverty and unemployment remain pervading problems. The per capita poverty rate rose from 62.6% in 2009 to 64.2% in 2013 and is higher in rural than urban areas. There is a

wide disparity in the rates across states (22.9% to 77.5%[651]). Improvement in employment rates has been minimal. Based on Nigeria's definition of unemployment (under 40 hours worked in the past week), an increase in the rate was recorded from 12% in 2006 to 24% in 2011[651].

The health system

Organisation and governance

Responsibility for health lies with the three tiers of government; according to the new *National Health Act 2014*, the Nigeria health system comprises Federal Ministry of Health (FMOH), States' ministries of Health (SMOH), parastatals of federal and state ministries of health, local government health authorities, ward and village health committees, private health providers and traditional/alternative health providers. The federal government is responsible for policy development and issuance of guidelines, and, in collaboration with states and LGAs, ensuring mechanisms are in place for their implementation. In addition, it provides for tertiary health services through teaching hospitals and federal medical centres. States provide secondary care through state hospitals. Although local governments are primarily responsible for primary health care implementation, all three tiers of government and various agencies participate in PHC implementation with the result that there are overlaps, duplications, confusion of roles, poor coordination and accountability[344].

Timing of key political and health systems events

|	National	Health sector
1960	**Independence**	
1962	**National constitution**	
1962-1968	**First national development plan**	
1970-1974	**Second national development plan**	
1975-1980	**Third national development plan**	
1981-1985	**Fourth national development plan**	
1987	→	**Bamako Initiative programme**
1992	**Establishment of NPHCDA** for the coordination of PHC implementation	
1999	Revisions to national **Constitution** →	Places **health on concurrent legislative list**
2003-2007	**National Economic Empowerment and Development Strategy (NEEDs)** (a poverty reduction strategy paper) →	**Health Sector Reform Program**
2004	→	**National health policy**
2007	→	**National Health Sector Investment Plan** (articulates a strategic health development agenda)
2007	→	**National HRH policy**
2008-2012		**National HRH Strategic Plan**
2008	**Vision 2020** (focused on national economic goals)	
2010-2015	→	**National Health Sector Strategic Development plan**
2014	→	**National Health Act** (proposes direct funding for PHC)

Health care financing

Nigeria spends considerably less ($5.0 per capita) on health care compared to countries in similar socioeconomic context[652]. Government revenues remain the main source of health care expenditure, the bulk of which comes from crude sales. Health financing also comes from household out-of-pocket spending (OOPS), social and community insurance and donor funding[358].

Nigeria was among African countries which signed into the 2001 Abuja Declaration on HIV/AIDS, Tuberculosis and other related diseases, in which leaders committed to increase health spending to 15% of their government's budget[653]. In Nigeria, public health expenditure as a percentage of GDP is still about 1% and one of the lowest in SSA[650]. While the 15% target is

not yet a reality, the need for greater investment in health has been recognised but significant constraints remain[654]. Among those are inefficiencies in public expenditure including in the transfers of constitutionally mandated resources to state and local governments by the federal government[652], limited institutional capacity, and unstable economic and political contexts culminating in decline in the quality of public health services[655]. Deteriorated infrastructure and equipment, lack of drugs and staffing shortages have contributed to low utilisation of public services and a shift to the private sector which accounts for over 70% of health expenditure. The new health act represents a major stride in that it provides for the establishment of a basic health care fund to which an annual allocation of at least 1% of federal government consolidated revenue is proposed[656].

