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DEVELOPMENT OF A STRATEGY TO FACILITATE THE IMPLEMENTATION OF MATERNAL HEALTH CARE GUIDELINES IN LIMPOPO PROVINCE, SOUTH AFRICA

by

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DECLARATION

I, **Thifhelimbilu Irene Ramavhoya**, hereby declare that the thesis entitled **"Development of a Strategy to Facilitate the Implementation of Maternal Health Care Guidelines in Limpopo Province, South Africa"** hereby submitted by me for the **Doctor of Philosophy** degree at the **University of Venda**, has not been previously submitted for a degree at this or any other university, and is my own work in design and execution and that all references contained herein have been duly acknowledged.

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DEDICATION

This thesis is dedicated to my loving husband, Elvis, and my three children, Mudzunga, Mbiluyalushaka and Mulinda-Israel, for their support during my studies. My mother, Nditsheni and late father, Alfred, who laid the foundation of my education by supporting me psychologically, physically and financially. My in-laws who were with me from the beginning to the end of this study and my siblings who helped me technologically when it was difficulty for me and they were able to put this work together and made this study a success.

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ABSTRACT

Background: The implementation of the World Health Organisation maternal health care guidelines in African countries has resulted in the reduction of maternal deaths by half since 1990. As a result, between 1990-2013, maternal mortality ratio declined by only 2.6% per year and this is far from the annual decline of 5.5% required to achieve the Sustainable Development Goals (SDGs). Ninety percent of women are dying from preventable maternal conditions and most of them are from the low and middle-income areas. The 2011-2013 Saving Mothers Report indicates that the Limpopo Province was ranked number three on the Maternal Mortality Rate in South Africa. Hence, this study sought to assess the implementation of maternal health care guidelines by professional nurses in Limpopo Province.

Method: A convergent parallel mixed-methods design study was used. Phase 1 entailed parallel collection of qualitative and quantitative data. In this approach, self-administered questionnaires were used in the quantitative research method and an in-depth interview in qualitative research method. Data were collected from Maternal Health Care Managers, Professional Nurses and Operational Managers working in Primary Health Care Facilities of the Vhembe and Mopani Districts. Systematic methods to sample managers and midwives through the Slovan formula was used. Ethical clearance for the study was obtained from the University of Venda Research Ethics Committee and permission to conduct the study at the Primary Health Care facilities was obtained from the Limpopo Province Department of Health and Health District Offices. Data analyses were done separately using the Statistical Package for Social Sciences for quantitative data and Tesch's open-coding methods for qualitative data. Validity, reliability and trustworthiness were ensured through a pilot study and by critical appraisal and peer review of the research instruments by experts in the field of maternal health.

Results: The study revealed that midwives experienced difficulty when providing care to women presenting with postpartum haemorrhage and pre-eclampsia or eclampsia. Difficulty in the management was confirmed by 36% of respondents. Some participants lacked knowledge on the management of women with postpartum haemorrhage, Pre-eclampsia and eclampsia and this was also indicated by 30% of respondents. Shortage of staff led to work overload, especially if one midwife was left alone to provide care to patients in the facility. Furthermore, midwives experienced delayed ambulance services when in need of referring women who required urgent attention to the next level. Delayed ambulance was indicated also by 80,4% of respondents ad this contributed to the midwives' frustrations hence poor maternal outcomes. High risk women failed to return to the hospital and others hide their previous history of complications and hence experienced abrupt postpartum haemorrhage leading to poor implementation of maternal health guidelines.

Phase 2 dealt with the development of the strategy to facilitate implementation of maternal health guidelines in Limpopo Province using the Strengths, Weaknesses, Opportunities and Threats analysis, identified from the collected data. Phase 3 comprised the validation of the strategy, which was conducted using a quantitative research design. Meetings were held with Maternal Health Care Managers, Midwives and Operational Managers working at Primary Health Care Facilities of Vhembe and Mopani districts. Self-administered questionnaires were distributed for respondents to complete and data were analysed using descriptive analysis. Almost all respondents (95%) agreed that the developed strategy was suitable and applicable for midwifery practice. Maternal Health Care Managers, Midwives and Operational Managers made suggestions that will enhance the developed strategy.

Recommendations: Continuous education and in-service training must be done in order to capacitate midwives with knowledge of the management of women with

postpartum haemorrhage, pre-eclampsia and eclampsia. The curriculum for Midwifery training must be strengthened and must include enrolled nurses. Health education to women must be strengthened and they must be encouraged to give the correct history in order to reduce maternal mortality rate.

Keywords: Saving Mothers' Report, maternal deaths, maternal health care guidelines, implementation, midwives

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LIST OF ACRONYMS

ANC	Antenatal Care
AMTSL	Active Management of the Third Stage of Labour
ART	Antiretroviral Treatment
ARVs	Antiretroviral Drugs
AZT	Zidovudine (ZDV) or Azidothymidine
BANC	Basic Antenatal Nursing Care
BOEM	Build, Overcome, Explore and Minimize
BP	Blood Pressure
CDC	Centers for Disease Control and Prevention
CTG	Cardiotocography
CARMMA	Accelerated Reduction of Maternal and Child Mortality
DEM	District Executive Managers
DHIS	District Health Information System
DHMIS	District Health Management Information System
DoH/NDoH	Department of Health/National Department of Health
EOST	Emergency Obstetric Simulation Training
EOSI	Emergency Obstetric Simulation
ESMOE	Essential Management of Obstetric Emergencies
FDC	Fixed-Dose Combination
GRC	Guidelines Review Committee
Hb	Heamoglobin
HCT	HIV Counselling and Testing
HPT	Hypertension
HSDU	Health System Development Unit
INH	Isoniazid

MDG5	Millennium Development Goal Number 5
MHCM	Maternal Health Care Managers
MMR	Maternal Mortality Rate
MRC	Medical Research Council
MUAC	Mid-Upper Arm Circumference
NSDA	Negotiated Service Delivery Agreement
NHMRCA	National Health and Medical Research Council Act
NICE	National Institute for Health and Care Excellence
NIMART	Nurse-Initiated Management of Antiretroviral Therapy
OMN	Operational Manager
PEP	Perinatal Education Programme
PESTLE	Political, Economic, Social, Technological, Legal and Environmental Factors
PHC	Primary Health Care
PITC	Provider-Initiated HIV Testing and Counselling
PN	Professional Nurse(s)
PMTCT	Prevention of Mother-to-Child Transmission
PPIP	Perinatal Problems Identification Programme
PPH	Postpartum Haemorrhage
Rh	Rhesus Blood Group
SADC	South African Development Community
SADHS	South African Demographic and Health Survey
SANC	South African Nursing Council
SDGs	Sustainable Developmental Goals
STIs	Sexually Transmitted Infections
SWOT	Strength, Weakness, Opportunities and Threats
TB	Tuberculosis
UN	United Nations

UNICEF	United Nations Children's Fund
USAID	United States Agency International Development
VCT	Voluntary HIV Counselling and Testing
WHO	World Health Organization
WR	Wassermann Reaction/Antibody Test for Syphilis

CHAPTER 1

Overview of the Study

1.1 Introduction

Globally, roughly about 289,000 women die every year due to pregnancy-related birth conditions (United States Agency International Development, USAID, 2015). USAID (2015) states that millions of women die because of inadequate maternal health care services especially for women who reside in poor countries. Though great improvement and progress was made in reducing Maternal Mortality Rate (MMR) by nearly half within the past decades. MMR is still high.

