A COUNT OF BEDSIDE MIDWIVES IN MALAWI

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Conducted by

Contact Address:
Managing Director
Area 47, Sector, Malingunde Rd
Plot No. 240
P.O. Box 1926
LILONGWE
Cell: 0995482 905
          0888 358 307
Email:mchirwa@phcsmw.com

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ABBREVIATIONS

BLM	Banja la Mtsogolo
CH	central hospital
CHAM	Christian Health Association of Malawi
DHS	Demographic and Health Survey
FPAM	Family Planning Association of Malawi
HC	health centre
ICM	International Confederation of Midwives
IMF	International Monetary Fund
MASM	Medical Aid Society of Malawi
MOH	Ministry of Health
MSF	Médecins Sans Frontières
NGO	nongovernmental organization
NMCM	Nurses and Midwives Council of Malawi
PIH	Partners in Health
UNFPA	United Nations Population Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

This report provides findings from a census survey of bedside midwives in Malawi. The survey was commissioned by the White Ribbon Alliance for Safe Motherhood, which hired Prime Health Consulting and Services to conduct it. The overall objective was to take a head count of bedside midwives in Malawi, defined as those who spend at least 75 percent of their professional time providing maternal and neonatal services. The survey results are expected to inform policy decisions and advocacy.

Two tools were developed and administered separately:

1. An interview guide was administered to midwives who were available at health facilities at the time of the survey. This tool helped gather rich information from the midwives.

2. A census checklist was administered in all districts to district nursing officers, who provided statistics on the number of midwives (in public and other facilities) in the district, level of competence, and sex disaggregation. The checklist was also administered to staff at the Nurses and Midwives Council of Malawi and the Ministry of Health.

Data obtained through the two tools complemented each other.

By all measures—be they based on the World Health Organization (WHO) recommended population-to-midwife ratio of 175 to 1, work overload, or mere observation—Malawi has a critical shortage of midwives. The census found that 3,573 bedside midwives in Malawi are serving a population of 17,563,749 (National Statistics Office, 2018). This means that Malawi has a population to midwife ratio of 4,915 to 1, far away from the WHO recommendation.

The analysis considered that midwifery services usually benefit women of childbearing age. Using population figures from a 2018 census, there are 4,267,793 women of reproductive age (15 to 49 years of age). The childbearing women to midwife ratio, therefore, is 1,194 per midwife.

On average, midwives are youthful (average age is 35) and range in age from 20 to 76. The majority of midwives are female and there is a high concentration of diploma and certificate holders. Rural areas have a higher number of midwives in absolute terms. However, the ratios change when considered in terms of population-to-midwife ratios in rural and urban areas. Most midwives are found in health centres. This is positive, as health centres provide a first point of contact between people and the health system with relatively economical healthcare services.

Training is available for midwives, and most are trained locally. Those who received training from outside the country were trained in Africa. A few foreign midwives are practicing in Malawi, mainly in rural areas.

Working conditions for midwives are not generally motivating. They work long hours and overtime, for which few claim allowance. Among the incentives available, risk allowance is typically offered as a financial incentive, and participation in management is a commonly provided nonfinancial incentive.

Midwives are characterized by passion and patriotism. Most derive job satisfaction from saving lives, being part of solutions to maternal and neonatal health challenges, having a sense of independence in executing their job, and connecting theory with practice. These observations suggest that midwives join the profession because they are passionate about it,

not because they lack alternative career choices—motivation that bodes well for fostering retention. Setbacks reported include workload, lack of appreciation by superiors, lack of necessary equipment, and inadequate support from the Nurses and Midwives Council of Malawi.

Overall Conclusion and Recommendations

The survey confirmed that Malawi has a critical shortage of midwives, despite their enormous importance in reducing maternal and neonatal mortality and morbidity. Existing midwives work under strenuous conditions consisting of long hours in environments that typically lack medical equipment and necessary supplies. As mentioned, the passion and patriotism of midwives are notable, and government and other stakeholders need to nurture midwives and show appreciation. Knowing which facilities provide midwifery services was an important unintended outcome of the survey. Findings indicate that there would be a great propensity to retain midwives if appropriate measures were taken to address their concerns.

Recommendations to Government and Partners

Through the Ministry of Health the government should address the following gaps identified in this survey:

- Increase the number of midwives in service. Malawi needs about 24,287 midwives to support the current estimate of women of reproductive age. When the available midwifery population is factored in, the gap is 20,814 midwives. The increase will have a positive impact on service delivery and will reduce the burden on existing midwives, thereby improving working conditions.

- Develop a clear training plan for new and existing midwives, retention measures, and incentives.

- Strengthen the human resource information management system. Insufficient data from district to central levels calls for urgent attention from the government, through the Ministry of Health. Most district nursing officers had insufficient data, especially on midwives in nongovernment-owned facilities. Incentives are needed for district nursing officers and midwives in facilities owned by non-state actors to request and regularly submit data. Such incentives can include joint training programmes, joint planning, and implementation of activities.

- Offer incentives to midwives. While it is difficult to offer financial incentives to midwives and leave out other cadres, a deliberate approach can be taken to scale up nonfinancial incentives. These could include providing education opportunities or appreciation efforts, such as "Best Midwife" awards with an appreciation note from senior management.

- Develop a national strategy to scale up midwifery. The lack of rightful recognition of midwives, both at the operational level and as an independent profession, needs to be addressed. Midwifery needs its own career ladder that enables midwives to progress in midwifery rather than progressing as a nurse.

- Invest continuously in establishing, collecting, and updating the central-level dataset under the Directorate of Human Resources. More must be done to gather information on such basic characteristics as midwife age, sex, qualification, and geographical distribution, as this data could provide valuable information for midwifery workforce planning and decision making.

- Develop common frameworks or tools (such as midwifery workforce surveillance) for counting midwives and measuring their skill wastage and mobility. Other potential methods should also be explored and considered to continuously monitor midwifery retention and turnover at facility, district, and national levels. More work is needed to understand the impact of midwives on health outcomes and to develop a common

understanding of the classification of different cadres of midwives. Databases on midwives are worth maintaining to generate information and evidence that support policy decisions. Effective human resource information management systems require competent staff with the capacity to use various instruments to collect, compile, and analyse workforce data.

Recommendations to the Nurses and Midwives Council of Malawi

- Revisit procedures for addressing the safeguard and sanction of midwives. The Nurses and Midwives Council of Malawi should enhance engagement with midwives and improve how it handles midwife concerns. By extension, the council should explore ways of safeguarding midwives from unwarranted punishment or reprisals by management when incidents occur due to causes beyond the midwife's control. However, this needs careful balance to hedge against potential negligence that may cost patient lives. Guidelines are needed on objective investigation, clear sanctions, and appeal processes.
- Foster provision of continuing professional development through electronic devices to train faster at reduced cost (no travel).
- Establish additional registers to recognize additional competencies. The council keeps cumulative data, which does not give a true picture of the existing gap. Also, council data does not disaggregate according to professional cadres and levels of competencies because nursing and midwifery have traditionally been organized according to levels (I and II). The registers should be separated between nursing and midwifery in accordance to the scopes of practice.

Recommendations to the Association of Malawian Midwives

- Periodically survey women's experiences with midwives and include these perspectives in training programmes.
- Develop programmes or activities to portray midwifery as an attractive occupation.

1   INTRODUCTION

This report provides findings of a census survey of bedside midwives in Malawi. Bedside midwives are those who spend at least 75 percent of their professional time providing maternal and newborn health services.

The census covered all districts targeting midwives working in four types of facilities—public, Christian Health Association of Malawi (CHAM), private, and nongovernmental organization (NGO) owned. The survey was commissioned by the White Ribbon Alliance for Safe Motherhood in Malawi with technical support from the Global Secretariat in Washington, DC, and financial support from the U.S. Agency for International Development through the Health Policy Plus (HP+) project. Prime Health Consulting and Services was contracted to conduct the survey.

The survey findings provide the actual number of midwives in the country to inform Ministry of Health (MOH) and CHAM human resources strategic plans, particularly regarding how many midwives are needed, how to achieve those numbers, and how to deploy them. Findings will also shape advocacy for maternal and newborn health services in Malawi. Data generated from the survey contributes not only to building an accurate picture of the midwifery profession at the national level but also at district and facility levels. The survey has been conducted in line with the ministry's aspirations to use empirical evidence in its human resource planning and management. This report details the survey processes and its findings.

Two approaches were used for data collection—interviews in health facilities and census checklists in districts. An interviewer-administered questionnaire was used with midwives who were present at the health facility at the time of the survey. A census checklist was administered to district nursing officers who filled in the total number of midwives working in the district regardless of facility ownership. Separate data on midwives working in clinics operated by the Medical Aid Society of Malawi (MASM) were provided by MASM. The Family Planning Association of Malawi (FPAM) provided data for all work under FPAM, and the Banja la Mtsogolo (BLM) provided data for work under BLM. The two main data sets— those collected through the interviews and those collected through the checklists— complemented each other. As expected, figures obtained through interviews are lower than those obtained through checklists because not all midwives were interviewed. However, the findings based on interviews provide projections and patterns on specific variables.

The findings provide the basis for which stakeholders in health service provision and particularly midwifery could make decisions in such areas as staffing levels, motivation, deployment, and training needs. For non-state actors, the findings are a handy tool for advocacy.

2 BACKGROUND

Malawi has registered progress in improving health outcomes over the years. The maternal mortality rate (deaths per 100,000 live births) has declined from 1,123 in 2000 to 497 in 2015-16, as reported in the Demographic and Health Survey (DHS). Child mortality has also declined. The 2015–16 DHS report shows that the under-five mortality rate (deaths per 1,000 live births) has decreased from 112 in 2010 to 63 in 2016, while the neonatal mortality rate (deaths per 1,000 live births) has gone down from 41 in 1992 to 27 in 2015-16 (National Statistical Office and ICF International, 2016). Statistics show a negative correlation between percent of births delivered with assistance of skilled birth attendants and maternal mortality rate. This means that an increase in proportion of births attended by skilled health personnel is associated with a decrease in maternal mortality. Midwives or nurses and midwives are instrumental in delivering maternal and neonatal care.

The International Confederation of Midwives (ICM) defines a midwife as a person who has:

- Successfully completed a midwifery education programme that is recognized in the country where it is located and that is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education
- Acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title "midwife"
- Demonstrated competency in the practice of midwifery

According to ICM, the midwife is recognized as a responsible and accountable professional who works in partnership with women to:

- Give the necessary support, care, and advice during pregnancy, labour, and the postpartum period
- Conduct births on the midwife's own responsibility
- Provide care for the newborn and the infant

Midwifery services include but are not limited to preconception care, prenatal care, labour and delivery support, newborn care, family planning, and menopausal management. Midwives also provide health counselling and education in fertility, nutrition, exercise, contraception, sexual or reproductive health, pregnancy health, breastfeeding, quality infant care, preparation of parenthood, and antenatal education. Midwife services ensure a decreased risk of preterm birth, infant mortality rates, and rates of labour induction and augmentation and an increased chance of having a positive start to breastfeeding, along with satisfaction with quality of care (American Pregnancy Association, 2016).

A study on identifying factors affecting midwife retention in Malawi found that incentives for midwives in some facilities include better housing allowances, transportation allowances, night-shift allowances, on-call allowances, health insurance, and 50 percent subsidized fees for family members (Mackintosh, 2003). Despite Malawi's commitment to improving midwifery, the government's investment in the profession remains low. A 2014 policy brief by White Ribbon Alliance Malawi highlighted key points on policy and budget recommendations. Among them were allowing the MOH to allocate specific resources for incentives to encourage midwife retention in remote, hard-to-reach areas and ensuring that midwifery services are specifically recognized in district health budget allocations and that these allocations are increased to improve midwifery services (Njera, 2015).

In Malawi, midwifery services are regulated by the Nurses and Midwives Council of Malawi (NMCM). A trade-union-oriented organization, the National Organization of Nurses and Nurses and Midwives, advocates for midwives. According to NMCM, the nurse and midwife

population is 12,888 Malawian nurses and midwives and 25 foreign nurses and midwives. At the time of the survey, the system could not disaggregate according to sex and qualification. The system maintained the division of the professions in Levels I and II, whereby Level I comprises all registered, professional, and advanced nurses and midwives, totalling 4,428. Level II is comprised of nursing and midwifery technicians as well as enrolled nurses and midwives, totaling 8,460. These figures are cumulative and do not take into account those who have left the service. They are for that reason an overestimate.

3   OBJECTIVES OF THE SURVEY

The broad objective of the survey was to take a head count of bedside midwives in Malawi. Specific objectives of the survey were to:

- Develop a comprehensive survey tool to capture the number of bedside midwives in Malawi, in all public, private, and NGO facilities
- Collect data from all data sources about the actual number of midwives working in their midwifery competencies in Malawi

The scope of work was designed to:

- Determine the midwife deployment pattern
- Ensure political support for successfully completing the project by informing government officials of the survey's purpose

4 LITERATURE REVIEW

The United Nations Population Fund (UNFPA) *State of the World's Midwifery 2014* report focused on 73 out of the 75 low- and middle-income countries that are included in the "countdown to 2015" reports. The report shows that 92 percent of all the world's maternal and newborn deaths and stillbirths occur within these 73 countries and that only 42 percent of the world's medical, midwifery, and nursing personnel are available to women and newborn babies in these countries. The report also showed that only 4 of the 73 countries have a midwifery workforce that can meet the 46 essential interventions for sexual, reproductive, maternal, and newborn health. UNFPA's *State of the World's Midwifery 2011* report contended that midwives, when empowered, fully trained, well equipped, and authorized to practice all essential basic lifesaving competencies, can help prevent more than two-thirds of maternal and newborn deaths (Millennium Development Goals 4 and 5).

In 2008, UNFPA, in collaboration with ICM, launched an initiative to invest in midwives and others with midwifery skills to achieve Millennium Development Goals. The goal was to promote skilled attendance at all births in low-resource countries by developing the foundations of a sustainable midwifery workforce. Some of the good practices in strengthening midwifery services observed by different countries in the programme, including Bangladesh, Sudan, and Uganda, were:

- Engaging the community for midwifery recruitment, deployment, and retention in rural areas
- Intensifying efforts to reduce maternal deaths through educating and developing a new cadre of professional midwives
- Getting expertise and experience from retired and senior midwives to help strengthen midwives' clinical skills
- Having a dynamic midwifery association to act as a catalyst in accelerating reduction of maternal death
- Deploying international United Nations volunteer midwives across the country to help expand access to midwifery services
- Supporting a national strategy for scaling up midwifery
- Developing a career promotion initiative to draw young people to midwifery education and practice (UNFPA, 2013).