Total health expenditure per capita[15] (US\$) in selected SSA countries
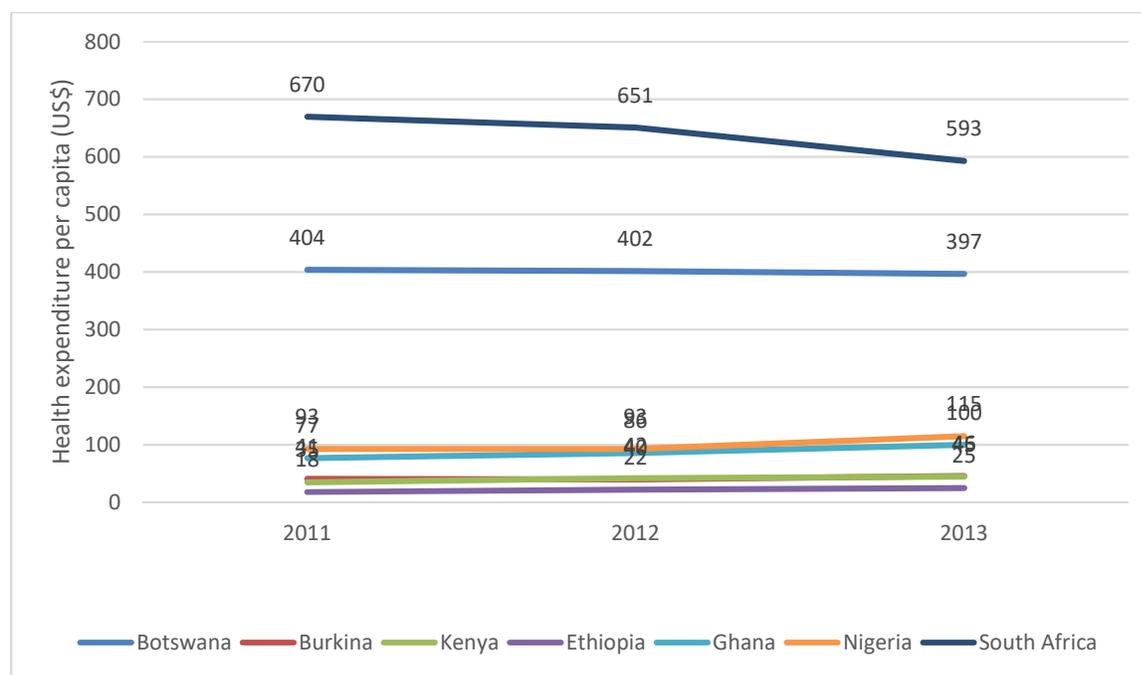
Source: World Development Indicators. World Bank. (Accessed 30 October 2015)

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[15] Total health expenditure is the sum of public and private expenditure as a ratio of total population. It covers the provision of preventive and curative health services, family planning activities, nutrition activities and emergency aid designated for health.

Public health expenditure as percentage of GDP[16] (US$)
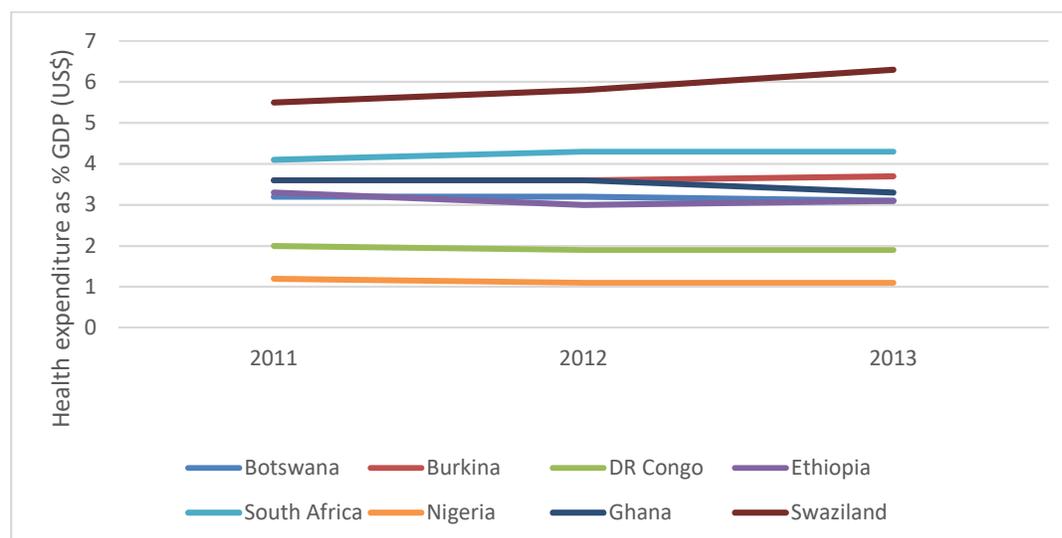
Source: World Development Indicators. World Bank. (Accessed 30 October 2015)

The National Health Accounts (NHA) framework provides estimates of resource flows and monitors changes in financing and service provision[657]. The most recent estimates indicate that households OOPS is 66 % compared to government spending of 29 % of total expenditure on health[658]. This implies that households bear the heaviest burden – a factor which significantly impacts health seeking behaviour[659, 660]. Risk-pooling mechanisms are still poorly developed. The two main existing mechanisms are the National Health Insurance Scheme (NHIS) and community-based health insurance (CBHI), which is still poorly documented. The NHIS commenced in 2005 but mostly covers government employees who contribute 5 % of their pay to complement the employers' 10 %.

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[16] Public health expenditure consists of capital and recurrent spending from government (central and local) budgets, external borrowing, grants and social health insurance funds.