Ninety percent of women are dying from preventable maternal conditions, and most of them are from the low- and middle-income countries (USAID, 2015). Women in Sub-Saharan Africa are most at risk and the MMR is 47 times higher than those women in the United States. From the 122 million women who gave birth annually, 10% suffer from maternal complications and post-birth morbidities (USAID, 2015). The MMR is declining slowly despite the availability of resources and the support offered by government. This can be aggravated by unfair distribution of resources, infrastructure and capabilities, skills and competency levels of some professional nurses (Fulmer, 2014).

AS such, Fulmer (2014) recommended that continuous training of Professional Nurses (PN) on the implementation of maternal health care guidelines would capacitate them in the provision of maternal health care services. The implementation of guidelines is the ability to use or implement a plan of standardized practices recommended for health care facilities. These guidelines will aid health

care personnel in decision-making during their clinical practices in a specific clinical situation (Steven & Kraritz, 2010). There are three systems that are beneficial if guidelines are implemented. These are the health facilities, health care professionals and the community represented by patients (Steven & Kraritz, 2010). Guidelines are developed by the World Health Organization (WHO) and approved by the Guidelines Review Committee (GRC). The GRC's function is to safeguard that WHO guidelines are of a high methodological class, are transparent and evidence-based decision-making processes (WHO, 2016). The GRC meets on a monthly basis to review initial proposals for guideline development and final versions of guidelines prior to their publications.

In their reviews, the GRC will assess if the guideline development process will meet the WHO requirements that are prescribed by the WHO Handbook for Guideline Development. The GRC also offers suggestions and advice on how to improve the quality of the guidelines. The WHO Handbook for Guideline Development, in turn, provides detailed instructions for guideline developers on the application of high quality methodology for guideline development using systematic search strategies, synthesis and quality assessment of best available evidence in support of their recommendations (WHO, 2016). The guidelines are then distributed and made available to various countries, the Nation as a whole. Each Nation, in turn, designs its guidelines, being guided by WHO guidelines depending on their environment, conditions of each country and clinical settings. Such guidelines must be in line with those developed by WHO. From the National level, guidelines are cascaded to provinces and each province in turn develops its own guidelines being guided by the National guidelines. Each province distributes them to health care facilities in different district, including primary health care (PHC) facilities. Some are implemented as they are by different stakeholders (WHO, 2010).

Some of the maternal guidelines developed by WHO which are of interest to this study are the following:

- WHO recommendations for the prevention and treatment of postpartum haemorrhage (PPH) 2012;
- WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia 2011;
- Guidelines on calcium supplementation for pregnant women 2013 and;
- Guidelines on the prevention of Mother-to-Child Transmission (PMTCT) 2013 (WHO, 2016).

Different organizations as well as the National Health and Medical Research Council, Act No. 1992, defined guidelines as a set of non-mandatory rules, principles or recommendations for procedures or practices to be followed by health care professionals when rendering health care services. Guidelines become mandatory when the Government turns them into legislation. Various departments such as the Department of Health (DoH) incorporate them into rules that health care professionals must comply with during the provision of health care services (National Health and Medical Research Council Act, NHMRCA, 1992). The National Institute for Health and Care Excellence (NICE), has defined guidelines as systematically developed recommendations on how health care personnel and other professionals must provide their services in relation to specific conditions. Their recommendations are based on best available evidence (NICE, 2014).

Guidelines that were implemented years ago were based on traditions, authority and even experience (WHO, 2010). Currently, guidelines are often reviewed every two years, although some are being reviewed yearly and these are the result of studies

that are being carried out in which the implementation of guidelines were proven methodologically. This aids in the provision of total quality patient care. Health care professionals have an obligation to know them and make a choice whether or not to follow them when providing health care services (WHO, 2010).

1.2 Background

Guidelines are documents which, when implemented, guide the decision of health care professionals and are also taken as criteria to be followed when a professional nurse assesses, diagnoses and treats patients in specific health care settings. The NICE has maternal guidelines that are of interest in this study namely, hypertension in pregnancy: the management of hypertensive disorders during pregnancy, published in 2010, revised in March 2015; British HIV Association guidelines for the management of HIV infection in pregnant women (2012) updated in 2014; Guidelines on the prevention and management of PPH (NICE, 2014). These are the clinical Guidelines used in the United Kingdom and are published by the NICE.

Guidelines guide the decisions of professional nurses. For example, the guidelines on management of hypertension to prevent pre-eclampsia and eclampsia in the countries stipulated above. Although health care professionals are implementing the guidelines, and appropriate prenatal care is given, the maternal morbidity and mortality rate is still high. Researchers recommended optimal management which requires close observation for signs and symptoms of pre-eclampsia, diagnosing and delivering the women at the optimal time for good maternal and foetal outcomes (Roberts et. al, 2013). The implementation of maternal guidelines in African countries has resulted in a reduction of maternal deaths levels by 50% since 1990. Maternal deaths nationwide was reduced by 45% and this was the result of progress made towards achieving Millennium Development Goal Number 5 (MDG5): Reducing Maternal Mortality and Achieving Universal Access to Reproductive Health, adopted

by the international community in 2000. Several countries have devoted themselves to reduce maternal mortality by three quarters between 1990 and 2015. Continents such as Asia and North Africa have made headway towards improving maternal health. As a result, between 1990-2013, globally MMR declined by only 2.6% per year. However, this is far from the annual decline of 5.5% required to achieve the MDG5 (WHO, 2014). The Millennium Developmental Goal (MDG) report has its own aims in relation to MDG5 of improving maternal health as part of the unfinished agenda for the post-2015 period. The goal to reduce maternal mortality rate has been extended to 2030 and it is presently called a Sustainable Developmental Goal. The focus of the goal for reducing maternal mortality rate is on the provision of universal access to reproductive health care services (MDG, 2015).

Although significant progress has been made, it has failed to reach the global goals and targets. It is because of the unfinished agenda that all people must obtain complete sexual and reproductive health services in order to reduce MMR. An in-depth analysis was done which revealed that there was insufficient and uneven progress. The results of the analysis showed that globally there were profound health disparities among vulnerable subgroups (MDG, 2015). This was aggravated by the level of education, place of residence, financial status and age. The results further showed that large inequities remain in maternal health services, as well as access to sexual and reproductive health services. This inequality must be corrected by strengthening the country's capacity. From the four babies born each day worldwide, one delivery will not be assisted by skilled health care professionals. To reduce MMR, each and every birth must be assisted by a skilled health personnel, either a doctor or a midwife. The rate of assisted delivery by skilled health care professionals has increased from 59% in 1990 to 71% in 2014 (MDG, 2015).