Some of the strategies that worked also included partnerships with key leading global and regional organizations, including United Nations agencies, civil society organizations, the private sector, and donors, which also helped build a global consensus around midwifery and support fundraising. Another strategy focused on generating the necessary evidence base by conducting a series of needs assessments and gap analyses. The evidence base, combined with strategic global advocacy at high-profile events, helped draw the attention of policymakers to this important area.

In line with these best practices, in England, the Department of Health and National Health Service's Care Quality Commission conducts a survey of women's experiences, which is carried out once every three years and used to supplement its understanding of maternity service performance (House of Commons Committee of Public Accounts, 2014).

Malawi is one of the first African nations to have developed a "road map" for maternal and neonatal health (MOH, 2012). The road map identified several contributing factors to Malawi's high maternal mortality rate, of which the four most important were (1) staff shortage and weak human resource management, (2) limited availability and use of maternal healthcare services, (3) weak referral systems, and (4) weak community participation and involvement (Nove, Unpublished).

According to the MOH's 2015 *Report on the Confidential Enquiry into Maternal Deaths in Malawi (2008–2012),* the direct causes of maternal deaths, starting with the most common, were preeclampsia/eclampsia, postpartum sepsis, complications of abortion, postpartum haemorrhage, obstructed labour, and ruptured uterus. Causes associated with health worker factors showed inadequate midwifery skills, a significant delay in referral, incomplete initial assessment, inadequate resuscitation, wrong diagnosis, and wrong or no treatment. All these culminated in poor quality of care provided in the health facilities. Poor quality of training, mentorship skills development, and supervision of the health workers, especially in basic and comprehensive emergency obstetric neonatal care, might have contributed to the situation.

An emergency obstetric neonatal care 2014 assessment revealed a huge resource gap in designated facilities (Government of Malawi et al., 2015). The lack of resources included lack of adequately prepared staff with appropriate skills, inadequate numbers of midwives, inadequate equipment and supplies for service delivery, dilapidated infrastructure, and inadequate monitoring and supervision. All these factors confirm that maternal healthcare in Malawi is situated in a poorly resourced health system.

Healthcare delivery exists at three levels: primary, secondary, and tertiary. However, resources are not evenly or equitably distributed. Most women of reproductive age live in rural areas where access to quality maternal health services is poor. The health system is reported to be under-resourced; 97 percent of clinical officers and 82 percent of nurses are in urban facilities, leaving rural areas with minimal access to skilled healthcare providers (MOH, 2014). A service provision assessment found that, in Malawi, the vacancy rates in midwifery are high, it is not uncommon to have one nurse/midwife run a health centre, and about half of the deliveries are not assisted by a skilled birth attendant (MOH and ICF International, 2014).

The human resource shortage means that available maternity care professionals work long hours, which may affect staff retention (Nove, Unpublished). Shortage of staff has a significant negative impact on maternal outcomes in low-income countries. Despite efforts to increase the number of human resources for health, maternal mortality rates remain persistently high. Bradley et al. (2015) suggested that understanding the situation from the health worker perspective can inform policy options that may contribute to a better working environment for staff and improved quality of care for Malawi's women.

A midwifery retention study in Malawi found common factors that push professionals out of the health sectors included unfair remuneration package, delayed payment of salaries, poor working conditions (physical conditions of work, the amount of work or the facilities available for doing the work), lack of career structure, remote-rural positions, and lack of job satisfaction. Common pull factors included retirement package, flexible leave policies, job security, and post-basic training. Lack of appreciation from officials, the public, and other cadres was also repeatedly mentioned as a cause for midwife dissatisfaction (Makintosh, 2003).

Some causes of the midwife shortage are a low proportion of young people completing secondary education, girls marrying early, a shortage of nursing/midwifery tutors, midwifery not being a separate profession from nursing, short life expectancy resulting in high levels of death in service, and brain drain (Nove, Unpublished). The *2008 Malawi Population and Housing Census* found that Malawi has 13.1 million people, of which 6.7 million, or 51 percent, are women (National Statistical Office, 2008). The *Demographic and Health Survey 2010* found that 44.4 percent of the female population, or 2.9 million women, is of childbearing age (National Statistical Office and ICF Macro, 2011). Since the population has expanded to an estimated 17.3 million as of 2016, the number of women of childbearing age has also grown.

5 METHODOLOGY

5.1 Approach

This was a census survey aimed at reaching out to all bedside midwives. Inclusion criteria were the following: registered nurse midwives, professional midwives, advanced midwives, and nursing and midwifery technicians. This included persons who had completed their studies/education in midwifery and were licensed to practice, salaried and self-employed midwives delivering services regardless of the place of service provision, nurse midwives who were working most of the time as midwives, and foreign midwives licensed to practice and actively practicing in Malawi. Exclusion criteria included students who had not yet graduated as midwives; midwifery graduates who had not been licensed at the time of the survey; midwives working in administration, management, research, and in other posts, excluding direct contact with midwifery clients and patients; unemployed midwives and retired midwives; and midwives working abroad.

The survey was conducted nationwide, collecting key data such as facility ownership, number of bedside midwives per facility, sex of bedside midwives, and location (rural and urban). It also collected data from students who were at the time on midwifery attachments/placements. Students were asked about their interest in working as midwives after curriculum completion. Data was also collected from NMCM registers. Representatives from the MOH, Directorate of Nursing and Human Resources Information Management System were also consulted.

5.2 Sampling Approach

The survey was a census and therefore no sampling was done. The study unit was a bedside midwife, and all facilities providing midwifery care services participated. The findings show the number of bedside midwives, composition by sex, distribution by ownership of facility, and location. Information on distribution offers insight on equity/inequity in midwifery service provision.

The facility list for each district was compiled and sent to each district nursing officer to verify their provision of midwifery services. The midwifery operational definition for this survey focused on family planning, antenatal care, labour and delivery, neonatal care, and postnatal care.

5.3 Data Collection Tools

Data was collected in two ways: through questionnaire interviews with midwives at their facilities and through validated records from district nursing officers. Figures obtained through district nursing officers reflect actuals while those obtained through interviews reflect number of midwives who were available during the time of interview. Figures from district nursing officers reflect the actual number of midwives in the country, while figures obtained through interviews represent the number of midwives whose opinions informed the report. The intention was not to interview all surveyed midwives but instead all of those that were available at the time of the survey.

Draft data collection tools were discussed with the White Ribbon Alliance for Safe Motherhood Malawi, and input was sought from the White Ribbon Alliance Global Secretariat. A questionnaire was used to collect quantitative data with a few questions that generated qualitative data. An information sheet on the survey was circulated to all district nursing officers through the Directorate of Nursing and Midwifery Services for public facilities and through the CHAM Secretariat for CHAM facilities. The sheet was accompanied

by a list of known health facilities in each district for the district nursing officer to confirm existing facilities providing midwifery services. This information was important for effective planning and formed part of the data on service distribution in each district.

District population data was obtained from the *Population and Census Report 2008*. The intent was to determine the population-to-midwife ratio in each district. While that may not precisely reflect the degree of equity/inequity, since population may not equal need, it is still a fair proxy to project equity/inequity. For midwives working in central hospitals, services are available to the regional population, and as such, were not included when computing the ratio in the district in which the central hospital is located.

5.3.1 Questionnaire

As mentioned previously, a questionnaire was used to collect quantitative data and included a few questions that generated qualitative data. The questionnaire was administered to participating midwives. It asked participants about hours spent on midwifery services, category of midwifery mostly worked in, any training needs required, sex, services provided, and related information.

5.3.2 Data-capturing checklist

The checklist was used to capture the number of nurses and midwives working in midwifery services in each district. Data from FPAM, BLM, and MASM was obtained centrally. The checklist captured numbers according to the following cadres (disaggregated by sex): advanced midwives (those with master's or doctorate degrees); professional midwives (those with a bachelor of science in midwifery and a bachelor of science in nursing and midwifery from an integrated programme); registered midwives (those with a diploma in registered nursing and midwifery); and nursing and midwifery technicians (those with a nursing and midwifery technician diploma). Although the focus was on midwives, the survey also captured the number of nurses and midwives in general nursing care services.

5.3.3 Student data-capturing tool

An open-ended questionnaire was administered to midwifery students on practicum at the time of the survey. Students were asked about their interest in working as midwives upon practicum completion and their motivation for the decision.

5.3.4 Literature review checklist

A checklist was used to capture relevant data from grey and published literature at national, regional, and international levels. All literature has been acknowledged and referenced accordingly. The review of international literature facilitated learning while the review of national and local literature provided context.

5.3.5 Information sheet

While the information sheet was not a data collection tool, it served the important role of informing authorities at national and district levels to enable their participation and support. The information sheet provided a brief explanation of the survey and was accompanied by a list of facilities compiled from the literature review. It was circulated to all district nursing officers and copied to district health officers and zone supervisors through the Directorate of Nursing Services for public facilities and CHAM Secretariat for CHAM facilities. The district nursing officers were asked to review the list of facilities and ensure that all facilities providing midwifery services were listed and ensure that public, private, NGO, and company facilities were included. Knowing which facilities were providing midwifery services was yet another important and unintended outcome of the survey.

5.3.6 Consultative meetings

Consultative meetings on the purpose and scope of the survey were conducted with the MOH Director of Nursing and Midwifery Services, NMCM Registrar, and representatives from the Association of Malawian Midwives and CHAM. These consultations served to seek "buy in" and support for the exercise. The meetings solicited high-level views of the survey. They also set the tone for knowing the midwifery population and making effective decisions for Malawi's maternal and neonatal health services. Meetings with the Director of Nursing and Midwifery Services provided the opportunity to communicate with all district nursing officers about the survey through the information sheet, which included a list of health facilities. For CHAM facilities, communication was circulated through the CHAM Secretariat. For the private and NGO facilities, communication was either made directly or sometimes through the district nursing officer.

5.4   Data Collection Process

5.4.1 Recruitment and training of research assistants

Prime Health Consulting and Services recruited research assistants with nursing and midwifery backgrounds who received three days of training. The training included a pilot role play that tested the tools and was modified accordingly before the actual fieldwork.

5.4.2 Data collection process

The survey was carried out by three teams deployed in three regions with equal distribution of districts to make sure all teams carried a similar workload. The supervisor of each team led administration of the data-capturing tool. The research assistants administered the questionnaires with the midwives and students who were in the clinical area at the time of the survey.

In each district, data was captured from records maintained by the district nursing officers, staff returns, and duty roster as appropriate. After capturing the data, the team either visited the facilities providing midwifery services or contacted the midwives by phone to cross-check the number of midwives on the ground. This provided an opportunity for internal validation. Discrepancies were addressed during the validation process. Some of the discrepancies were due to: untimely communication on personnel movement between health facilities, especially CHAM and private facilities; confusion on whether community midwifery assistants are midwives; unlicensed nurses and midwives engaged and left alone to run a facility; inclusion of retired midwives working month-to-month; and inclusion of those in administration or pursuing further education. Data validation provided rigor to data management.

6 DATA MANAGEMENT AND ANALYSIS

6.1 Data Quality Assurance

Data quality control was inherent throughout the survey process. Activities were carefully planned and consensus on activities and timelines was reached with contact persons at the White Ribbon Alliance for Safe Motherhood Malawi and the Global Secretariat. Upon approval of the inception report and tools, a Prime Health Consulting and Services statistician experienced in SPSS developed the databases. Data entry clerks and the data collection team were trained together.

6.2 Quality Checks

Quality checks were conducted by supervisors in the field on all questionnaires to ensure completeness, legibility, and presence of identification numbers on each page of the questionnaire. When necessary, the team leader asked the teams to do a call-back to fill in gaps. Each team sent data by courier to the office for data entry. Before data entry, coding was done, which provided an opportunity to check the data and completion of the forms. Where gaps were identified, team leaders discussed with the field supervisors, who in turn addressed the team or individual members of the team. The process helped resolve difficulties with the tool or data collection process without losing data. Concurrent data collection and entry ensured efficient use of time. The team leader conducted daily spot checks with all teams.

After data entry was completed, data cleaning was done. Any identified gaps necessitated a call-back of the teams to the missed facilities. When all data was entered, data sheets for each district were generated and sent to each district for validation to ensure accuracy. The process ensured a common understanding of who were midwives according to the Nurses and Midwives Act. It also helped clarify that a dual qualification in nursing and midwifery did not necessarily indicate that everybody is practicing midwifery.

6.3 Data Management and Analysis

Quantitative data was entered and processed using SPSS. A dedicated data processing team entered data into the database and was supervised by the statistician and team leader.

After data entry, the questionnaires were stored in a locked cabinet and were accessible only by the team leader and statistician. Word processing files containing data were password protected and stored on a password-protected computer accessible only to survey team leaders and statisticians. All data was cleaned and entered into Excel and SPSS to compute frequencies and percentages and produce tables, graphs, and charts.

Quantitative data obtained through interviews with midwives was input into SPSS, while quantitative data obtained through district nursing officers was input into Excel. Both data sets were analysed and complemented each other. For variables that solely depended on interview responses, the SPSS data set was used while for other variables the Excel data was used. Excel data includes midwives who were not interviewed.

7   LIMITATIONS TO THE SURVEY

The major limitation was poor record management by district health offices due to a number of factors, including lack of human resource information management systems; poor reporting mechanisms between health facilities and district nursing officers; challenges with communication within the district; noncompliance with the requirement of submitting staff returns; and unclear demarcation of the functions and activities of nurses and midwives in midwifery and nursing services (because of staffing shortages, some of those working in midwifery are also providing nursing services).

District nursing officers did not have a separate record for nurses and midwives and as such did not have up-to-date statistics on the number of midwives in the district. Getting statistics on midwives working in non-government facilities was particularly challenging. It proved difficult to obtain information on midwives by level of competence (advanced, professional, registered, and nursing and midwifery technician), primary function (labour delivery, family planning, postnatal, or neonatal surgery), and other details. Deliberate efforts were made to engage each district nursing officer in gaining a common understanding of competency levels.

Such a survey requires sufficient time to plan, collect data, and correct data gaps and inconsistencies. Despite time constraints, Prime Health Consulting and Services ensured that quality and accuracy were a priority.

8 CHALLENGES EXPERIENCED WITH FIELDWORK

A few challenges were experienced in implementing the survey. These included:

- **Communication.** District-level coordination of the survey was facilitated by the district nursing officer. The facility list for each district compiled by the survey team was sent for validation to ensure that it captured all facilities offering midwifery services by ownership. Some district nursing officers responded and some did not. In the latter case, teams travelled long distances to some facilities that did not offer midwifery services, delaying data collection. In most cases, targeted health facilities were not notified about the survey. This raised some resentment toward the team.