Towards improved maternal health outcomes

The development of the MSS must be placed in the context of broader efforts to address maternal health, and to improve health worker availability and health systems performance. This section provides an overview of the policy evolution towards the MSS, key features of the Scheme and describes the organisation and implementation arrangements.

Initiatives to improve rural retention of health workers

As part of country-level efforts to improve the health systems, a health sector review was conducted in 2003, which informed the development of a health sector reform process (2003–2007).

In 2006 the National Human Resources for Health Policy was developed to address challenges in human resources including those of planning, recruitment, production, utilisation and retention[661]. The Policy identifies the need to institutionalise performance incentives and management systems that recognise hard work and service in deprived and unpopular locations, specifically addressing the need to implement incentive packages to attract and retain workers in rural and deprived areas. Recognition was given to the semi-autonomous nature of states and the limitation of the federal government in terms of its ability to enforce implementation by states. To this extent, there are disparities in the remuneration and incentive packages between the federal, states and local government health workforce as well as between states for the same categories of workers.

Prior to the MSS, there have been no comprehensive or centrally driven interventions to address rural retention of health workers. The initiation of MSS can be linked to a series of 'focusing events' in global health policy that drew attention and gradually penetrated national policy-making. These events are summarised in Appendix 19. In 2009, the Department of Family Health in the Federal Ministry of Health (FMoH) developed a proposal on rural posting of resident doctors of teaching hospitals and other tertiary institutions to improve maternal and child survival in Nigeria. This has thus far not been implemented. Individual state governments

have, however, attempted to develop and implement packages as recommended by the national policy; documented reports of efforts by five of the 36 states (Kano, Ondo, Jigawa, Lagos and Enugu) were available. Salary top-ups and provision of housing for doctors in rural and remote locations were implemented by all five states. In addition, Ondo state included car and housing loans for a five-year period linked to a rural posting. Jigawa state reported national and international training scholarships linked to a bonding scheme. In addition, a rural posting is a prerequisite to promotion to a managerial position within the state health service. A common feature across the reported interventions implemented by states is the lack of evaluation or evidence of whether they have been successful in improving retention[662].

Appendix 17: Overview of Human Resources for Health situation in Nigeria

Nigeria boasts one of the highest stocks of human resources in Africa after Eygpt and South Africa. Compared to the continent's average of 15 doctors and 72 nurses per 100,000 population it has about 39 doctors and 124 nurses per 100,000 population [663]. There are only about 34,923 doctors and 127,580 nurses registered in the country translating to health worker densities of 0.28 and 1.03 respectively per 1000 population (WHO 2007). This compares to the expected range of 1.0 -2.0 for doctors and 2.0-4.0 for nurses.

Health worker densities in selected African countries

Country	Physician density/1,000 pop		Nurse/Midwife density/1,000 pop	
	2005		2005	
African region	0.22	-	1.17	-
Nigeria	0.28	0.37 (2008)	1.70	1.49 (2008)
Ghana	0.15	0.11 (2008)	0.92	0.98 (2008)
South Africa	0.77	-	4.08	-
Botswana	0.40	0.04 (2007)	2.65	1.03 (2007)
Zambia	0.12	0.06 (2010)	2.01	0.77 (2010)
Malawi	-	0.02 (2008)	-	0.30 (2008)
Kenya	0.14	0.05 (2010)	1.15	0.41 (2010)

Source: Africa Health Workforce observatory (AHWO) country monitoring [available online]

Health worker population ratios at national level

Health worker category	2005		2006		2007	
	Number	Per 100,000 population	Number	Per 100,000 population	Number	Per 100,000 population
Physicians	39,210	30	49,612	35.4	52,408	37
Professional/ Regist. Nurses	124,626	100	125,292	89.5	128,918	91
Registered Midwives	88,796	68	88,996	63.6	90,489	63.9
Dentists	2,773	2	2,241	1.6	2356	1.7
Pharmacists	12,072	11	12,503	8.9	13,199	9.3
Pharmacy technicians	-	-	-	-	5,483	3.9
Lab scientists	-	-	-	-	12,703	9
Community health workers	-	-	-	-	19,268	13.6
Health Management personnel/Records	820	6.6	935	0.7	1,187	0.8

Source: National professional medical and health regulatory bodies & FMOH

The current densities of nurses, midwives and doctors are still too low to effectively deliver essential services especially within the context of meeting the 2015 health-related MDGs [664]. In addition to the low densities, there is a poor skills mix with 3,658 nurses, 2,369 midwives and 3,314 community health workers per 1,000 doctors. Although recent reports indicate a decline in

health worker migration to foreign countries, Nigeria still faces the challenge of inadequate production and inequitable distribution of its health workforce [665].