Although there was a slight improvement in reducing maternal deaths all over the

world, including South Africa, the results of poor adherence and poor implementation of guidelines result in high morbidity and mortality rate of mothers. About 289,000 women all over the world have died of birth-related conditions such as PPH, hypertension, prolonged and obstructed labour, infections and unsafe abortions. This is because of maternal death being the primary source of death in women of childbearing age in the world (WHO, 2014). Hence, this study was conducted in order to assess the implementation of maternal health care guidelines by PN in Limpopo province.

Increased maternal deaths in some areas in the world is caused by unequal access to maternal health care services. This highlights the gap between the rich and the poor. Almost all maternal deaths (99%) occur in developing countries. Half of the deaths occur in Sub-Saharan Africa and in South Asia. The MMR in developing countries in 2013 was 230 per 100,000 live births against 16 per 100,000 live births in developing countries. The huge inequalities amongst these countries occur, with fewer countries having tremendously high MMR of 1000 per 100,000 live births. These disparities occurs amongst women from high- and low- income groups, those residing in rural and urban areas (WHO, 2014).

This is because women from far rural areas do not receive adequate maternal health services. This is especially true for regions with low numbers of skilled health workers, such as Sub-Saharan Africa and South Asia (WHO, 2014). Only 45% of women living in these areas receive assistance from trained midwives during childbirth, meaning that millions of births are not helped by midwives or a doctor (WHO, 2014). WHO (2014) is continuing to provide guidelines in order to improve maternal health and working on decreasing maternal mortality. It is providing evidence-based clinical and programmatic guidance, setting global standards and providing technical support for midwives to implement maternal health guidelines

successfully. However, women still die from pregnancy complications such as severe bleeding or PPH, infections, hypertension resulting in pre-eclampsia and eclampsia. In addition, WHO is continuing to promote more affordable and effective treatments. It is designing training materials and guidelines for midwives. Supporting countries so that maternal health care guidelines are monitored for their implementation and progress (WHO, 2014). According to United Nations estimates, 73% of the entire population is made up of mothers and their children. Therefore, equity in providing health care services must be achieved (USAID, 2013).

The components of Maternal Health Care include promotion, prevention, cure and rehabilitation. Therefore, the planning and allocation of resources must be done within the integrated system (USAID, 2013). Maternal health services in South Africa was previously fragmented, though the Reconstruction and Development Programme and National Health Plan have a goal of optimum health for mothers. The South African government provides guidelines for services to be rendered comprehensively by health care professionals. The DoH is dedicated in safeguarding access to maternal health services by offering free services for pregnant women, though PHC services are free for all citizens of South Africa (DoH, 2001).

Most of the South African maternal health care guidelines are the same as those that are used in other countries and their aim is the same: provision of quality patient care by professional nurses (DoH, 2001). Services such as promotive health (maternal health), preventive health (reproductive health), curative health (treatment of minor ailments) and rehabilitative health care services are offered free of charge at PHC level. Regardless of such free health services, some mothers still book late and others do not even bother to seek health care services at all. Maternal morbidity and mortality is often the result of preventable causes. The researchers has discovered that maternal deaths were occurring due to the following conditions; which were of

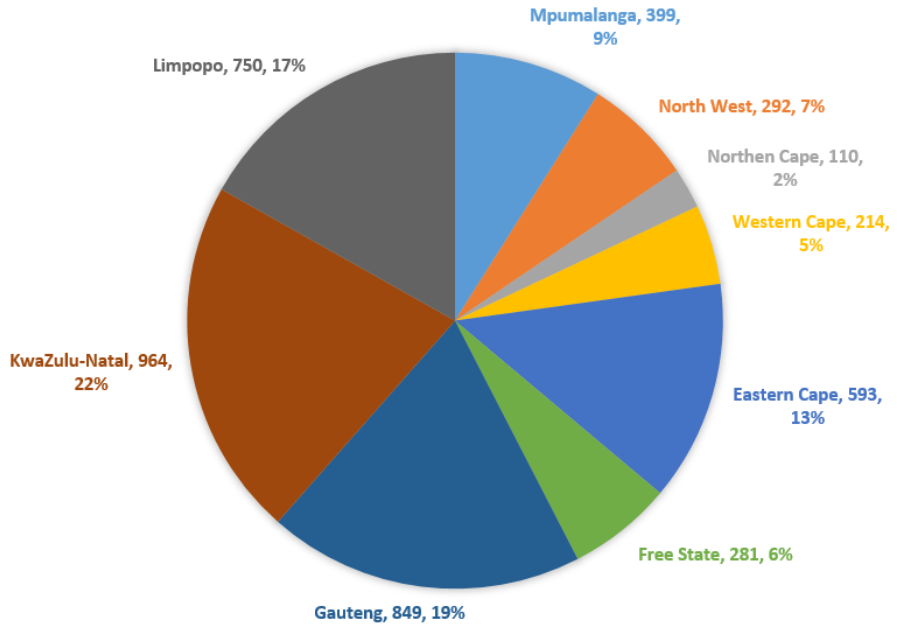
interest and the focus of this study: PPH, hypertensive disorders in pregnancy and HIV and AIDS in pregnancy. The DoH in Limpopo Province has trained 6776 professional nurses on Essential Steps in the Management of Obstetric Emergencies (ESMOE) and Emergency Obstetric Simulation Training (EOST) to ensure that health workers have skills to deal with obstetric haemorrhage which continues to be a major cause of maternal mortality (DoH, 2013). Two districts in Limpopo Province identified in 2008-2010 as having the highest MMR were Sekhukhune, at the rate of 172.43/100,000 and Capricorn Districts at a rate of 302.31/100,000 (DoH, 2013). However, the Saving Mother's Report of 2011-2013 indicated that Mopani and Vhembe districts had a rise in the MMR. Vhembe district was better but suddenly things changed between 2011 and 2013 as indicated in table 1.1. The researcher has identified that pregnant women at Vhembe and Mopani district are dying because of preventable maternal health condition. The first condition that is causing a rise in MMR is PPH followed by Hypertensive disorders in pregnancy (DoH, 2014). Though there is a significant improvement on the death caused by HIV and AIDS, pregnant women are dying of Opportunistic infection such as Tuberculosis (TB) (DoH, 2014). Sudden rise in the rate of MMR at Mopani and Vhembe District puzzled the researcher to evaluate the implementation of Maternity Health Care Guidelines by midwives during the provision of maternal health care services.

Hence, the study assessed the knowledge and skills of professional nurses regarding available maternal health care guidelines and the implementation thereof. The researcher further assessed the support system offered by Maternal Health Care Managers (MHCM) on the implementation of maternal health care guidelines by professional nurses in Limpopo Province. Based on the findings, the researcher has developed a strategy that will facilitate the implementation of maternal health care guidelines by professional nurses when providing health care services to mothers.

1.3 Problem Statement

The Saving Mothers Report indicated that the MMR in South Africa has reduced from 176.22/100,000 live births in 2008-2010 to 159.14/100,000 live births in 2011 and 146.71 in 2012 (DoH, 2013). The 2011-2013 Saving Mothers Report illustrated that Limpopo Province was ranked number three on the high MMR in South Africa (DoH, 2014), as presented in Figure 1.1.