- **Human resource information management system.** Lack of human resource information management systems from national to district levels made it difficult to track midwives according to sex and qualification. Those responsible for human resources could often not differentiate midwives according to cadres. One said, "To us they are all nurses … as long as they are providing services they were trained to provide." The implication is on their rightful recognition, one of the factors that midwives raised as responsible for their demotivation.

- **Lack of unified understanding of who is a midwife.** The Nurses and Midwives Act of 1995 makes the counting of midwives complicated, especially in facilities where community midwifery assistants are independently providing midwifery care without the supervision of a qualified midwife. When the survey team visited the facilities, certified medical assistants identified themselves as midwives. Some district nursing officers also counted certified medical assistants as midwives. Upon validation with the district nursing officers an agreement was reached to exclude them because they fell outside the international and national legislative definition of a midwife.

- **Engagement of recent graduates.** Engagement of new graduates from various nursing and midwifery technician colleges without a licence made the validation exercise not only necessary but complicated, especially in facilities where the graduates practice midwifery independently and no qualified midwife is deployed.

9 RESULTS

The results presented here are based on the two tools discussed previously—the interview and the census checklist. Although the figures from the two approaches and tools differ for reasons explained previously (see section 5.3), they reflect a similar pattern.

The census counted a total of 3,573 midwives in Malawi. This includes 3,374 midwives counted directly through the census checklist as well as figures obtained centrally from BLM (88; 9 male, 79 female), MSAM (37; 7 male, 30 female), and FPAM (28; 15 male, 7 female).

There were 1,386 midwives that participated in interviews. The average age of interview respondents was 35.9 (± 11.3 years; n=1,333) and ranged from 20 to 76 years of age. The average number of years of midwifery practice was 8.7 (n=1,280) and ranged from 0.1 to 52 years.

The number of bedside midwives captured through the checklist are detailed in the appendices, organized by zone and district. The number of bedside midwives interviewed by district is presented in Table 1.

Table 1: Number of Bedside Midwives Interviewed per District

District	Total interviewed
Chitipa	17
Karonga	29
Rumphi	28
Mzimba	79
Likoma	2
Nkhata-Bay	32
Kasungu	47
Nkhotakota	40
Salima	70
Lilongwe	178
Dedza	37
Dowa	81
Ntchisi	31
Mchinji	45
Ntcheu	99
Machinga	66
Mulanje	38
Phalombe	25
Blantyre	67
Chiradzulu	21
Balaka	55
Mangochi	84
Nsanje	23

District	Total interviewed
Chikwawa	21
Zomba	110
Mwanza	12
Neno	23
Thyolo	26
Mzuzu Central	0
Kamuzu Central	0
Queen Elizabeth Central Hospital	0
Zomba Central	0
Total	1,386

Note: Total figure excludes the 263 for central hospitals

9.1 Number and Characteristics of Interviewed Bedside Midwives in Malawi in Public, Private, and NGO Facilities

The Malawi population was 13.1 million in 2008 (National Statistical Office) and has expanded to an estimated 17.3 million in 2016 (IMF, 2017).

The survey found that most midwives hold diplomas (69.2%, n=1,386), followed by certificates (21.7%), then first degrees (9.0%). Only 0.1 percent reported having a post-graduate degree as their highest education qualification (Figure 1). This pattern portrays midwifery as a generally low-cadre profession and may influence negative attitudes towards this career choice.

Figure 1: Distribution of Midwives by Education Level
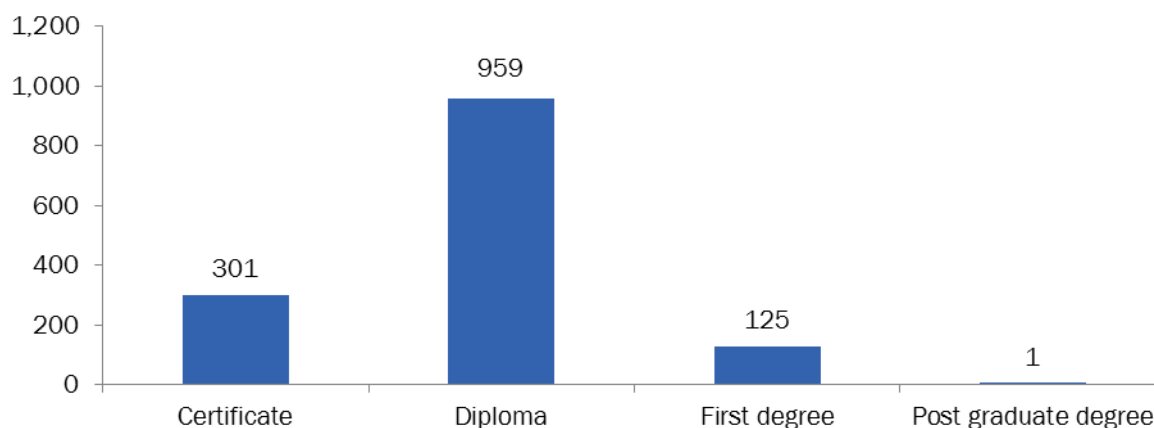
An analysis of level of education by sex shows that female midwives dominate all education levels (Figure 2). This pattern is consistent with the dominance of female midwives across education level, facility level, and facility ownership. In this survey, certificate holders include those who underwent the old enrolled nursing and midwifery programme and the nursing and midwifery technician programme that replaced it. Diploma holders are those who are graduates from the registered nursing and midwifery programme and nursing and midwifery technician programme that replaced the certificate nursing and midwifery technician programme. Degree holders include those with a bachelor's of science in midwifery and those who underwent a nursing and midwifery integrated bachelor's degree.

Post-graduate degree holders are those who underwent master's and doctorate programmes. The most highly trained midwives are located at public facilities (Table 2). In Malawi, people with high education tend to prefer working in urban areas.

Figure 2: Distribution of Midwives by Education and Sex
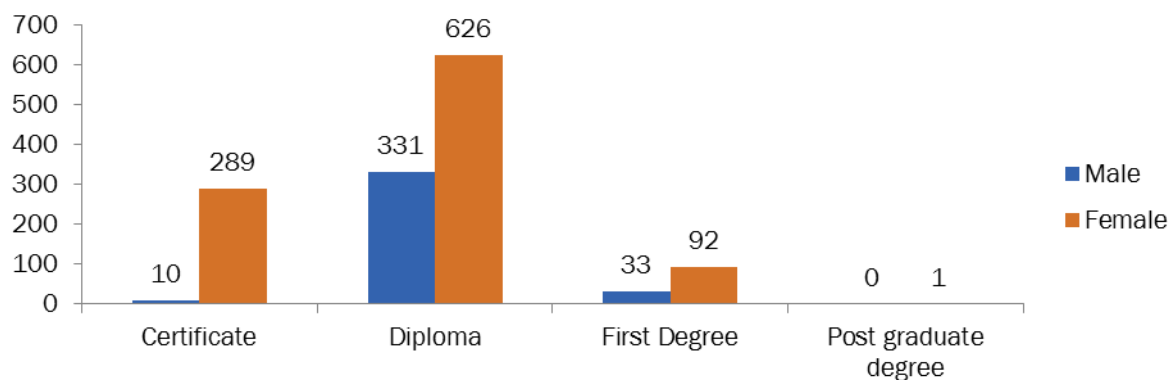
Table 2: Distribution of Midwives by Ownership and Level of Education

	Certificate	Diploma	Degree	Post graduate degree
Public	213	638	101	1
Private	16	25	4	0
CHAM	62	287	19	0
NGO	3	8	1	0
Company	4	1	0	0
Partners in Health (PIH)/Médecins Sans Frontières (MSH)/MOH	2	0	0	0
Muslim	1	0	0	0

Most CHAM facilities are located in rural areas for historical reasons (missionaries found rural areas more wanting of healthcare services); 89.9 percent (n=368) of midwives in CHAM facilities were located in rural areas compared with 58.9 percent (n=951) of midwives in public facilities (Figure 3).

Figure 3: Distribution of Midwives by Ownership and Location
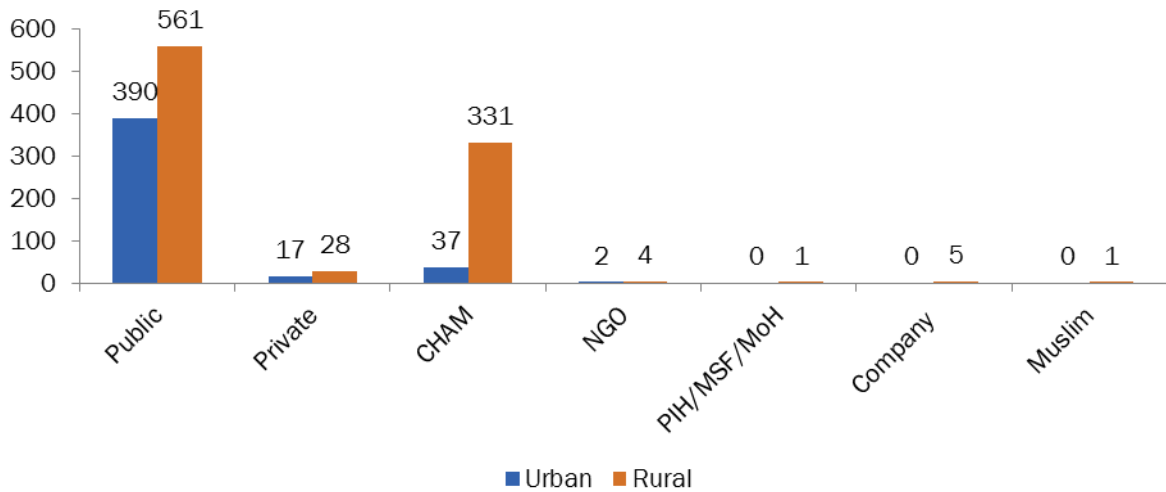
Based on the survey results, all midwives were trained, showing that Malawi has the capacity to train midwives. Most midwives reported that they received training in Malawi (99.1%; n=1,385) (Figure 4). The few who were trained outside Malawi received training in Rwanda, Zambia, and Zimbabwe. The institutions where midwives were trained are provided in Table 3.

Figure 4: Place Where Midwives Received Training
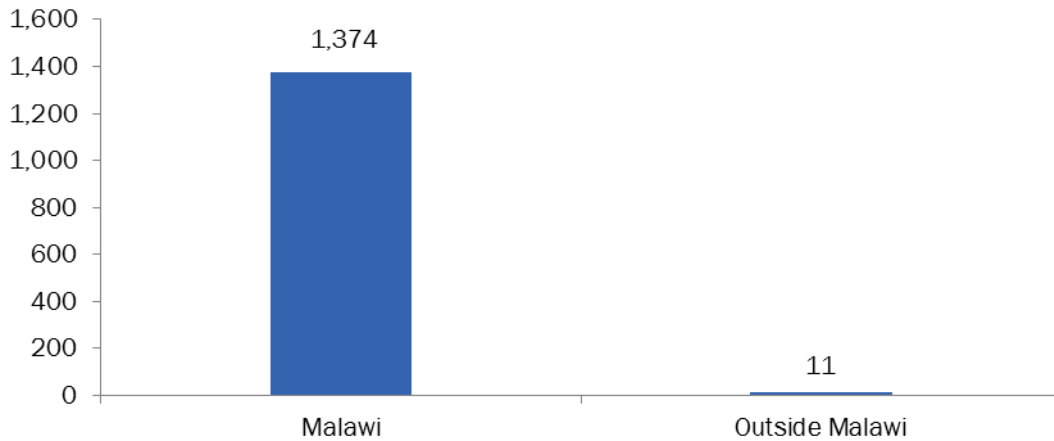
Table 3: Place Where Midwives Received Training

Malawi		
• St. Joseph College of Nursing and Midwifery • Nkhoma College of Nursing and Midwifery • Holy Family College of Nursing and Midwifery • Ekwendeni College of Nursing and Midwifery • Trinity College of Nursing and Midwifery	• St. John's College of Nursing and Midwifery • Phalombe College of Nursing and Midwifery • Mulanje Mission College of Nursing and Midwifery • Malawi College of Health Sciences • Likuni Mission Nursing School • Mzuzu University	• Zomba School of Nursing • St. Anne's Mission Hospital • National School of Nursing • Kamuzu College of Nursing • Malamulo College of Health Sciences • St. Luke's College of Nursing and Midwifery
Outside Malawi		
• Africa University (Zimbabwe) • University of Zimbabwe	• St. Francis Hospital-Katete (Zambia)	• Kabgayi Institute of Nursing and Midwifery (Rwanda)

A comparison of education level by facility level shows health facilities across all levels are served by holders of first degrees, certificates, and most of all, diplomas. District hospitals have the highest number of midwives holding first degrees. The only post-graduate holder in midwifery serves at a central hospital.

Table 4: Distribution of Midwives by Facility and Education Levels

Facility	Education level				
	Certificate	Diploma	First degree	Post-graduate	Total
Central hospital (CH)	24	55	25	1	105
Health centre	147	490	15	0	652
Clinic	23	25	1	0	49
Community hospital	7	58	6	0	71
District hospital	64	177	59	0	300
Rural hospital	15	64	5	0	84
Mission hospital	18	82	12	0	112
Private hospital	2	8	2	0	12
Dispensary	1	0	0	0	1
Total					1,386

Conclusion

Most midwives are female and hold diplomas as their highest level of education. More midwives serve in rural areas than urban and a high percentage of midwives working in CHAM facilities are located in rural areas. Most midwives received training in Malawi, with few trained in other countries within Africa.

9.2 Count of Number of Midwives Working in Their Midwifery Competencies in Malawi

Excluding the 153 midwives working in BLM, MASM, and FPAM clinics, data validated with district nursing officers accounted for 3,420 midwives. Malawi has five health administration zones and four central hospitals. Tables 5–10 show the distribution of midwives by sex and type in each zone and for the central hospitals. Figure 5 shows the distribution of midwives by zone.