Approximately two-thirds of the Nigerian population lives in rural areas. However, there is a higher concentration of skilled health workers in urban areas with rural facilities being manned mostly by Community Health Workers, and in the private sector as against the public. The Urban/rural distribution is mostly driven by poor health and social infrastructure in rural areas and contributes significantly to inequities in health. Available records confirm that the shortages are more apparent in the north compared to the south and in some states than others. While the national average estimated for doctor per 100,000 population is 12, the north east and north west zones have as low as 4. For midwives, compared to the national average of 21, the north east and north west have 18 and 11 respectively [665]. A 2006 reported about three nurses/midwives per primary health facility with a laboratory worker in only half of the facilities. It further indicates that in rural facilities midwives are few and difficult to find [664].

There is a dearth of current and reliable data on the health workforce. The most recent is presented here and mostly relies on estimates provided by professional registration bodies. Some important indices such as annual budget and total per capita spending on HRH, quality and performance are not available. Although there is insufficient data to enable calculation of average salary per health worker category and ratio of salary level compared to other professionals, repeated strikes related to low wages and incentives have occurred in recent years. There are major disparities in remuneration packages and schemes of service in the public sector especially for nurses and midwives. Staff on the federal payroll earn significantly better than their colleagues employed by state and local governments. The result is that health workers have a preference for federal or state employment.

Human resource management including HRH management information systems is relatively weak but more so at the state and local government levels. Mechanisms for linking training, production and HRH requirements are not well established. There are 306 health-training institutions of which 18 are accredited medical schools and 71, schools or nursing and midwifery. In 2007 FMOH developed a National Human Resources for Health Strategic Plan

(2008–2012), which SMOHs were expected to adapt and implement based on states' context. It identified poor HRH as one of the biggest challenges to reforming the heath sector; furthermore, poor planning and lack of projection of staffing needs as factors in overproduction of some categories and a lack of others [665]. Other challenges acknowledged include favouring indigenous hire in states, low motivation, less-than-optimal productivity and high attrition in rural areas and multiple job-holding [665].

Appendix 18: Nigeria Maternal health statistics and Services

Progress has been reported in reducing maternal mortality in Nigeria in the last two decades [666]. Nevertheless, the 2012 MDG progress report confirmed the 2015 target is unlikely to be attained. With a maternal mortality ratio (MMR) of 630 per 100,000 births, Nigeria has the tenth-highest maternal estimates in the world [667]. National official statistics estimate 545 deaths per 100,000 live births with a range of 475–615 [453]. As with most health indices, there are marked variations across the geopolitical zones and in rural compared to urban areas. The major contributors to the disparities are poverty, cultural factors that limit women's access to education and the formal health services, poor infrastructure and low investments in the health systems. The highest MMR; 1549/100,000 live births is recorded in the North East compared to the South West with the lowest at 165/100,000 live births. There are also Urban/rural variations; 351/100,000 live births (urban) compared with 828,000/100,000 (rural) live births. Postpartum haemorrhage account for an estimated 23% of maternal deaths, sepsis for 17%, and eclampsia, unsafe abortion, obstructed labour and anaemia for 11% each [358].

It is estimated that about 7.5 million pregnancies occur annually. Fertility rates remain high despite marginal declines from 5.7 to 5.5% in and vary from 4.7% in urban areas compared to 6.2% in rural communities. The highest fertility rates are found among 25–29 year olds. Contraceptive use remains low among married women. The highest rates are found in the south west zone (38%) while the lowest is in the North West with only 3.2% and is positively associated with educational attainment [106].

Maternal health services

Primary health facilities serve as the entry point into the health care delivery system. Facilities at this level include health centres, clinics, dispensaries and health posts. Howbeit, maternal health services are also provided through secondary and tertiary facilities. Ensuring that women access available services remains a difficult task [666]. The 2013 NHDS showed that only 61% saw a skilled health provider at least once during their most recent pregnancy. Antenatal coverage is

highest among 20–34 year olds (63%) and among urban women (86%) compared with 47% for rural women. The highest antenatal coverage happens in the South East (91%) while the North East and North West consistently have the poorest, 49% and 41% respectively.

Appendix 19: Focusing events linked to national policy making on skilled attendance and MSS

This section summarises factors that explain attention to availability of skilled attendance in rural locations in Nigeria as a central strategy to reducing maternal deaths.