The breakdown of the 2011-2013 MMR of Limpopo Province indicated a decline to 185.80/100,000 live births as presented in Table 1.1, but still far from the expected MMR as stipulated by the SDGs of below 38/1000 00 live birth. The table indicates that Capricorn, Mopani, followed by Vhembe districts still had high MMRs in 2011-2013. Some of the causes of maternal deaths in Limpopo Province were identified as Anaemia, Pneumonia, Miscarriages, pregnancy related sepsis, obstetric haemorrhage, Hypertension and Embolism. The researcher has observed that MMR at Vhembe and Mopani district was mainly caused by preventable maternal health conditions at a rate of 155, 99/100 000 (Mopani) and Vhembe, 132.05/100 000 live birth (DoH, 2014). The first killer being PPH, followed by hypertensive disorders in pregnancy and lastly opportunistic infections of HIV and AIDS called TB (DoH, 2014). The researcher decided to conduct this study in order to assess the implementation of maternal health care guidelines by midwives since the causes of maternal death can be avoided and were preventable.



Source: https://www.health-e.org.za/wp-content/uploads/2016/05/Saving-Mothers-2011-2013-short-report.pdf

Figure 1.1: Distribution of maternal deaths per province 2011-2013, South Africa

Table 1.1: Comparison of Limpopo MMR between 2008-2010 and 2011-2013 per district

	District Municipality (DM)	Live Births	Maternal Deaths	MMR	Live Births	Maternal Deaths	MMR
		2008-2010			2011-2013		
Limpopo Province	**Capricorn**	80,476	222	275.86	55,572	168	302.31
	Sekhukhune	74,496	131	175.85	49,876	86	172.43
	Mopani	77,758	115	147.89	54,100	89	155.99
	Vhembe	93,263	67	71.84	64,903	86	132.08
	Waterberg	40,656	78	191.85	29,411	55	127.00

MMR, maternal mortality rate; Limpopo Province 185.80 (DoH, 2013)

This study was conducted in order to develop a strategy that will facilitate the implementation of maternal health care guidelines in Limpopo Province. The focus was on Vhembe and Mopani districts. The two districts were further chosen because they share boarders with South African Development Community (SADC) countries.

This study has assessed the knowledge and skills of professional nurses when rendering maternal health care services and the implementation of maternal health care guidelines in Limpopo Province.

1.4 Purpose of the Study

The purpose of this study was to develop a strategy that will facilitate the implementation of national maternal health care guidelines by PN in Limpopo Province, South Africa.

1.5 Research Questions

According to Creswell and Plano (2011), research questions in the mixed-methods approach can be linked conceptually, so that they are independent of each other or they can be stated independently. The researcher can have two or more research questions, in which one question does not depend on the results of the other question, while one question depends on the other. The research questions that directed this study were:

- What is the expected knowledge and skills that Professional Nurses (PN) can have in the implementation of available maternal health care guidelines?
- What support system is provided by MHCM and OMN to PN in the implementation of maternal health care guidelines?
- What are the experiences or challenges faced by PN when implementing related maternal health care guidelines?
- What strategy that can be developed from merged results and be implemented by PN when providing maternal health care services?
- How will the researcher validate the developed strategy?

1.6 Research Objectives

The study was conducted in three phases and based on the objectives of the study; discussions of the results of qualitative and quantitative research strands were merged.

1.6.1 Phase 1: Convergent Parallel Collection of Qualitative and Quantitative Data

1. To assess the knowledge and skills of PN regarding available maternal health care guidelines and their implementation thereof.

2. To assess the support system offered by maternal health care managers (MHCM) and operational managers (OMN) to PN on the implementation of maternal health care guidelines.

3. To explore the experiences or challenges faced by PN when implementing related maternal health care guidelines.

1.6.2 Phase 2: Strategy Development

4. To develop a strategy guided by merged results that will facilitate the implementation of maternal health care guidelines by PN

1.6.3 Phase 3: Validation of Results

5. To validate the developed strategy from MHCM, OMN and PN by the researcher.

1.7 Significance of the Study

The findings of the study contributed to the development of a strategy that would strengthen the implementation of the recommendations made in the Saving Mothers Report. The outcomes of the study would further strengthen the use of maternal health care guidelines and other guidelines related to mothers, such as reproductive

health guidelines, and Primary Care 101 guidelines, which deal with the screening and monitoring of chronic conditions such as hypertension. The recommendations of the study should help the Department of Health because maternal mortality would be reduced, hence improve the economy of the country; leading to a healthy community and a healthy country. The findings of the research would contribute to the body of knowledge and the developed strategy may inform policymakers to incorporate the strategy when reviewing policy documents. The knowledge may also be infused in the nursing curriculum and form part of midwifery education. The implementation of maternal health care guidelines by midwives might aid in the achievement of Sustainable Developmental Goals of reducing maternal morbidity and mortality rate and reaching the target of 38/100,000 for mothers.

1.8 Theoretical Framework

1.8.1 *Basic Logic Model Theory of Change*

The *Basic Logic Model Theory of Change* was adapted as a frame of reference for this study. Various authors have developed the *Basic Logic Model Theory of Change* for their organizations to acquire desirable goals, according to the objectives of their organizations or project. Kellogg (2004) defined the *Basic Logic Model Theory of Change* as a descriptive model which starts with a programme the organization what to achieve and consists of components which clearly depict the inputs, activities and outputs needed to reach the outcomes (Kellogg, 2004).

The *Basic Logic Model Theory of Change* approach is taken as a learning and management tool that is used for planning, implementation and evaluation of the desired achieved programme. If the evaluation and *Basic Logic Model Theory of Change* is used, the institution will have effective programmes, offer greater learning opportunities, better documentation of outcomes and sharing of knowledge about what works and why (Kellogg, 2004). In this study, evaluation was done in the form of

an assessment, where the researcher assessed the knowledge and skills of the midwives in the application of maternal health care guidelines, and validation of the results concluded the study.

1.8.2 Applicability of the *Basic Logic Model Theory of Change* to This Study

The basic logic models theory of change served as the foundation for this study. Its five components were suitable for this study because the researcher assessed and grouped together inputs, activities, outputs. This helped the researcher to reach the purpose and the objectives of the study namely, to develop the strategy that will facilitate the implementation of maternal health care guidelines by midwives inorder to reduce MMR.

The researcher chose this model because it incorporates both the model and theory of change, which was applicable to the study because at the end of the developed strategy, the effectiveness of the developed strategy will continuously be evaluated by the researcher. The *Basic Logic Model Theory of Change* is illustrated systematically and presented visually so that the shared understanding of the relationship in resources, planned activities results in an intended output (Kellogg, 2004). For the purpose of this study, Table 1.2 illustrates the *Basic Logic Model Theory of Change*. The components of the adapted *Basic Logic Model Theory of Change* were explained as inputs/resources, activities, outputs, outcome and impact.

- **Inputs**

These resources are needed in order to accomplish an activity. Resources include the human, financial, organizational and community resources a programme has available to direct towards doing the work (Kellogg, 2004).