Table 5: Northern Zone

	NORTHERN ZONE													
	Chitipa		Karonga		Rumphi		Mzimba North		Mzimba South		Likoma		Nkhata Bay		Overall for zone
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Advanced midwives	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
Professional midwives	2	1	0	0	1	5	2	3	0	0	0	0	5	6	25
Registered midwives	1	1	2	1	3	1	0	7	2	5	1	0	0	5	29
Nursing and midwifery technicians	5	26	19	42	21	58	14	69	16	49	7	5	16	57	404
Foreign midwives	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9	28	21	43	25	64	16	79	18	55	8	5	21	68	460

Thirteen facilities in the Northern Zone have either no qualified midwife or are supervised by older, retired midwives, one of whom is 76 years of age. Some facilities are supervised by certified medical assistants and unlicensed nurses and midwives who have just completed college and are waiting to take licensure examinations. The certified medical assistants and unlicensed nurses and midwives are working without supervision. Overall, the zone has only two advanced midwives.

Table 6: Central East Zone

	CENTRAL EAST ZONE										
	Kasungu		Nkhotakota		Salima		Dowa		Ntchisi		Overall for zone
	M	F	M	F	M	F	M	F	M	F	
Advanced midwives	0	0	0	0	0	1	0	0	0	0	1
Professional midwives	1	4	5	10	0	4	2	6	1	4	37
Registered midwives	1	2	3	6	0	1	1	3	0	0	17
Nursing and midwifery technicians	21	57	27	128	15	58	19	51	6	22	404
Foreign midwives	0	0	0	0	0	0	1	0	0	0	1
TOTAL	23	63	35	144	15	64	23	60	7	26	460

In the Central East Zone, seven facilities are operating without either a qualified midwife or unlicensed providers. The zone has only one advanced midwife.

Table 7: Central West Zone

	CENTRAL WEST ZONE								
	Mchinji		Dedza		Ntcheu		Lilongwe		Overall for zone
	M	F	M	F	M	F	M	F	
Advanced midwives	0	0	0	0	0	0	0	3	3
Professional midwives	0	0	3	2	1	4	3	32	45
Registered midwives	1	5	2	2	2	2	2	19	35
Nursing and midwifery technicians	35	104	41	87	29	81	56	314	747
Foreign midwives	0	0	0	0	0	0	0	3	3
TOTAL	36	109	46	91	32	87	61	371	833

Nine facilities in the Central West Zone have no qualified midwife. The zone has three advanced midwives.

Table 8: South East Zone

	SOUTH EAST ZONE												
	Balaka		Machinga		Mangochi		Mulanje		Phalombe		Zomba		Overall for zone
	M	F	M	F	M	F	M	F	M	F	M	F	
Advanced midwives	0	0	0	1	0	1	1	0	1	0	0	0	4
Professional midwives	1	0	2	5	1	2	2	2	2	8	8	7	40
Registered midwives	0	6	0	0	4	6	0	7	0	1	6	5	35
Nursing and midwifery technicians	27	78	33	61	137		24	68	24	30	17	99	568
Foreign midwives	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	28	84	35	67	151		7	77	27	39	31	111	667

Table 9: South West Zone

	SOUTH WEST ZONE														
	Blantyre		Chikwawa		Chiradzulu		Mwanza		Neno		Nsanje		Thyolo		Overall for zone
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Advanced midwives	0	2	0	0	0	0	0	0	0	0	0	0	0	1	3
Professional midwives	0	11	1	12	1	4	1	2	0	0	2	6	0	0	40
Registered midwives	2	4	1	4	2	0	1	4	3	7	1	1	3	5	38
Nursing and midwifery technicians	15	151	30	76	8	51	7	41	24	41	17	19	36	128	644
Foreign midwives	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	17	170	32	92	11	55	9	47	27	48	20	26	39	134	727

Two districts in the zone, Neno and Thyolo, have no professional midwives.

Table 10: Central Hospitals

	CENTRAL HOSPITALS								
	Mzuzu CH		Kamuzu CH		Queen Elizabeth CH		Zomba CH		Overall for CHs
	M	F	M	F	M	F	M	F	
Advanced midwives	0	0	0	2	1	3	0	1	7
Professional midwives	0	0	3	8	0	0	0	8	19
Registered midwives	1	8	0	2	0	2	0	32	45
Nursing and midwifery technicians	4	22	1	14	1	50	12	87	191
Foreign midwives	0	0	0	0	1	0	0	0	1
TOTAL	5	30	4	26	3	55	12	128	263

Among the central hospitals, Mzuzu has no advanced nor professional midwives, while the rest have at least one advanced midwife.

Figure 5: Distribution of Midwives by Health Zone
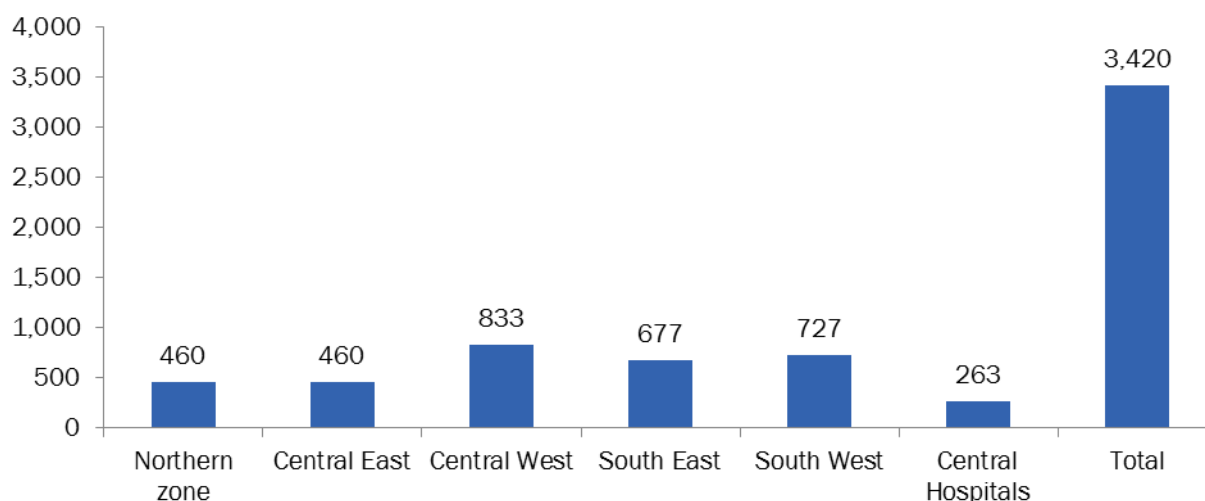
Note: The total excludes MASM, BLM, and FPAM midwives.

Population-midwife ratio

To project a picture of the population-to-midwife ratio for each district, some data needed to be manipulated. Population figures for Lilongwe rural and Lilongwe city were summed up to be Lilongwe population. The same was done for Zomba rural and Zomba city populations, Blantyre rural and Blantyre city populations, as well as Mzimba rural and Mzuzu city. Equally, the number of midwives for Mzimba north and Mzimba south were collapsed to be Mzimba.

Midwives in central hospitals were not factored in, since they serve the regional population. For example, Kamuzu Central Hospital serves the central region, Mzuzu Central Hospital serves the northern region, and Zomba Central Hospital and Queen Elizabeth Central Hospital serve the southern region. The population figures are from the *2008 Population and Housing Census* (National Statistics Office, 2008). However, the pattern might not have changed drastically when compared with the current population.

Some figures provided are based on total district population and not the population of women of childbearing age (midwives provide family planning and other services that go beyond those accessed by childbearing women). For that reason, caution should be taken when interpreting and comparing the figures.

Nationally, Malawi's population was 13,066,320 in 2008. The validated midwifery checklist census showed that Malawi has 3,420 bedside midwives. This amounts to a population-to-midwife ratio of 3,820. If considering the ratio of childbearing women to midwife, on the basis that the population of women was 6,700,549, of which 44.4 percent (2,974,043) were of childbearing age, the ratio drops to 869 women of childbearing age per midwife, which is still considerably higher than the 175 to 1 ratio recommended by WHO (Government of Malawi et al., 2015).

Using the more recent 2016 population estimate of 17.3 million people nationally (IMF, 2017), the population-to-midwife ratio is 5,058. If considering the ratio for women ages 15–54 (for lack of a perfect cut-off point for women of reproductive age, 15–49 years), using a population of 4,136,486 in 2014 (Index Mundi, n.d.), the ratio is 1,209 women (ages 15–54) per midwife. District comparison shows Kasungu has the highest ratio and Likoma, the lowest, although all fall higher than the WHO-recommended ratio.

On the basis of the 2018 calculated figure for women of reproductive age, Malawi needs 20,814 midwives in addition to the 3,573 midwives that are available (24,387 total). Another scenario is to consider the total population-to-midwife ratio. On the basis of the *2018 Population and Housing Census* figure of 17.5 million (National Statistics Office, 2018), Malawi needs 100,364 midwives. Taking into account those available, the gap is 96,791 midwives. However, if computation is restricted to the female population only, using the 2018 female population count of 9,042,293, the female population to midwife ratio is 2,530 per midwife.

Table 11: Distribution of Midwives by Sex and Population-to-Midwife Ratio per District

District	Population (2008)	Population: Midwife ratio
Chitipa	179,072	4,840
Karonga	272,789	4,262
Rumphi	169,112	1,900
Mzimba	853,305	5,079
Likoma	10,445	803
Nkhata-Bay	213,779	2,402
Kasungu	616,085	7,164
Nkhotakota	301,868	1,686
Salima	340,327	4,308
Lilongwe	1,897,167	4,392
Dedza	623,789	4,553
Dowa	556,678	6,707
Ntchisi	224,098	6,791
Mchinji	456,558	3,149
Ntcheu	474,464	3,987
Machinga	488,996	4,794
Mulanje	525,429	5,101
Phalombe	313,227	4,746
Blantyre	999,491	5,345
Chiradzulu	290,946	4,408
Balaka	316,748	2,828
Mangochi	803,602	5,286
Nsanje	238,089	5,176
Chikwawa	438,895	3,539
Zomba	670,533	4,722
Mwanza	94,476	4,499
Neno	108,897	1,452
Thyolo	587,455	3,396

By zone, the population-to-midwife ratio is highest in Central East Zone and comparably lowest in the Northern Zone. Figure 6 illustrates the zonal population-to-midwife ratios.

Figure 6: Population to Midwife Ratio by Zone (using 2008 population figures)
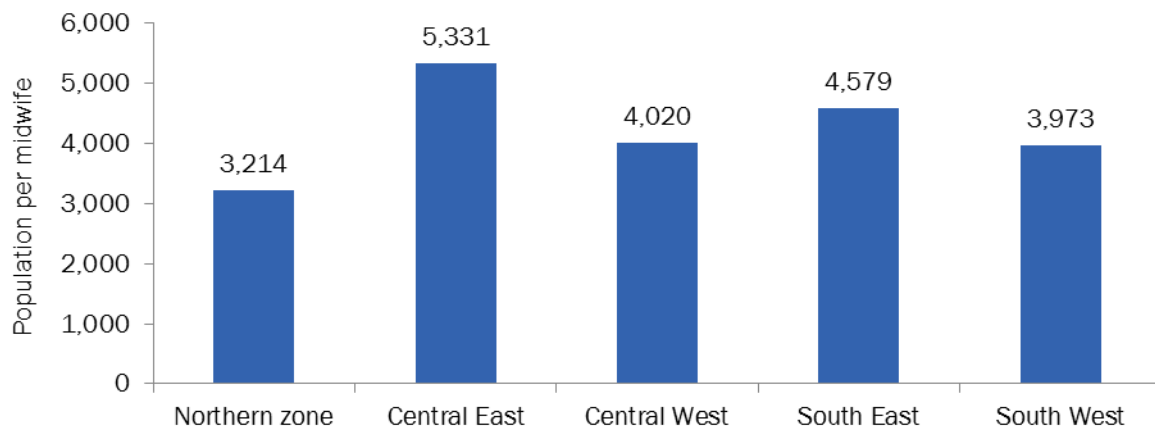
As pointed out in earlier sections, the district population-to-midwife figures show great variation among districts and are all higher than the ratio recommended by WHO. That means that work overload cuts across all districts in Malawi.

Midwife characteristics

By sex, just as the figures for midwives who responded to the questionnaire, the pattern is consistent and skews towards female. Midwifery remains a female-dominated profession. Figure 7 shows the distribution.

Figure 7: Distribution of Midwives by Sex
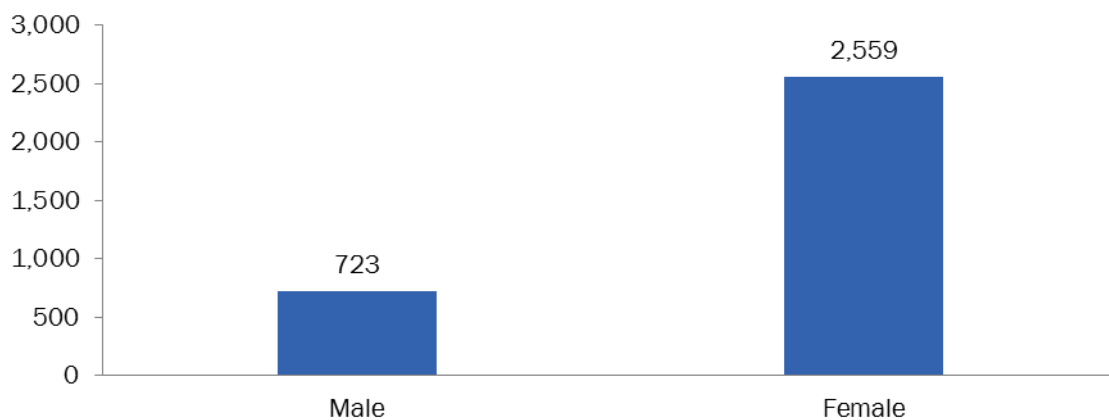
The total figure of 3,420 midwives includes seven foreign midwives (although the survey did not investigate their status, it is highly likely that they are volunteer corps from such countries as the United States and Japan). At the time of the survey, the foreign midwives were in Lilongwe (three), Blantyre (two), Dowa (one), and Queen Elizabeth Central Hospital (one). Of the seven foreign midwives, five were female, an indication that globally, midwifery is a female-dominated career.

The distribution of midwives by level of profession is highest at the nursing and midwifery technician level, as shown in Table 12. This signals an opportunity to further educate this lower-level group. Bedside midwives in public facilities deliver on all areas of midwifery practice. BLM and FPAM provide family planning services while MASM provides labour and delivery services at its Area 43 facility only, as other facilities provide only family planning and antenatal care services. MASM has seven registered midwives and 30 nursing and midwifery technicians. BLM reaches out to rural communities from its district clinics. Its services include BLM health centres, Blue Star Social Franchising, community outreach

programmes, and HIV integration. These services are being provided by 88 midwives comprising 66 nursing and midwifery technicians, 21 enrolled nurses and midwives, and only one registered midwife. The reported 28 midwives from FPAM provide community outreach services with a main focus on increasing access to services in hard-to-reach and under-served communities.