The initiation of the MSS can be linked to a series of 'focusing events' (events that call attention to problems that need attention and tend to influence agenda-setting in public policy) in global health policy, which drew attention and gradually penetrated national policy making. Maternal health had remained at the core of the development agenda since the UN Decade for Women in the 1970s [668] and evolved significantly from then underlying successive initiatives. Despite its long history of being on the agenda, significant progress was yet to be made in achieving the required levels of skilled attendance. In 2007, the first Women Deliver conference was held in London to commemorate the Safe Motherhood Initiative's 20th anniversary and marked the beginning of a series of events and resolutions to establish and maintain momentum for maternal mortality as a priority of the national public policy agenda [669].

Summary of focusing events and resolutions at global level
In 1995 skilled attendance is recognised as a central strategy for maternal mortality reduction
In 2000, maternal health was included as an MDG
Launch of the Partnership for Maternal, Newborn and Child Health was launched in 2005
First Women Deliver conference held in 2007 to commemorate the Safe Motherhood Initiative's 20th anniversary
The Joint Learning Initiative influential report in 2004 led to convergence of global attention on the human resource crisis in SSA
World Health Report, 2006, focusing on human resources for health
1st Global Human Resources for Health Forum in Kampala, Uganda in 2008
In 2010, emergence of clear evidence-based recommendations and guidelines for improving recruitment and retention in rural settings.

These all led to the accumulation of credible local evidence on the high level of maternal mortality and emergence of champions in government, civil society and parliament at national level. However, ensuring availability of skilled attendants at birth became a focus of attention relatively later in 2008. The policy development in Nigeria reflected some of these developments, with Nigerian policy makers attending several of these global meetings. These led to the realisation in Nigeria that the MDGs would not be achieved without addressing the HR crisis, thus providing the impetus for national action towards policy making for concerns of the health workforce including retention. This marked its ascent to priority and led to the framing of national strategies and the subsequent evolution of MSS.

A strong link can also be made between the 'debt-relief-induced' resource availability and the evolution of MSS and its core principles. Nigeria's oil boom of 1971–1981 marked an era of significant external borrowing. By December 2004 its debt portfolio stood at US$36 billion, 85.8% of which was owed to the Paris Club. At the time, debt to GDP was about 58% and debt to total government revenue amounted to 412% [670]. Owing to the huge debt burden, resources could not be used to support social sector development programmes elaborated in its local poverty strategy paper, the National Economic Empowerment and Development Strategy (NEEDS) [671]. Significant debt diplomacy by President Olusegun Obasanjo and the Finance Minister paid off in October 2005 and a final agreement of debt relief worth US$18 billion was completed on April 21, 2006, but requiring Nigeria to pay $12 billion in six months and comply with Naples terms and Policy Support Instrument (PSI)17 framework of the International Monetary Fund (IMF) [670]. The huge amount in savings was allocated (US$1 billion per annum) to critical priority sectors such as health, basic education, water, power and other infrastructure. The Office of the Senior Special Assistant to the President on MDGs (OSSAP-MDG) was established in June 2005 to 'guide the resources that would be freed up from the debt deal to MDG-related projects and programmes'. The financial challenge of scaling up efforts to meet the MDGs was overcome by denoting debt-relief gains as 'special funds' similar to Uganda's

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[17] The Policy Support Instrument is a package of advice, monitoring and assessment given by the International Monetary Fund to one of its members. This is a formalised arrangement for IMF officials to endorse NEEDS on a quarterly basis. The Fund also visits the member country frequently and investigates the country's progress on key economic policy fundamentals.

'Poverty Action Fund'. The availability of new funds positively influenced policy and programme interventions and paved the way for emergence of MSS as the key DRG intervention addressing MDG 5 in addition to improving access to health services for pregnant women through a supplement to social health insurance.

Appendix 20: Criteria for selection of Primary Health Facilities

1. Hard-to-reach area or underserved population;

2. Facility shall be located in an area with a population of 10,000 to 30,000;

3. Availability of portable water or alternative portable water supply;

4. Willingness of the State/LGA to support programme;
5. Facility should be willing to offer 24-hour services;

6. Client flow of at least 120 births/year (subject to review);

7. Facility shall be type 3 (primary health care centre) with enough space for selected services;

8. Availability of medical officer, nurse, midwives, laboratory/pharmacy technician, CHO or CHEW at the facility;

9. Minimum equipment must be on ground including BP apparatus, weighing scale, equipment for MP, PCV, urine/stools tests;

10. Basic MNCH services shall be available in the facility (ANC, delivery, post-natal, family planning, immunisation etc.);

11. Willingness of benefitting states and LGAs to support the programme to be demonstrated through improvements to general hospitals to provide comprehensive essential/emergency obstetric care, adequate monitoring and supervision of the programme.