In this study, inputs were midwives, equipment that they used to measure the blood pressure (BP) of pregnant mothers, so as to prevent and treat pregnancy-induced hypertension, hence the implementation of maternal guidelines. Maternal guidelines such as guidelines on the management of PPH that guided midwives on the management of mothers who were bleeding and a healthy therapeutic environment in the form of infrastructure in a form of PHC facilities.

- **Activities**

Activities are actions which must be taken to reach the outputs. These processes, tools, events, technology and actions are intentionally part of the programme implementation. The intentions are used to bring about the intended programme change and results (Kellogg, 2004). In this study, activities were as follows: Assessment of knowledge, skills and available strategies that were in use, their implementation by midwives during the provision of maternal health care services, conduction of basic midwifery training, ESMOE workshops and drills, attending perinatal peer-reviews, and supervision and monitoring of the implementation of maternal guidelines.

- **Outputs**

Outputs are the results of the activities performed and may comprise forms, stages and goals a service has to deliver (Kellogg, 2004). In this study, outputs were information, support, vital or objective data gained by midwives.

Table 1.2: *Basic Logic Model Theory of Change*

The purpose is to assess and develop a strategy to facilitate implementation of maternal health care guidelines			
Inputs	**Activities**	**Outputs**	**Outcomes**
• Midwives • Managers • Equipment such as blood pressure machines • Drugs such as hypotonic and hypertensive and ART • Guidelines • Mothers • Health facilities	• Assess knowledge, skills & available strategies • Identify gaps -Basic midwifery training • ESMOE workshops and drills -Perinatal review meetings • In-service training • Implementation of maternal guidelines • Strategy development	• More information • Support • Objective data/vital information • Treatment • Information, patients • Conducive environment	• Well-informed midwives and mothers • Competent staff • Positive attitudes by midwives towards implementation of guidelines • Improved maternal health services • Reduced burden and controlled diseases • Attainment of millennium developmental goals
Impact: Reduction in maternal morbidity and mortality rate caused by preventable conditions such as HIV/AIDS, postpartum haemorrhage, hypertensive disorders in pregnancy such as eclampsia. Reduced burden of diseases to the nurses and country at large. This will result in a healthy community.			

- **Outcomes**

Outcomes are precise modifications in programme participants' behaviour, knowledge, skills, status and level of functioning. There are short-term outcomes that must be achieved within 1-3 years. Long-term outcomes are achieved within a 4-6 year time frame (Kellogg, 2004). Outcomes are the results of all the activities performed. In this study outcome was knowledge, skilled midwives who were competent, confident and who displayed a positive attitude in the implementation of maternal guidelines during the provision of such services to mothers.

Well-informed mothers thus reduced and improved their maternal health status. These will reduce the burden of PPH, Hypertensive disorders in pregnancy and HIV in pregnancy hence attainment of the Sustainable Development Goals (SDGs). Impacts are greater changes that are expected after all the activities are accomplished which may take 7 to 10 years. It occurs at the end of the project. (Kellogg, 2004). In this study, impacts will be a reduction in the number of MMR caused by preventable maternal conditions because of the developed strategy that will facilitate the implementation of maternal health care guidelines by PN.

1.9 Definition of Terms

Concepts are terminologies that should be defined both conceptually and operationally. A conceptual definition conveys the general meaning of the concept, which is the way it was defined in a dictionary or textbook, while the operational definition provides specificity and direction for the concept, so as to guide the development of the research plan. In other words, it shows how one intends to define each term specifically for the study (Akinsola, 2005).

1.9.1 Development

Development is defined as something new, which will be started or which will happen; an occurrence involving a new phase in changing a circumstances or the course of change (Lorenzo, 2011). In this study, development meant designing a new the strategy that midwives may use that will facilitate the implementation of maternal health care guidelines in order to acquire positive maternal outcomes.

1.9.2 Strategy

Strategy is defined as the arrangement of decisions in an organization that states its objectives, purposes or goals clearly, produce principal policies and plans for achieving those goals. Strategy define a range of businesses the organization is to follow. The kind of economic and human organization it intends to make to its shareholders, employees, customers and communities (Fred, 2011). In this study, strategy meant an action plan that clearly formulated the activities that midwives must adopt and follow when rendering maternal health care services using recommended maternal health guidelines.

1.9.3 Facilitate

Facilitate is defined as increasing the likelihood, strengthening and making something move, helping a group of people to gain skills and knowledge (George, 2010). In this study, facilitate meant providing PN with a strategy that will enhance their knowledge and skills in the implementation of maternal health care guidelines. This will be done in the form of training and giving guidance and support.

1.9.4 Implementation

Is defined as the comprehension of an application, or performance of a plan, idea, model, design, specification, standard, algorithm, or policy. Implementation is an

action that must follow a thoughtful thinking in order to obtain a desired effect (Rouse, 2015). In this study, implementation meant a specific set of activities designed to put into practice a programme of known dimensions. Midwives will be trained on how to implement a developed strategy regarding maternal health care guidelines so as to achieve the desired outcome.

1.9.5 Maternal Health

Is defined as the health of women during pregnancy, childbirth and during postnatal care (WHO, 2015). In this study, maternal health was defined as a directorate which deals with the health of women, her reproductive health, pregnancy and life after pregnancy.

1.9.6 Guideline

Is a rule or set of rules giving guidance on how to behave in a situation (NICE, 2014). In this study, guidelines were regarded as a set of rules (inputs) that guided and empowered PN with knowledge, so that they were able to apply the acquired skills when rendering maternal and child health services daily, so that a desired outcome can be achieved, which was the reduction of maternal mortality rate by three quarters by the year 2030.

1.10 Research Methodology

This was a mixed-method research study where convergent parallel research designs were used. Both qualitative and quantitative strands were used. A full description of the methodology follows in chapter 3. Permission to conduct the study was obtained from the University of Venda Research Ethics Committee (Annexure A), the Limpopo Province DoH Research Committee and District Executive Managers of Vhembe and Mopani districts where the study was conducted (Annexures B-E). Consent was obtained from participants before data collection

(Annexure F). Respondents were PN with midwifery, MHCM and OMN. The Slovan formula was used to calculate the number of PN with midwifery as respondents for the quantitative research method and convenience sampling to sample participants for qualitative data. A more dense description of this formula follows in chapter 3. Data collection was done concurrently, but analyzed separately. Validity and reliability were ensured for quantitative research data and trustworthiness for qualitative research data. Data were collected using a self-administered questionnaire for quantitative research methods and in-depth face-to-face interviews in the qualitative research.

All the data in both methods were collected in the participant's place of work. The Statistical Package for Social Sciences (SPSS) version 23 where used to analyze data. Tables and bar graphs were created for quantitative research methods and the eight steps of Tesch's coding paradigm for qualitative methods from which three main themes with themes and sub themes emerged. Discussion of the two research methods was done concurrently (refer to Chapter 4).