Table 12: Distribution of Midwives by Level of Profession

	Midwives*	MASM Midwives	Total
Advanced	19	0	19
Professional	206	7	213
Registered	199	3	202
Nursing and midwifery technician	2,989	27	3,016

 * Excludes MASM, BLM, and FPAM midwives.

Conclusion

The survey found that the country has 3,420 midwives, along with 153 working with BLM, MASM, and FPAM. Several scenarios have been used to compute population-to-midwife ratios. All scenarios confirm that Malawi has a shortage of midwives on the basis of WHO recommendations as well as on observed need on the ground. By district, Kasungu has the highest population-to-midwife ratio, making it an example of the worst-case scenario, while the smallest and least-populated district of Likoma has the lowest ratio among the districts. Furthermore, there are few foreign midwives. It becomes clear that Malawi needs to train more midwives, especially as maternal and child mortality remains high.

9.3   Midwife Deployment Pattern

Based on information gathered through interviews, bedside midwives are deployed across various layers of the health system architecture, with almost half (47%, n=1,386) working in health centres (Figure 8). Health centres are usually the first contact in accessing healthcare, therefore it is desirable to have many midwives serving in health centres. The fact that health centres are under-resourced and therefore fail to offer certain services within their establishment is a question that lies outside the scope of this survey. More midwives were found to be in rural areas (68%, n=1,378) compared to urban areas (Figure 9), which shows a pattern different from previous studies.

Figure 8: Distribution of Midwives by Level of Facility
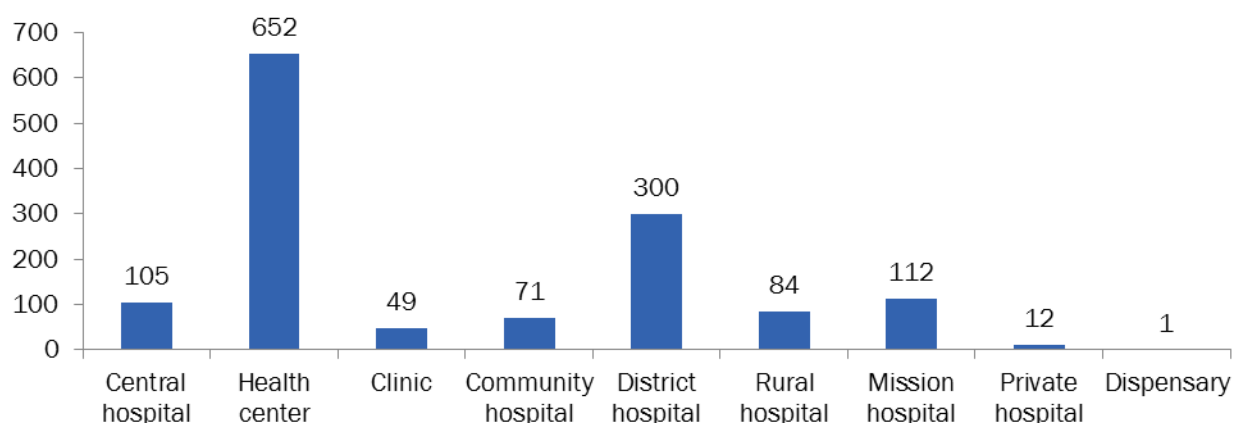
Figure 9: Distribution of Midwives by Level of Facility and Location
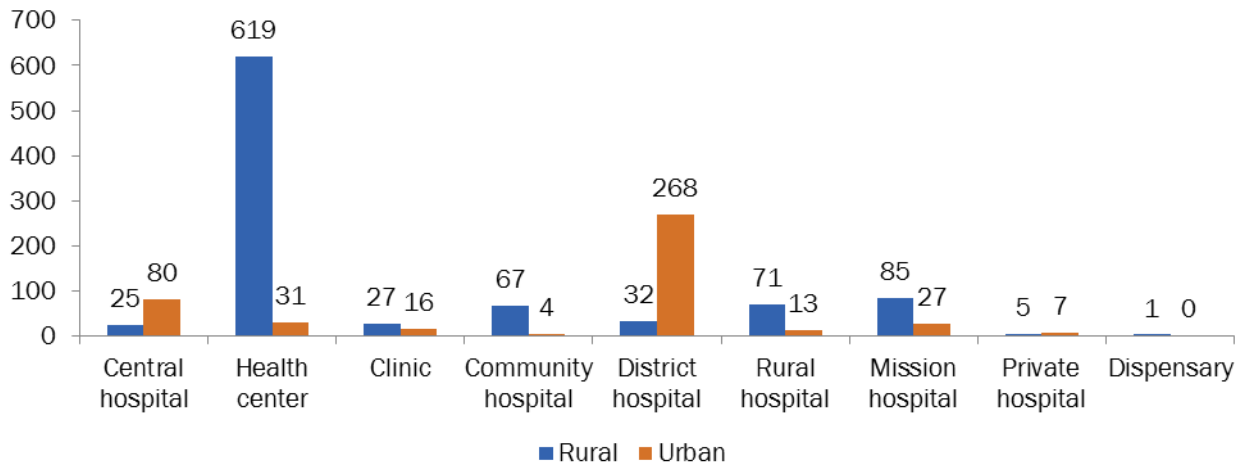
Most midwives work in public health facilities (68.8%, n=1,386) followed by facilities owned by CHAM (26.6%). This resembles the status on distribution of facility ownership.

The area that bedside midwives mostly practice in is labour and delivery (78%, n=1,386), followed by postnatal care (75.3%), family planning (57.3%), and neonatology/neonatal nursery (32.8%) (Figure 10). The small number of midwives that perform neonatal surgery reflects the fact that most midwives are based at health centres where there are no medical doctors or equipment for surgery.

Figure 10: Distribution of Midwives by Practices Performed
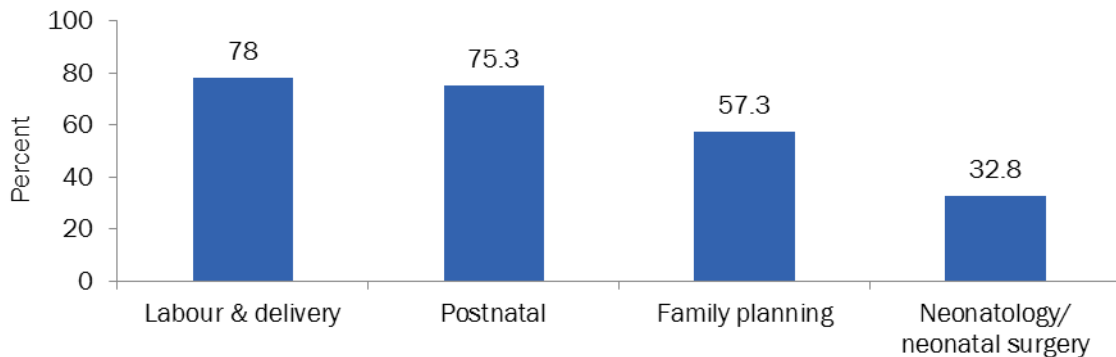
The survey inquired into the types of patients primarily served by midwives (Figure 11). More than half of those surveyed (59.2%, n=1,385) reported that they provide maternity services to inpatients and outpatients, 24.5 percent serve inpatients, 7.7 percent serve outpatients, 0.2 percent serve community-based patients, and 8.5 percent serve inpatient, outpatient, and community-based patients. Given the limited human resources available for health in Malawi, it is not uncommon for healthcare workers to multitask.

Figure 11: Distribution of Midwives by Types of Patients Served
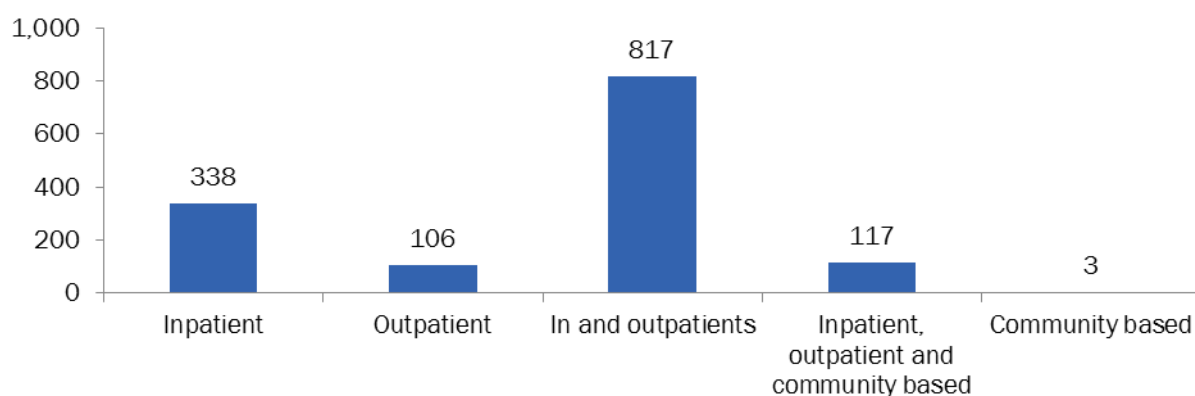
9.4 Working Conditions, Incentives, Training, and Motivation for Bedside Midwives in Malawi

This section is based information gathered through interviews. An objective of the survey was to gather conclusions on how findings could influence policy decisions by addressing the gaps identified. Some variables that helped to address this objective included those that investigated working conditions, incentives, training, interest in midwifery, and drivers of interest in midwifery.

Working conditions

Respondents were asked to state the number of normal working hours (considered to be eight hours a day), hours worked above normal working hours, hours of overtime work that earned them allowance (locum), and total sum of hours worked in the last four weeks before the survey. The consulting team summed up the total amount of hours that midwives worked in the last month before the survey. Some respondents had just come back to work from leave and reported zero hours. To avoid distorting the average, they were taken out when computing this variable.

From 1,372 respondents, the mean amount of total hours worked was 223.1 ± 98 hours— about 55 hours a week. This shows the heavy workload that midwives take on. The average number of normal working hours per month was 158.9 ± 22.7 hours (n=1,372).

Not all hours worked above normal working hours appear to attract overtime/locum. When asked about number of hours of locum, 1,233 respondents (89.9%) indicated they had no hours for locum. For those that claimed locum, the average number of hours for allowance was 6.36 hours; the maximum amount of hours claimed for allowance was 316 hours.

Incentives

The survey investigated financial and nonfinancial incentives that midwives receive. Midwives have no specific incentives different from other health care workers despite the high workload and unsatisfactory working conditions. Thus, the incentives reported might not necessarily be exclusive to midwives but could vary by facility ownership. The financial incentive most commonly received was risk allowance (27.2%, n=1,309), followed by house allowance (21.2%) (Figure 12).

Figure 12: Financial Incentives Received by Midwives

Incentive	Percent
Night shift allowance	2.5
Risk allowance	27.2
Bonus	2.1
Transport allowance	2.7
On call allowance	4.5
Health insurance	9.2
House allowance	21.2

Percent
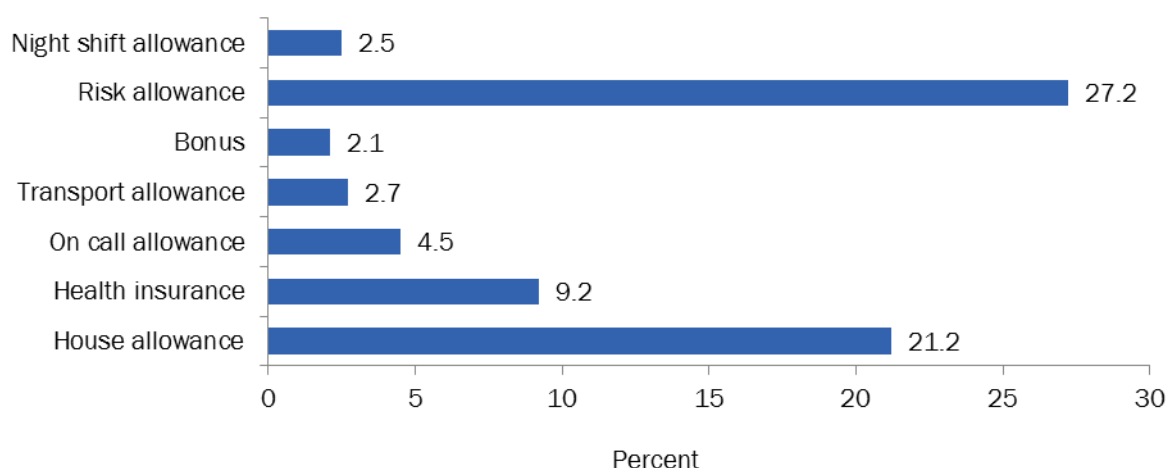
Other financial incentives reported were a variety of allowances ranging from salary top-up that applies to all cadres in healthcare to incentives provided by specific facilities. For example, the Nkhoma mission-affiliated facilities received a mission allowance to provide those that work in hard-to-reach areas with a hardship allowance. Other allowances are lunch, airtime, CHAM top-up, and hospital salary top-up.

Comparably, nonfinancial incentives fare well with 32.8 percent of respondents (n=1,309) indicating they participate in management, the most commonly reported nonfinancial incentive (Figure 13).

Figure 13: Nonfinancial Incentives Received by Midwives

Incentive	Percent
Education opportunities	19.1
Knowledge of results	17.1
Opportunity for growth	29.6
Participation in management	32.8
Appreciation of work	31.3

Percent
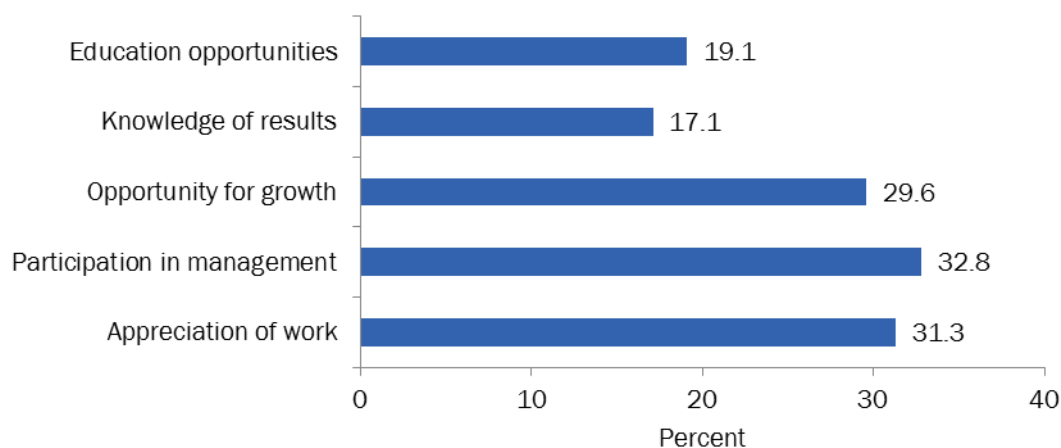
From qualitative data, the most common nonfinancial incentives reported were free housing, water, and electricity. Others mentioned were free health treatment, internet, uniforms, and performance appraisal.

Continuing professional development

Midwives undergo continuing professional development in a number of topics relevant to their work. Topics covered in the past year included malaria in pregnancy, maternal death audit, antiretroviral therapy, prevention of mother-to-child transmission, cancer screening, Helping Babies Breathe, manual vacuum aspiration, management of complications resulting from breech delivery, basic emergency obstetric care, eclampsia, essential newborn care, vaginal examination and family planning, labour and delivery, sexually transmitted

infections in pregnant women, episiotomy and suturing, HIV testing for newborn babies, difficulties in inserting Norplant, helping mothers to survive, and management of pregnancy-induced hypertension. The most covered topic was malaria in pregnancy.

Those who never attended continuing professional development cited a lack of resources and staff shortages as the most common reasons for failing to attend. Some midwives appreciated efforts to facilitate their attendance by providing transportation reimbursement.

Training needs

Respondents were asked to indicate training needs, of which many areas were mentioned. Those most frequently mentioned are presented in Table 13.

Table 13: Training Needs Frequently Mentioned

Area of Training Needed
Family planning
Postpartum hemorrhage
Manual vacuum aspiration
Advanced intensive care
Basic emergency obstetric care
Theatre nursing
Kangaroo Mother Care
Manual removal of placenta
Vacuum extraction
Antenatal care
Eclampsia
Comprehensive emergency obstetric
Newborn care
Helping Babies Breathe
Antiretroviral therapy
Prevention of mother-to-child transmission
Malaria in pregnant women
Kangaroo mother care
HIV testing and counselling
Focused antenatal care

Midwifery in-service training

Midwives benefit from in-service training. Respondents were asked to indicate the number of midwifery-related trainings that they had attended in the year before the survey. Close to half (45.1%, n=1,306) stated they had not participated in any training. Of those who had participated, many had attended one or two trainings. The highest number of trainings attended was eight (Table 14).

Table 14: Number of Trainings Midwives Attended in the Past Year

Number of training sessions	Number of respondents	Percentage of respondents
None	589	45.1
1	364	27.9
2	204	15.6
3	101	7.7
4	35	2.7
5	6	0.5
6	2	0.2
7	3	0.2
8	2	0.2

The types of trainings that midwives reported attending reflected those that were indicated as training needs. This suggests that not every midwife has attended trainings or that those who have attended training might need further refresher training, or a combination of both factors. Table 15 summarizes the types of training midwives attended.

Table 15: Type of Training Midwives Attended

Training Topic
Antiretroviral therapy
Helping Babies Breathe
Basic emergency obstetric care
Verbal autopsy
Midwifery code of conduct
Code care
Family planning
Community-based maternal and newborn health
Prevention of mother-to-child transmission
Integrated maternal and newborn health
Management of eclampsia
Essential care of every baby
HIV testing and counselling
Comprehensive emergency obstetric and newborn care
Manual vacuum aspiration
Bleeding after birth
Postpartum hemorrhage
Malaria case management in pregnant women
Mental health
Focused antenatal care

Training Topic
Management of hypovolemic shock
Care of the infant and newborn

Motivation

The survey also investigated midwives' interest in their profession. Of those who responded, 90.4 percent (n=1,028) said they would work in a midwifery practice while the remainder stated they would work elsewhere, given a chance. This may suggest that most midwives join the profession because they are passionate about it, not because they lack alternative career choices—motivation that bodes well for fostering retention. Figure 14 depicts the distribution of absolute numbers.

One major factor that frustrates professional and advanced midwives is seeing a life lost in situations where a midwife's advice was ignored. A quote from a professional midwife illustrates a typical source of tension:

> "...as a midwife, I would have assessed a client and advised that the client need a caesarean section but you hear a clinical officer saying give so many hours ..., mothers end up either with a rupture or stillbirth ... unfortunately when that happens, a midwife is blamed for any bad outcome whilst our friends cover each other."

Another registered midwife asked about clinical decision making:

> "...why is it that a clinical officer who might have undergone a short course in obstetrics and learns mostly on the job is given more authority to make decisions...it's these types of things that put us off, because level of education is not recognized...something must be done honestly..."

Figure 14: Distribution of Midwives by Interest in the Profession
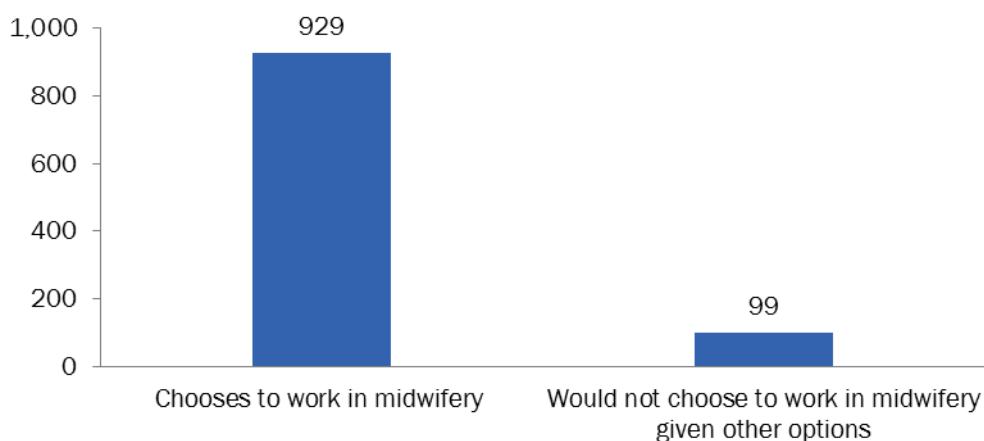
The study also investigated students' interest in midwifery to gauge the transmission rate from school to the health system. Of 146 students who participated in the study, 124 (84.9%) said they had an interest in midwifery (15.1% said they had no interest). Reasons for and against joining midwifery varied as shown in Table 16. Most responses in favour of joining midwifery centred on the:

- Satisfaction that a midwife derives from saving the lives of mother and child

- Understanding that Malawi has a shortage of midwives and there is a need to contribute to maternal and neonatal health
- Independence of a midwife in making decisions as compared with a nurse under the guidance of a doctor
- Understanding that midwifery connects theory and practice

Chief reasons against joining midwifery included:

- Lack of appreciation by superiors when good work is done yet reprisals—and at times withdraw of licence of practice—when death occurs, even if circumstances were challenging due to a lack of resources to save lives
- Lack of resources and equipment
- Too demanding a career
- NMCM's failure to address midwife concerns

Table 16: Reasons For and Against Having an Interest in Midwifery

Interested in joining midwifery upon graduating
It is the only department that deals with two lives at the same time. I like to help mothers because having a healthy mother and baby means a healthy world.
Because I can make decisions on case management of the client without depending much on doctor's decision.
I always feel satisfied with the care I give to expectant mothers and newborn babies especially when they are both alive with no complications.
I would like to improve maternal health and reduce maternal death with quality care from the knowledge obtained during my training.
I feel good when I see a woman happy after labour. I also feel good when I perform HBB (Helping Babies Breathe) and it is successful.
Midwifery involves care of a baby from its genesis, which can give an opportunity of preventing most maternal problems that can lead to death or disabilities.
It is my passion to help mothers in labour and care for them during the antepartum and postpartum period. I would like to reduce maternal and neonatal death and promote good health to both mother and newborn.
I just feel happy helping two lives at a time and the way guardians express their joy after delivery.
Resources and materials needed in midwifery are at least available rather than in general wards.
In midwifery, prognosis is highly good, which motivates me and assures me that I am really doing a good job. A woman comes in pain and within minutes after giving birth is happy.
I am interested in the provision of midwifery care because most women are dying due to a shortage of skilled midwives.
We practice most of the things that we learn during midwifery theory unlike in general nursing.
My aim is to help Malawians looking at the rapid population growth compared to the shortage of skilled health workers.

Not interested in joining midwifery upon graduating
Midwifery care is difficult as you need to care for both the mother and the baby and it's too involving.
Just do not like midwifery.
There are inadequate resources in our hospitals, which lead to low-quality care, so considering that in midwifery we deal with two lives it is good that I do not work in this department so that I should not be guilty before God.
I have been inspired by the ward in charge of the male surgical ward and it is my dream, will, and passion to work in the male surgical ward.
Midwifery care is very hard, tiresome, and not very interesting.
Midwifery is too involving.
There are no incentives. More things need to be done in terms of staff motivation.
I am interested in paediatric nursing. In midwifery one mistake erases every good work one has done.
Most of the maternal and neonatal deaths are blamed on midwives to the point of confiscating their license, which is not fair.
There is shortage of midwives leading to increased workload for midwives.
NMCM does not understand challenges faced by midwives. There are inadequate resources and poor working conditions for midwives.
Unfavourable environment and working conditions for midwives in Malawi. Midwives are not cared for by management. They are punished over minor misunderstandings and are not protected by the nurses and midwives regulatory body.
In health I would like to save children. I want to continue nursing in paediatrics as it is my dream.

Other general comments from midwives

Comments were solicited from the midwives interviewed to get a general sense of how they view their profession and their recommendations for improvement. Common remarks made included the following:

- Enjoy being a midwife and wish to be a specialist in midwifery
- Need a salary increase
- Need an allowance
- Government should involve CHAM midwives in trainings
- Heavy workload due to shortage of midwives and a recommendation that government should recruit additional midwives
- Lack of resources and equipment, which leads to preventable maternal deaths
- Midwives are faulted by supervisors when maternal death occurs, even if the resources to save lives were not available

Conclusion

Midwives operate under hard conditions and often lack incentives. Most are driven by passion and derive satisfaction from saving lives and serving their country—a solid platform on which to build a robust retention programme.

10 BEST PRACTICES

Some practices have been identified to reflect what can be termed "best practices." They include the following:

- **Support from community members.** In some communities, community members play a role in promoting quality midwifery care as well as participating in construction and upkeep. At Kasalika Health Centre, for example, community members constructed the labour ward. Community members in Santhe buy bulbs for the wards, dig pit latrines, and also sweep the ground. At Jenda, they built a guardian shelter and help clean it.

- **Existence of disciplinary procedures, scopes of work, and midwifery standards.** Having disciplinary procedures is expected to be a norm for every facility, but in reality these procedures are generally non-existent and where they may be in place, they are often not known and followed. In facilities with disciplinary procedures and committees, procedures are made known through continuing professional development meetings, orientation, and code of conduct guidelines. In facilities such as Mulibwanji, Mvera, and Namikango, disciplinary procedures follow a hierarchy where matters are first handled at the ward level, then at the matron level, and then by management. In facilities that have scopes of work and midwifery standards, they are reinforced through continuing professional development meetings, supervision, mentorship, and standard-based audit, morning reports, and spot checks. Midwives are also encouraged to read and know their scope of work.

- **Motivational awards.** Some facilities have put in place motivational awards, such as the "Best Midwife" award, over and above usual nonfinancial incentives.

11 OVERALL CONCLUSION AND RECOMMENDATIONS

The survey confirmed that Malawi has a critical shortage of midwives, despite their enormous importance in reducing maternal and neonatal mortality and morbidity. Existing midwives work under strenuous conditions consisting of long hours in environments that typically lack medical equipment and necessary supplies. Midwives express passion and patriotism for their profession; government and other stakeholders need to nurture them and show appreciation. Knowing which facilities provide midwifery services was an important unintended outcome of the survey. The findings indicate that there appears to be great potential to retain midwives if appropriate measures are taken to address their concerns.

Recommendations to Government and Partners

Through the Ministry of Health the government should address the following gaps identified in this survey:

- Increase the number of midwives in service. Malawi needs about 24,387 midwives to support the current estimate of women of reproductive age. When the available midwifery population is factored in, the gap is 20,814 midwives. The increase will have a positive impact on service delivery and will reduce the burden on existing midwives, thereby improving working conditions.

- Develop a clear training plan for new and existing midwives, retention measures, and incentives.

- Strengthen the human resource information management system. Insufficient data from district to central levels calls for urgent attention from the government, through the Ministry of Health. Most district nursing officers had insufficient data, especially on midwives in nongovernment-owned facilities. Incentives are needed for district nursing officers and midwives in facilities owned by non-state actors to request and regularly submit data. Such incentives can include joint training programmes, joint planning, and implementation of activities.

- Offer incentives to midwives. While it is difficult to offer financial incentives to midwives and leave out other cadres, a deliberate approach can be taken to scale up nonfinancial incentives. These could include providing education opportunities or appreciation efforts, such as "Best Midwife" awards with an appreciation note from senior management.

- Develop a national strategy to scale up midwifery. The lack of rightful recognition of midwives, both at the operational level and as an independent profession, needs to be addressed. Midwifery needs its own career ladder that enables midwives to progress in midwifery rather than progressing as a nurse.

- Invest continuously in establishing, collecting, and updating the central-level dataset under the Directorate of Human Resources. More must be done to gather information on such basic characteristics as midwife age, sex, qualification, and geographical distribution, as this data could provide valuable information for midwifery workforce planning and decision making.

- Develop common frameworks or tools (such as midwifery workforce surveillance) for counting midwives and measuring their skill wastage and mobility. Other potential methods should also be explored and considered to continuously monitor midwifery retention and turnover at facility, district, and national levels. More work is needed to understand the impact of midwives on health outcomes and to develop a common understanding of the classification of different cadres of midwives. Databases on midwives are worth maintaining to generate information and evidence that support policy decisions. Effective human resource information management systems require

competent staff with the capacity to use various instruments to collect, compile, and analyse workforce data.

- The importance of higher qualifications in the provision of quality care is well documented. If Malawi is to significantly reduce maternal and neonatal deaths and morbidity, trained advanced practice midwives are crucial. Increasing the training of advanced and professional midwives, however, requires political advocacy to achieve the necessary legal and regulatory changes in midwifery practice.

Recommendations to the Nurses and Midwives Council of Malawi

- Revisit procedures for addressing the safeguard and sanction of midwives. The NMCM should enhance engagement with midwives and improve how it handles midwife concerns. By extension, the council should explore ways of safeguarding midwives from unwarranted punishment or reprisals by management when incidents occur due to causes beyond the midwife's control. However, this needs careful balance to hedge against potential negligence that may cost patient lives. Guidelines are needed on objective investigation, clear sanctions, and appeal processes.