Strategy development was done after discussion of the results. The researcher used the Strengths, Weaknesses, Opportunities and Threats (SWOT) from the results of the study to formulate the SWOT matrix. From the matrix, the strategy was developed by **Building** on the identified strength of midwives and managers, **Overcoming** their weaknesses, **Exploring** opportunities from outside the facility and by **Minimizing** threats that might have the negative impact on maternal health care service delivery (see Chapter 5). This is referred to as the Build, Overcome, Explore and Minimize (BOEM) strategy.

Validation of the strategy was done where the researcher presented the strategy to MHCM from Mopani and Vhembe districts, some of the OMN from PHC and their

midwives. Validation questionnaires were distributed to them for completion during the workshop that was conducted and they were allowed to make suggestions, which were further discussed and taken into account (see Chapter 6).

1.11 Outline of the Chapters

1.11.1 Chapter 1: Overview of the Study

In this chapter the researcher presented the overview of the study which included the introduction, background of the study, problem statement, purpose of the study, research objectives, research questions, significance of the study, definition of terms, brief of the research methodology and theoretical framework.

1.11.2 Chapter 2: Literature Review

In this chapter the researcher presented the definition of what maternal and woman's health guidelines entail, available guidelines in relation to maternal health care; conditions covered by the guidelines with their preventions and management of each and implementation of maternal guidelines all over the country; studies conducted in relation to guidelines and their findings; challenges experienced by PN when implementing the guidelines; support system offered by MHCM and OMN and strategies that have been developed to reduce maternal mortality rates and access to PHC facilities.

1.11.3 Chapter 3: Research Methodology

This chapter outlines the qualitative and quantitative research designs that were used such as the study setting; research objectives; population; sampling of PHC facilities and respondents; data collection methods; data analysis as well as validity, reliability and measures to ensure trustworthiness; and Ethical considerations.

1.11.4 Chapter 4: Results and Discussion

Results were presented separately, but discussed jointly. Tables were used to present results. Three main themes with themes and sub-themes emerged namely; Experiences of midwives in relation to the implementation of maternal guidelines in women with PPH, hypertensive disorders in pregnancy and management of HIV positive women. More than half of respondents (77.6 %) indicated that experiencing challenges of shortage of staff as a results burden of workload as indicated by 87.5% of respondents.

1.11.5 Chapter 5: Development of Strategy to Facilitate the Implementation of Maternal Health Guidelines by Midwives

Following presentation and discussion of the findings, a SWOT analysis matrix was used to identify internal factors; OT and PESTLE were used to identify external factors. Strategy development from BOEM was done. (PESTLE is a mnemonic which in its expanded form denotes P for Political, E for Economic, S for Social, T for Technological, L for Legal and E for Environmental Factors that give a bird's eye view of the whole environment from many different angles that one wants to check and keep a track of while contemplating on a certain idea/plan

1.11.6 Chapter 6: Validation of the Developed Strategy

The chapter presented strategy validation and the following were discussed: purpose of strategy validation, methodology, population, sampling of respondents, data collection, data analysis, results and discussions of the results. This chapter also included the conclusion, recommendations, limitations of the study and a summary.

1.11.7 Chapter 7: Conclusions, Limitations, Recommendations and Summary

This chapter presented the conclusion of the study bases on the objectives of the

study, which included the developed strategy, validation of the strategy, limitations, recommendations and summary.

1.12 Summary

This chapter provided an overview of the study which included introduction and background of the study, problem statement, purpose of the study, research objectives, research questions, theoretical framework, as well as the operational and conceptual framework of the study. Various guidelines as per different countries were clarified. The researcher found that all the guidelines in health are formulated by WHO then cascaded to various countries for PN to implement them. Several studies have been conducted on the implementation of maternal health care guidelines, for women who live in under-resourced poor countries. The results generally show that the implementation of maternal health care guidelines was difficult. The next chapter covers the literature review.

CHAPTER 2

Literature Review

2.1 Introduction

A literature review is a course of discovering, reading, understanding and forming decisions about published research data, methodology and theory by authoritative scholars on a particular topic (De Vos, 2005). According to Brink (2017) a review of the literature should be structured around the key concepts of the research problem and asked questions. With a literature review the researcher does not repeat the work which is already published (Brink, 2017). According to Burns, Grove and Gray (2013) reviewing literature is a method that involves scrutiny and separation of research sources to create a picture of what was already researched regarding a particular condition in order to identify gaps that exist in that situation.

In the context of this study, published research data, monographs and DoH documents were used as sources of literature. Reviewing literature helps researchers to identify research topics and projects already investigated by other researchers on a similar topic or subject. Hence, the methodology used in this study was integrative. Results from preceding studies assist the researcher in making the study acceptable, especially with regard to the problem statement, design and data analysis process. The researcher was able to use the literature for developing the research instruments. The literature review assisted by providing a basis for comparison during discussions of the current study, supported and validates the results of the study (Brink, 2017). The literature review in this study included the following:

- Definition of what maternal and woman's health guidelines entails;

- Available guidelines in relation to maternal health;
- Conditions covered by the guidelines with their preventions and management of each;
- Implementation of maternal guidelines;
- Studies conducted in relation to guidelines and their findings;
- Challenges and experiences of PN in relation to the implementation and provisions of maternal health care services;
- Support system offered by maternal health managers and OMN to PN so that they can implement maternal guidelines; and
- Strategies that have been developed to decrease the rate of maternal death and access to PHC facilities;

There are three systems that benefit if health care guidelines are implemented. These are the health facilities, health care professionals and the community represented by patients. The benefits of implementing the maternal health guidelines for health care personnel are as follows: guiding maternal care, inspiring for and fostering a high quality care given to patients and maintaining consistency in care (Steven & Kraritz, 2010). For the health care facility, the use of guidelines will facilitate cost-effective use of health care resources, promote patient safety and quality improvement, and improve clinical outcomes in contributing to a reduction in maternal morbidity and mortality rate, and benchmarking standards of safe care. For the patients, implementation of guidelines by PN will promote autonomy and patients' perspectives and increase satisfaction with care (Steven & Kraritz, 2010).

2.2 Women's Health

The government's plan is for PHC services to be accessible to mothers, their children and the community at large all the time. The health care facilities must also operate 24 hours, 7 days per week, and be within a 5 km radius and the services should be affordable or free (Health System Development Unit, 2012). Skilled personnel are employed to offer these services and most of the primary health personnel are operating on a call system, i.e., they work all day long and during the night they wake up to help patients. As part of the comprehensive PHC packages, PN are giving health education almost on a daily basis regarding reproductive health services (Health System Development Unit, 2012). Reproductive health education given will include various types of contraceptives so that women can make a choice and prevent unwanted pregnancies and sexual transmitted infections, hence limiting occurrence of maternal health conditions caused by pregnancy.

Health risks that come with pregnancy are more if the women gave birth to children closely, is suffering from hypertensive disorders and infected with HIV. Child spacing and contraceptives can help women avoid some of these health risks, although many women cannot get safe, appropriate and cheap contraceptives. Often their husbands do not want them to use family planning. Therefore, many women suffer unnecessary health risks (Health System Development Unit, 2012). In 2014, the DoH has conducted training on a new family planning method called sub-dermal implant or Implanon. This is a three-year family planning method, which is now being offered by PN even at PHC level.