- Foster provision of continuing professional development through electronic devices to train faster at reduced cost (no travel).

- Establish additional registers to recognize additional competencies. The council keeps cumulative data, which does not give a true picture of the existing gap. Also, council data does not disaggregate according to professional cadres and levels of competencies because nursing and midwifery have traditionally been organized according to levels (I and II). The registers should be separated between nursing and midwifery in accordance to the scopes of practice.

Recommendations to the Association of Malawian Midwives

- Periodically survey women's experiences with midwives and include these perspectives in training programmes.

- Develop programmes or activities to portray midwifery as an attractive occupation.

REFERENCES

American Pregnancy Association. 2016. "Midwives: Benefits Of Having A Midwife." Available at: http://americanpregnancy.org/labor-and-birth/midwives.

Bradley, S., F. Kamwendo, E. Chipeta, W. Chimwaza, H. de Pinho, et al. 2015. "Too Few Staff, Too Many Patients: A Qualitative Study of the Impact on Obstetric Care Providers and on Quality of Care in Malawi." *BMC Pregnancy and Childbirth* 15 (65).

The DHS Program. n.d. "Malawi." Available at: http://dhsprogram.com/Where-We-Work/Country-Main.cfm?ctry_id=24&c=Malawi&Country=Malawi&cn=&r=1.

Government of Malawi, et al. 2015. "Malawi Emergency Obstetric and Newborn Care Needs Assessment, 2014." Available at: https://www.healthynewbornnetwork.org/hnn-content/uploads/Malawi-EmONC-Report-June-2015_FINAL.pdf.

House of Commons Committee of Public Accounts. 2014. *Maternity Services in England. Fortieth report of session 2013–14.* Available at: https://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/776/776.pdf.

ICM. n.d. "ICM International Definition of the Midwife." Available at: http://www.internationalmidwives.org/who-we-are/policy-and-practice/icm-international-definition-of-the-midwife/.

Index Mundi. n.d. "Malawi Factbook." Available at: https://www.indexmundi.com/malawi/.

International Monetary Fund (IMF). 2017. "IMF Country Report No. 17/184: Malawi Economic Development Document." Washington, DC: IMF.

Mackintosh, LS. 2003. "A Study Identifying Factors Affecting Retention of Midwives in Malawi." Liverpool, England: Liverpool School of Tropical Medicine.

MOH. 2012. *Road Map for Accelerating the Reduction of Maternal and Neonatal Morbidity and Mortality in Malawi.*

MOH. 2014. *Maternal Death Surveillance and Response: Guidelines for Health Professionals.*

MOH. 2015. *Report on the Confidential Enquiry into Maternal Deaths in Malawi (2008–2012).*

MOH and ICF International. 2014. *Malawi Service Provision Assessment 2013-14.* Lilongwe, Malawi, and Rockville, Maryland, USA: MOH and ICF International.

National Statistical Office. 2008. *Malawi Population and Housing Census 2008.*

National Statistical Office and ICF International. 2016. *Malawi Demographic and Health Survey 2015-16: Key Indicators Report.* Zomba, Malawi, and Rockville, Maryland, USA. NSO and ICF International.

National Statistical Office and ICF Macro. 2011. *Malawi Demographic and Health Survey 2010.* Zomba, Malawi: NSO/Malawi and ICF Macro.

Njera, Austin. "Malawi Celebrates Midwives." MamaYe! May 6, 2015. Available at: http://www.mamaye.org.mw/en/blog/malawi-cerebrates-midwifery.

Nove, A. Unpublished. "Midwifery in Malawi: In-depth Country Analysis." Background document prepared for the UNFPA's *State of the World's Midwifery 2011* report.

UNFPA. 2011. *The State of the World's Midwifery 2011: Delivering Health, Saving Lives*. New York: UNFPA.

UNFPA. 2013. *Good Practices on Strengthening Midwifery Services to Avert Maternal and Newborn Deaths*. New York: UNFPA.

UNFPA. 2014. *The State of the World's Midwifery 2014*: *A Universal Pathway. A Woman's Right to Health*. New York: UNFPA.

APPENDIX 1: NUMBER OF MIDWIVES IN NORTHERN ZONE

CHITIPA	Male	Female	Total
Chisasu Health Center (HC)	1	0	1
Chitipa District Hospital	6	18	24
Ifumbo HC	0	1	1
Kameme HC	0	1	1
Kapenda HC	1	0	1
Misuku HC	0	0	0
Nthalire HC	1	0	1
Wenya HC	0	0	0
Chambo HC	0	2	2
Kaseye Rural (R.) Hospital	0	6	6
Total	9	28	37

KARONGA	Male	Female	Total
Atupele Community Hospital	5	4	9
Chilumba R. Hospital	0	4	4
Fulirwa HC	1	0	1
Garrison HC	3	2	5
Hara HC	0	0	0
Iponga HC	0	1	1
Kaporo R. Hospital	1	3	4
Kasoba HC	1	0	1
Lupembe HC	0	0	0
Lwezga HC	1	0	1
Mpata HC	0	1	1
Ngana HC	0	1	1
Nyungwe	0	3	3
Wiliro HC	0	1	1
Sangiro HC	2	0	2
St. Annes HC	2	5	7
Karonga District Hospital	5	18	23
Total	21	43	64

RUMPHI	Male	Female	Total
Bolero R. Hospital	1	3	4
Katowo R. Hospital	0	1	1
Mhuju R. Hospital	0	2	2
Mwazisi HC	1	0	1
Mphompha HC	1	2	3
Lura HC	1	1	2
Chitimba HC	1	0	1
Mzokoto HC	1	1	2
Jalawe HC	1	0	1
Ng'onga HC	0	1	1
Chisimuka HC	0	0	0
Luwuchi HC	1	0	1
Mlowe HC	1	0	1
Tchalo HC	1	0	1
Nthenje HC	1	0	1
St. Patrick's HC	0	1	1
Eva Demaya HC	0	1	1
Rumphi District Hospital	5	34	39
David Gordon Memorial Hospital	9	17	26
Total	25	64	89

MZIMBA NORTH	Male	Female	Total
Bwengu HC	0	1	1
Choma HC	0	1	1
Ekwayiweni HC	0	0	0
Emsizini HC	0	1	1
Enukweni HC	0	1	1
Kabwafu HC	1	0	1
Kafukule HC	0	2	2
Kamwe HC	0	1	1
Khuyukulu HC	1	1	2
Luvwere HC	0	0	0
Luzi HC	1	0	1
Malidade HC	0	1	1
Matuli HC	0	1	1

MZIMBA NORTH	Male	Female	Total
Mpherembe HC	1	1	2
Mtwalo HC	1	0	1
Mapale HC	3	4	7
Njuyu HC	0	0	0
Thunduwike HC	1	0	1
Ekwendeni Hospital – CHAM	2	22	24
Nkholongo – CHAM	0	3	3
St. John's Hospital – CHAM	5	37	42
Enukweni Maternity HC	0	2	2
Total	16	79	95

MZIMBA SOUTH	Male	Female	Total
Bulala HC	0	1	1
Chikangawa HC	0	1	1
Edingeni HC	0	1	1
Ehehleni HC	0	0	0
Embangweni Hospital	6	6	12
Emfeni Rural Hospital	0	1	1
Endindeni HC	0	1	1
Euthini HC	1	1	2
Hoho HC	0	1	1
Jenda Rural Hospital	1	1	2
Kabuwa HC	0	1	1
Kamteteka HC	0	0	0
Khosolo HC	1	0	1
Luwawa HC	0	0	0
Luwerezi HC	0	1	1
Madede HC	1	0	1
Manyamulu HC	0	1	1
Mbalachanda HC	0	1	1
Mkoma HC	1	0	1
Msese HC	1	0	1
Mtende HC	0	0	0
Mzalangwe HC	0	1	1
Mzimba District Hospital	4	28	32
Katete CHAM	2	8	10
Total	18	55	73

LIKOMA	Male	Female	Total
Chizumulu HC	1	2	3
St. Peter's Hospital	7	3	10
Total	8	5	13

NKHATA BAY	Male	Female	Total
Bula HC	0	2	2
Chikwina HC	0	1	1
Chintheche R. Hospital	3	12	15
Chisala HC	0	1	1
Chitheka HC	1	0	1
Kachere HC	0	1	1
Kande HC	1	0	1
Khondowe HC	0	0	0
Liuzi CH	1	0	1
Maula HC	1	0	1
Mpamba HC	1	1	2
Mwaya HC	0	0	0
Mzenga HC	0	2	2
Nkhata Bay District Hospital	11	41	52
Nthungwa HC	0	1	1
Tchesamu HC	0	0	0
Usisya HC	1	0	1
Chilambwe HC	1	2	3
Luwazi HC	0	2	2
Kavuzi Plantation HC	0	2	2
Total	21	68	89

APPENDIX 2: NUMBER OF MIDWIVES IN CENTRAL EAST ZONE

KASUNGU	Male	Female	Total
Bua HC	1	0	1
Chimwavi HC	0	1	1
Chulu HC	2	0	2
Dwangwa HC	0	0	0
Gogode HC	0	0	0
Kaluluma Rural Hospital	1	4	5
Kamboni HC	0	0	0
Kapelula HC	0	1	1
KASALIKA HC	0	3	3
Kasungu District Health Office	4	20	24
Kawamba HC	0	2	2
Khola HC	0	2	2
Lojwa HC	0	1	1
Lunyangwa HC	1	0	1
Ndunga HC	1	0	1
Mkhota HC	1	0	1
Mpepa HC	1	0	1
Mtunthama HC	0	4	4
Mziza HC	2	0	2
Ofesi HC	0	1	1
Santhe Anchor Farm HC	0	2	2
Santhe HC	2	0	2
Simulemba HC	1	0	1
Wimbe HC	1	0	1
Nkhamenya Community Hospital	4	11	15
St. Andrews HC – CHAM	1	10	11
St. Faith HC – CHAM	0	1	1
Total	23	63	86

NKHOTAKOTA	Male	Female	Total
Benga HC	0	1	1
Bua HC	1	2	3
Dwambazi R. Hospital	1	4	5
Katimbira HC	1	1	2
Kawongozi HC	0	0	0
Malowa HC	1	0	1
Mpamantha HC	0	2	2
Msenjere HC	0	2	2
Mtosa HC	1	1	2
Mwansambo	0	4	4
Ngala HC	1	2	3
KK District Hospital	21	65	86
Nkhunga HC	0	6	6
Alinafe Com Hospital	4	6	10
Chididi HC	0	1	1
Kapiri HC	0	1	1
Kisitu HC	1	1	2
Liwaladzi HC	0	1	1
Matiki Private Clinic	1	17	18
St. Anne's Health Centre	2	27	29
Total	35	144	179

SALIMA	Male	Female	Total
Chagunda HC	0	1	1
Chinguluwe HC	0	3	3
Chipoka HC	1	2	3
Katawa HC	0	3	3
Khombeza HC	1	4	5
Lifeline Private HC	0	4	4
Lifuwu HC	0	2	2
Maganga HC	1	2	3
Makioni HC	1	1	2
Mchoka HC	0	2	2
Salima District Hospital	1	23	24
Senga Bay Baptist Medical Centre	1	7	8
Kaphatenga HC	3	2	5

SALIMA	Male	Female	Total
Chitala HC	2	2	4
Thavite HC	3	2	5
Ngodzi HC	1	3	4
Katemera Private Clinic	0	1	1
Total	15	64	79

DOWA	Male	Female	Total
Bowe HC	1	1	2
Chakhadza HC	1	0	1
Chakhungu HC	0	3	3
Chinkhwili HC	0	0	0
Chisepo HC	0	1	1
Chizolowondo HC	2	0	2
Dowa District Hospital	5	16	21
Dzaleka HC	1	4	5
Dzoole HC	0	0	0
Kasese HC	0	1	1
Kayembe HC	0	1	1
Mbingwai HC	2	0	2
Mponela R. Hospital	3	7	10
Msakambewa HC	0	1	1
Mwangala HC	0	1	1
Nalunga HC	0	0	0
Thonje HC	0	2	2
Madisi Mission	3	10	13
Mtengowanthenga Hospital	1	7	8
Mvera Mission Hospital	1	2	3
Chezi Mission Hospital	3	3	6
Total	23	60	83

NTCHISI	Male	Female	Total
Chinguluwe HC	0	1	1
Kamsonga HC	1	1	2
Kangolwa HC	1	0	1
Khuwi HC	0	1	1
Malomo HC	0	3	3
Mkhuzi HC	0	1	1
Mndinda HC	1	1	2
Mzandu HC	0	1	1
Ntchisi District Hospital	2	17	19
Nthondo HC	1	0	1
Chinthembwe HC	1	0	1
Total	7	26	33

APPENDIX 3: NUMBER OF MIDWIVES IN CENTRAL WEST ZONE

MCHINJI	Male	Female	Total
Chiosya HC	1	2	3
Chipumi HC	1	2	3
Kaigwazanga HC	1	2	3
Kapanga HC	0	2	2
Kochilira R. Hospital	3	2	5
MN District Hospital	6	62	68
Mikundi HC	2	1	3
Mkanda HC	1	2	3
Nkhwazi HC	2	2	4
Tembwe HC	1	1	2
Kapiri Com Hospital	9	11	20
St. Josephy (Ludzi)	4	10	14
St.Micheal (Guilleme)	5	10	15
Total	36	109	145

DEDZA	Male	Female	Total
Bembeke HC	3	1	4
Kaundu HC	1	1	2
Kasina HC	4	4	8
Matumba HC	4	3	7
Mikondo HC	1	2	3
Mphuzi HC	1	1	2
Mtendere HC	3	7	10
Chikuse HC	0	1	1
Chimoto HC	1	0	1
Chitowo HC	1	1	2
Chongoni HC	0	0	0
DZ District Hospital	15	52	67
Dzindevu HC	0	0	0
Golomoti HC	1	2	3
Kachindamoto	0	0	0
Kafere HC	1	0	1
Kalulu HC	0	1	1
Kanyezi HC	1	0	1
Kaphuka HC	1	1	2

DEDZA	Male	Female	Total
Lobi	2	0	2
Maonde HC	0	0	0
Manyani HC	0	2	2
Mdeza	0	0	0
Mganja HC	0	1	1
Mjini HC	0	0	0
Mlangali HC	0	0	0
Mphathi HC	0	1	1
Mtakataka HC	1	2	3
St Josephy	3	2	5
Kanyama	2	2	4
Nakalazi	0	2	2
Police College	0	1	1
Tiyese Pvt	0	1	1
Total	46	91	137

NTCHEU	Male	Female	Total
Bilira HC	1	1	2
Biliwiri HC	1	1	2
Bwanje HC	1	2	3
Champiti HC	1	0	1
Chikande HC	2	1	3
Kandeu HC	1	2	3
Kampeni HC	0	2	2
Kasinje HC	2	3	5
Katsekera HC	0	2	2
Lizulu HC	0	2	2
Manjawira HC	2	0	2
Mlangeni HC	1	1	2
Kalimanjira HC	1	0	1
nsiyaludzu HC	0	2	2
NU District Hospital	9	32	41
Chigodi HC	2	0	2
Ganya HC	0	4	4
Gowa HC	0	2	2
Matanda HC	1	1	2
Mlanda HC	1	2	3

NTCHEU	Male	Female	Total
Mzama	1	3	4
Ntonda Com Hospital	1	5	6
Nsipe HC	1	3	4
Senzani HC	0	1	1
Shapeville HC	1	3	4
SR Tereza Com Hospital	0	8	8
Tsangano HC	1	2	3
Lakeview	1	2	3
Total	32	87	119

LILONGWE	Male	Female	Total
ABC Clinic – CHAM	2	13	15
Airwing Clinic	1	0	1
Area 18 HC	1	12	13
Area 25 HC	3	21	24
Chadza HC	0	2	2
Chibwe HC	0	0	0
Chikowa HC – LLO30	0	0	0
CHILD LEGACY –NGO	1	8	9
Chilobwe HC	0	0	0
Chimbalanga HC	0	1	1
Chileka HC	1	5	6
Chiunjiza HC	0	0	0
Chiwamba HC	1	1	2
Chiwe HC – CHAM	0	0	0
Chiwoza HC	0	1	1
Chitedze HC	2	6	8
David Livingstone	1	8	9
Diamphwe HC	0	3	3
Dickson HC	0	2	2
Dzenza HC	0	7	7
Kabudula Community Hospital	2	5	7
Kamuzu Barracks Community Hospital	9	12	21
Kang'oma HC	0	1	1
Katchale HC	1	0	1
Kawale HC	0	13	13
Khongoni HC	1	1	2

LILONGWE	Male	Female	Total
Likuni – CHAM	4	20	24
Bwaila Hospital	7	128	135
Lumbazi HC	1	10	11
Lutheran Mobile Clinic – CHAM	0	5	5
Malingunde HC – CHAM	2	2	4
Maluwa HC	2	2	4
Matapila HC	0	0	0
Mbabvi HC	1	1	2
M'bangómbe 1 HC	1	1	2
M'bangómbe 2 HC	1	1	2
Mbwatalika HC – CHAM	0	1	1
Mingo'ongo HC	0	1	1
Mitundu Community Hospital	4	15	19
Mlare HC – CHAM	3	11	14
Mtenthera HC	0	6	6
Nambuma HC	1	4	5
Nathenje HC	1	4	5
Ndaula HC	0	0	0
Ngoni HC	0	1	1
Nkhalango Private Clinic	0	1	1
Nkhoma Community Hospital – CHAM	2	13	15
Nsalu	0	2	2
Nyamanda Private Clinic	0	1	1
St. Gabriel Community Hospital	5	8	13
Ukwe	0	1	1
Daeyand Luke Mission Hospital	0	10	10
Total	61	371	432

APPENDIX 4: NUMBER OF MIDWIVES IN SOUTH EAST ZONE

BALAKA	Male	Female	Total
Chiyendausiku HC	0	1	1
Kalembo HC	2	3	5
Kwitanda HC	0	2	2
Mbwra HC	1	3	4
Namanolo HC	0	1	1
Nandumbo	3	0	3
Phimbi HC	1	2	3
Ulongwe HC	1	6	7
Utale 2 HC	1	4	5
Kankao HC	2	4	6
Phalula	2	3	5
Utale 1 HC	1	3	4
Comfort Hospital	2	5	7
BLK District Hospital	12	47	59
Total	28	84	112

MACHINGA	Male	Female	Total
Chikweo HC	1	1	2
Kawinga HC	1	0	1
MHG District Hospital	12	42	54
Machinga HC	2	0	2
Mangamba HC	0	1	1
Mkwepere HC	1	1	2
Mlomba HC	0	1	1
Nainunje HC	1	1	2
Namanja HC	0	1	1
Nanyuchi HC	1	1	2
Ngokwe HC	1	0	1
Ntaja HC	0	5	5
Nyambi	1	1	2
Gawanani HC	2	0	2
Mpiri HC	3	1	4
Mposa HC	1	1	2
Nsanama HC	2	2	4

MACHINGA	Male	Female	Total
Ntholowa HC	1	3	4
Namadanje HC	4	2	6
Lifune Pvt Clinic	0	1	1
Mtambo Pvt Clinic	0	1	1
Liwonde Clinic	1	0	1
Nyambi Police Clinic	0	1	1
Total	35	67	102

MANGOCHI	Male	Female	Total
Assalam Clinic	0	3	3
Chikole HC	1	1	2
Chilipa HC		1	3
Chilonga HC			2
Chiponde HC		0	0
Chiumbangame HC		0	0
Chiunda HC		0	0
Iba HC		0	0
Jalasi HC	1	1	2
Kadango HC		0	0
Kapire HC		0	3
Katema HC			2
Katuli HC			1
Koche HC			10
Kukalanga HC			0
Lugola HC	0	1	1
Lulanga HC			0
Lungwena HC			4
Luwalika HC			2
Malembo HC			1
Malombe HC			1
Malukula HC			2
Mangochi District Hospital			48
Monkeybay			14
Mpondasi HC			3
Mtimabii HC			2
Mulibwanji HC			9
Makanjira HC			2

MANGOCHI	Male	Female	Total
Namalaka HC			2
Namwera HC			3
Nancholi HC			0
Nangalamu HC			1
Nankhwali HC			2
Namkumba HC			2
Ngapani HC			0
Nkope HC			1
Nkumba HC			1
Phirilongwe HC			2
Sr. Martha			3
St. Martins			17
Total			151

MULANJE	Male	Female	Total
Bondo HC	1	1	2
Chambe HC	2	0	2
Chinnyama HC	2	1	3
Chisitu HC	0	1	1
Chomde HC	0	6	6
Dzenje HC	0	1	1
Kambenje HC	2	0	2
Mbiza HC	1	1	2
Milonde HC	1	1	2
Mimosa HC	0	1	1
Mpala HC	1	1	2
Mulanje District Hospital	6	19	25
Mulomba HC	2	1	3
Muloza HC	0	2	2
Namphungo HC	0	2	2
Naphimba HC	1	1	2
Mkomaula HC	2	0	2
Thuchila HC	0	3	3
Mulanje Mission Hospital	4	25	29
Namasalima SDA HC	0	4	4
Namulenga HC	0	3	3
Thembe HC	0	2	2

MULANJE	Male	Female	Total
Lujeri Private Hospital	1	1	2
Total	26	77	103

PHALOMBE	Male	Female	Total
Chiringa HC	1	1	2
Chitekesa HC	2	2	4
Kalinde HC	1	0	1
Migowi HC	2	5	7
Mpasa HC	3	0	3
Nambazo HC	2	1	3
Nkhulambe HC	2	1	3
Nkhwayi HC	2	1	3
Phalombe DH	4	13	17
Chiringa HC – CHAM	2	4	6
Holy Family Hospital – CHAM	2	3	5
Mwanga HC – CHAM	1	3	4
Sukasanje HC – CHAM	3	3	6
Mulungu Alinafe Private Clinic	0	1	1
River of LIFE Private Clinic	0	1	1
Total	27	39	66

ZOMBA	Male	Female	Total
Sadzi HC	0	4	4
Chingale HC	0	2	2
Chipini HC	1	2	3
Nkasala HC	0	2	2
M'mambo HC	0	1	1
Matawale HC	1	14	15
Naisi HC	1	5	6
Domasi HC	3	8	11
H.Parker HC	0	2	2
Machinjiri HC	0	1	1
Namasalima HC	0	2	2
Bimbi HC	1	1	2
Likangala HC	0	2	2
Pirimiti HC	8	22	30
Chamba HC	0	1	1

ZOMBA	Male	Female	Total
Ngwelelo HC	3	0	3
St Lukes HC	5	13	18
Lambulira HC	1	1	2
Nasawa HC	2	3	5
Magomero	0	3	3
Namadidi HC	0	2	2
Maera HC	1	1	2
Mwandama HC	2	0	2
Chisi HC	0	0	0
Thondwe HC	0	3	3
Makwapala HC	2	2	4
Matiya HC	0	2	2
Namikango HC	0	5	5
City Clinic	0	4	4
Chilipa HC	0	1	1
Zilindo HC	0	2	2
Total	31	111	142

APPENDIX 5: NUMBER OF MIDWIVES IN SOUTH WEST

BLANTYRE	Male	Female	Total
Bangwe HC	1	14	15
Chavala HC	0	2	2
Chikowa HC	0	4	4
Chileka HC	0	3	3
Chilomoni HC	0	11	11
Chimembe HC	0	1	1
Chirimba HC	0	3	3
Dziwe HC	1	1	2
Kadidi HC	0	2	2
Limbe HC	0	17	17
Lirangwe HC	2	1	3
Lundu HC	1	1	2
Madziabango HC	1	0	1
Makata HC	0	2	2
Makhetha HC	0	4	4
Mbayani HC	0	1	1
Mdeka HC	1	1	2
Mpemba HC	2	4	6
Namikoko HC	0	1	1
Ndirande HC	1	14	15
Pensulo HC	0	2	2
South Lunzu Hospital	0	14	14
Zingwangwa HC	0	11	11
Chileka SDA HC – CHAM	0	2	2
Lumbila HC – CHAM	2	5	7
Malabada HC – CHAM	1	3	4
Mlambe Hospital – CHAM	0	18	18
St. Vincent HC – CHAM	3	2	5
BT Adventist Hospital	0	8	8
Mpingo HC	1	0	1
Mwaiwathu Hospital	0	16	16
Dai Hallani HC	0	2	2
Total	17	170	187

CHIKWAWA	Male	Female	Total
Chapananga HC	1	1	2
CK Distict Hospital	10	37	47
Chipwaila HC	1	1	2
Chithumba HC	1	0	1
Dolo HC	0	2	2
Gaga HC	0	0	0
Kakoma HC	1	0	1
Makhuwira HC	2	0	2
Mapelera HC	2	1	3
Mfera HC	1	2	3
Mkumaniza HC	1	1	2
Ndakwera	0	2	2
Bereu Dispensary	0	1	1
Nchalo Hunger Clinic	0	3	3
Majete HC	1	0	1
Ngabu R. Hospital	2	7	9
Misomali HC	0	1	1
Mont Fort	8	18	26
Ngabu SDA	0	3	3
Kapichira Escom	0	2	2
Illovo Factory	1	3	4
Kalulu Clinic	0	2	2
Nkombezi Clinic	0	1	1
Alumenda Clinic	0	1	1
Lengwe Clinic	0	1	1
Mwanza Clinic	0	1	1
Mangulenje Clinic	0	1	1
Total	32	92	124

CHIRADZULU	Male	Female	Total
Chitera HC	1	2	3
Muwuwa HC	1	0	1
Mbulumbuzi HC	0	3	3
Milepa HC	1	2	3
Namadzi HC	1	3	4
Namitambo HC	1	3	4
Ndude HC	0	2	2

CHIRADZULU	Male	Female	Total
Nkalo HC	0	2	2
Thumbwe HC	1	1	2
CZ District Hospital	1	21	22
St. Joseph Hospital	4	11	15
Chimwawa HC	0	1	1
Maravi HC	0	4	4
Total	11	55	66

MWANZA	Male	Female	Total
Kunenekude			
Mpala HC			
Mwanza District Hospital			
Thambani HC			
Tulonkhondo			

NENO	Male	Female	Total
Chifunga HC	0	3	3
Ligowe HC	0	1	1
Lisungwi HC	7	10	17
Luwani HC	1	0	1
Magaleta HC	2	0	2
Neno District Hospital	13	22	35
Matandani HC	1	1	2
Matope HC	0	2	2
Neno Parish	1	1	2
Nsambe HC	0	1	1
Nkula Private Clinic	0	2	2
Zalewa	0	2	2
Tedzani HC	0	2	2
Dambe HC	2	1	3
Total	27	48	75

NSANJE	Male	Female	Total
Makhanga HC	0	1	1
Masenjere HC	1	0	1
Mbenje HC	2	0	2

NSANJE	Male	Female	Total
Ndame NHC	1	0	1
NE District Hospital	3	10	13
Nyamithuthu HC	1	0	1
Phoker HC	2	2	4
Sankhulani HC	1	0	1
Sorgin HC	2	2	4
Tengani HC	0	1	1
Chididi HC	2	0	2
Kalemba Com Hospital	1	7	8
Lulwe HC	2	0	2
Trinity Hospital	2	3	5
Total	20	26	46

THYOLO	Male	Female	Total
Bvumbwe Research HC	0	7	7
Changata HC	0	1	1
Chimaliro HC	0	2	2
Chimvu HC	0	3	3
Chisoka HC	1	3	4
Didi HC	1	0	1
Khonjeni HC	0	1	1
Makungwa HC	0	1	1
Mwangunda HC	5	3	8
Mikolongwe HC	1	1	2
Thekerani HC	3	1	4
Thyolo DH	16	69	85
Zoa HC	1	0	1
Chingazi HC	1	5	6
Chipho HC	1	0	1
Magwapa HC	1	1	2
Malamulo Hospital	5	10	15
St Joseph's Mikango – CHAM	0	3	3
St Helena Oakley (Mtambanyama) – CHAM	0	1	1
St Martins Molere – CHAM	0	4	4
Thomasi HC	1	3	4
Gombe HC	1	0	1
Makwasa HC – Estate	0	1	1

THYOLO	Male	Female	Total
Mianga HC – Estate	0	2	2
Satemwa HC – Estate	0	2	2
Sambankhanga HC – Estate	0	1	1
Nchima HC – Estate	0	2	2
Makandi HC – Estate	0	2	2
Mindale HC – Estate	0	1	1
Mpeni HC – Estate	0	1	1
Nabomba HC – Estate	1	0	1
Mafisi HC – Estate	0	1	1
Nansonia HC – Estate	0	1	1
Kasembereka HC – Estate	0	1	1
Total	39	134	173