The National contraceptives guideline was distributed during training regarding the method and professional nurse are implementing it (DoH, 2012). The implementation of the guidelines at the beginning was successful, but later, women were encountering problems and bleed excessively. Poor support from the managers to

nurses and from nurses to women was experienced. This led to the removal of the implant by many women. The women complained of prolonged bleeding, some said their husbands are against it. HIV-positive women were amongst the women who were offered the method, but later called back for the removal of the implant as the method is contraindicated to those who are taking Efiverenz (NDoH, 2015). Lack of knowledge from women regarding contraceptives was indicated in the previous years in a study conducted by Mhlanga.

The findings of the study showed that contraceptive use has declined, with 71% of women having ever used contraception in 2003, compared to 75% in1998 (Mhlanga, 2010). There is a new guideline, which was also introduced in 2014 called Primary Care (PC) 101 for all the conditions that affect the population above 5 years. This guideline is presently being implemented at PHC facilities by PN. It also contains the management of hypertensive disorders in adults (DoH, 2013). The only problem with the implementation of PC 101 is that not all nurses are implementing it correctly, as training is still in progress.

There is also a guideline on the management of HIV and AIDS in adult, which is being implemented. Professional nurses and lay counsellors are implementing the guideline by offering provider initiator counselling and testing. Even when the guidelines are implemented and women are being tested, for those who are sexually active, testing is quarterly, women who tested positive still fell pregnant before starting treatment. This facilitates HIV transmission to their unborn baby as the viral load is unsuppressed for most of them, hence exposing themselves to maternal mortality. Professional nurses are initiating women who are HIV-positive and on Antiretroviral Treatment (ART) and doing adherence counselling. However, the women still fall pregnant. Although HIV testing is being offered, the DoH is still far from the target of 90%. If nurses implement all the guidelines correctly, it will make

management of HIV, hypertensive disorders in pregnancy an easy task which would reduce the maternal morbidity and mortality rate (NDoH, 2014).

2.3 Maternal Health

Every year, 43,000 mothers die due to pregnancy and birth complications (DoH, 2013). In 2010, WHO reported that, 287,000 mothers die due to pregnancy or childbirth-related complications. An update on the maternal mortality of 2014 reported that everyday 800 women die from preventable causes related to pregnancy and childbirth. Ninety-nine (99%) of these deaths occur in developing countries. The high rate of maternal mortality was found in women who reside in rural areas and poorer communities (WHO, 2014). This can be aggravated by poor living conditions mothers found themselves in, health care facilities and equipment that are of poor standard, coupled with a shortage of health care personnel. In the update, it was found that a higher rate of maternal mortality was detected among young adolescents or teenagers who are coming across higher risks of complications and death as a result of pregnancy than older women. Knowledge and appropriate skills by health care personnel can make a difference by reducing the maternal mortality rate before, during and after childbirth, and this can save the lives of mothers (WHO, 2014).

During antenatal care (ANC), PN follow the maternity guidelines, so as to ensure that the objectives of ANC are met, namely:

- Screening for pregnancy problems;
- Assessing any risk of pregnancy;
- Treating problems that may arise during pregnancy;
- Issuing medication that will improve the pregnancy outcomes;

- Providing the women with information and;

- Preparing the women's physical and psychological readiness for childbirth and parental skills (DoH, 2016).

There are dashboard indicators in each and every health care facility where PN give information to the community on a daily basis. This includes the following: As soon as the woman misses her period, she must report at the PHC facility where health care providers will test her urine for pregnancy. If positive, ANC is begun immediately (NDoH, 2016). Adequate assessment of gestational age and risk factors is done at the initial antenatal visits. A full history is taken, which includes the history of previous pregnancies, number of children she has, delivery methods, children's weight and any complications experienced. History of medical conditions the women have, including the use of medicines, history of alcohol, tobacco abuse and family history of chronic conditions, is included in the initial ANC visits assessments.

This information is asked from the women to detect any preventable condition early that can harm the mother and baby so that treatment is initiated at the earliest stage. Determination of gestational age and her expected date of delivery and this is also done to determine if the baby is growing well or not. An estimation of gestational age is done by asking the woman her last menstrual period, symphysis fundal height measurements. This is especially done after 24-weeks gestation. Palpation of the abdomen and ultrasound also help to determine gestational age (NDoH, 2016).

Health care professionals will check the women's vital signs, her BP to exclude hypertension, urine for any abnormalities like blood, protein in urine to prevent conditions such as pre-eclampsia, eclampsia (NDoH, 2015). Mid-Upper Arm Circumference (MUAC) measurements are taken to exclude obesity, to check the risk of pre-eclampsia and maternal diabetes. MUAC of less than 23 suggests

malnutrition, whereas MUAC of 33 indicates a risk of hypertension and gestational diabetes. The mother's haemoglobin (Hb) and Rhesus (Rh) blood group will also be checked as well as blood tests, to exclude diseases such as syphilis that can affect the foetus. Iron preparations will be prescribed to prevent anaemia, ferrous sulphate 200 mg daily and folic acid to help the baby grow and prevent congenital anomalies, as well as tetanus vaccine, to prevent tetanus to the newborn (NDoH, 2016). The mother-to-be also gets calcium gluconate to reduce the rate of pre-eclampsia. The mother will also be given return dates following Basic Antenatal Nursing Care (BANC) principles (NDoH, 2015). Despite the availability of policies and high attendance of ANC and other services, the challenge of HIV and AIDS and inadequate implementation of existing maternal health programmes are mostly accountable for loss of lives (DoH, 2013). The health care system was found to be responsible for the deaths of women as indicated by the National data that reported 61% of deaths which were avoidable. Furthermore, improving the quality of health services at the PHC level, with timely referral of patient to higher levels of the health system, when necessary, is a priority.

In order to meet this critical need, the DoH has started to re-engineer the PHC system on the basis of a three-pronged model, which includes outreach-ward-based teams of community health workers, strengthening school health services and district-based clinical specialist teams. All focused on improving maternal and child health (DoH, 2013). The three streams are supported by UNICEF. In 2011, UNICEF assisted by developing a leadership and mentoring package for KwaZulu-Natal's DoH district specialist teams, with the vision to roll out the package to other provinces. The teams were composed of health care professionals such as gynaecologist, family physician, advanced midwife and PHC nurse. The goal is to support clinical governance in health clinics and district hospitals. The team also supervise adherence to treatment guidelines, mentor clinicians and monitor health

outcomes (Mhlanga, 2010). To improve the integration of PMTCT and maternal, neonatal and child health care, a capacity-building programme was developed and introduced to all districts in Kwazulu-Natal. The training was intended to strengthen the skills and competencies of community health workers to deliver home- and community-based health services and improve referrals to fixed-health facilities (Mhlanga, 2010).

2.4 Perinatal Health

To have a healthy baby, starts with a healthy mother and a healthy pregnancy. Screening and treatment of conditions that are likely to affect the development of the foetus is also started early, more especially before pregnancy in a planned pregnancy or as early as before 13 weeks in an unplanned pregnancy. If the mother is not screened and treated, her infant could die within one month of life. Most deaths are caused by infections, hypertension causing pre-eclampsia, eclampsia and obstetric haemorrhage from the mother leading to premature delivery and stillbirths (Mhlanga, 2010). This is especially seen in women who presented themselves to the clinic late or those who did not attend ANC at all.

Mismanagement of women in labour by PN and failure to adhere to guidelines in managing normal and abnormal labour are also an aggravating factor that leads to birth asphyxia, hence fresh stillbirths (Mhlanga, 2010). Non-communicable diseases such as diabetic mellitus, hypertension, cardiac conditions, including placenta abruption, also contribute to poor maternal outcomes. The government has initiated a free distance learning course for health care workers called the Perinatal Education Programme (PEP). This was done to improve perinatal health by PN, so as to reduce the high rate of maternal and child morbidity and mortality (Mhlanga, 2010). Although the government is making much effort by introducing PEP, mothers are still dying of hypertensive disorders in pregnancy. The DoH has provided PN with guidelines on

the management of hypertensive disorders. However, women are still suffering from eclampsia because of poor implementation of the guidelines.

Hence, this study was carried out in order to assess the implementation of maternal health care guidelines and development of a strategy to facilitate implementation of maternal health care guidelines. The programme provides continuous ongoing updates for midwives, especially in under-served, under-resourced areas. The District Health Information System (DHIS) is used to collect monthly data on maternal and child health indicators as well as reproductive health. There are still problems in collection, analyzing and verifying of data because, sometimes, midwives leave the responsibility of data collection to data capturers and focus more on provision of health care to patients.

There are gaps which were identified that need to be addressed in order for maternal mortality and morbidity to be reduced. These are effective ANC; proper management of labour; identification of non-communicable diseases such as diabetes mellitus in pregnancy, induced hypertension, Tuberculosis (TB) and proper management thereof by health care workers (Mhlanga, 2010). Having a baby at an early age can harm the health of women, therefore, teenagers must be taught not to have a baby before they are 18 years old. Having babies late in life can harm the health of the mother; thus, mothers must avoid having a baby after 35 years of age (NDoH, 2014).Caring for children takes up much time and can be expensive. Therefore, mothers need to plan the number of children they can afford. Having children too close can harm the health of the mother and that of the child. Mothers must be advised to go for counselling and testing to know their HIV status before they get pregnant and to discuss the results with health care personnel to keep herself, the baby and the partner healthy. The mother must eat healthy food and take iron supplements to prepare her body for the pregnancy (NDoH, 2014). As soon as the

woman misses her period, she must go to the clinic for pregnancy tests.

Midwives will offer ANC services to the mother if she tested positive for pregnancy. The women will be advised to attend antenatal clinic five or more times as soon as she misses her period, at 20 weeks, 26 weeks, 32 weeks, 38 weeks and delivery (NDoH, 2015). Midwives must follow maternal guidelines during their provision of maternal health care services. For the present study, three conditions were discussed and the implementation of maternity health care guidelines was investigated. Those are National Guidelines on PMTCT, Guidelines for Maternity care in South Africa that had a chapter on the management of hypertension in pregnancy and PPH.

2.5 Maternal Health Care Guidelines

Maternal health care guidelines that were of interest in this study were the National Consolidated Guidelines for Prevention of Mother-to-Child Transmission of HIV (PMTCT) and Guidelines for maternity care used in South Africa.

2.5.1 Guidelines on PMTCT

The National Consolidated Guidelines for Prevention of Mother-to-Child Transmission of HIV (PMTCT) and Management of HIV in children, Adolescents and Adults of 2015 have stated the importance of HIV testing of pregnant women as soon as possible, i.e., at first ANC visits and initiation of treatment the same day. The South African Government has a new approach on how they can fast-track the achievement of their intentions stated in the Negotiated Service Delivery Agreement for the health institutions.

Then the new approach as indicated by the guideline state that the mother must be tested for HIV every 12 weeks during pregnancy until the cessation of breast milk, if

the mother tested negative for HIV (NDoH, 2015). The following are changes to be initiated by PN on the new National Consolidated Guideline for PMTCT. The following are changes specific to HIV in pregnancy (NDoH, 2015):

- HIV-positive women, whether pregnant or breastfeeding or within one year of delivery, to be started on lifelong ART immediately regardless of their CD4 cell count.

- Efavirenz was not recommended previously because of its teratogenic effects on the foetus, however, now it is recommended as part of the first line drugs regardless of the women's gestational period, unless the woman is mentally disturbed.

- Pregnant women are tested for their viral load at booking if on ART for 3 months if suppressed; a viral load less than 1000 necessitates ART to be repeated at six months.

- Screening of TB for women who tested HIV-positive and initiation of Isoniazed prophylaxis for 12 months if no signs of TB to prevent TB infection (NDoH, 2016).

- HIV testing is repeated for those women who are negative each and every 3 months throughout their pregnancy, at delivery, 6 weeks postpartum and every 3rd month until cessation of breastfeeding.

- Those for whom Fixed Dose Drug is contraindicated, to be initiated on Zidovudine urgently and be referred to the next level for initiation of ART drugs.

- A woman with an unsuppressed viral load needs to be repeated with viral load checking at 3 months if still unsuppressed to be switched to second line regimen (NDoH, 2016).

2.5.1.1 Implementation of PMTCT Guidelines Internationally

Implementation of PMTCT guidelines mentioned above from different countries, internationally, set out the health care which is appropriate to mothers during pregnancy, postnatal and management of HIV in a pregnant woman. The implementation of PMTCT guidelines by health care professionals has increased from 52.6% to 98.8%. These were the results of a study conducted in Malamulo Hospital in Malawi between the period of 2005-2007. All pregnant mothers who tested HIV-positive received ART; this reduced the rate of maternal mortality (Kasenga, Byassi, Maria & Hurtig, 2009).

Newly diagnosed HIV-positive pregnant women and those who were already on treatment are initiated by PN on Efavirenz, regardless of gestational age. It is no longer contraindicated because the old guidelines of 2013 and earlier did not allow women to be initiated on Efavirenz and if a woman became pregnant, it was withdrawn for the safety of the foetus. All newly diagnosed HIV-positive pregnant women are to be initiated on ART the same day, regardless of CD4 cell count and baseline investigation test, to come back in a week to check results and for the health care professionals to check if initiated drugs are suitable for the woman or not based on their decision from the collected baseline blood tests although there is a difference with the British guideline which tests for HIV resistance before initiation of ARVs (British HIV Association, 2014). The other difference is the discontinuation of ARVs in all women with a CD4 cell count greater than 500 after cessation of breastfeeding. Intravenous Zidovudine is used in women with high viral loads or who presented in labour untreated (BHIVA, 2014). Viral load checking is done 2-4 weeks after commencing ARVs then once every trimester, which is at 36 weeks and during delivery. Liver function tests are done per routine and during each visit (BHIVA, 2014).

2.5.1.2 Implementation of PMTCT Guidelines in South Africa

Professional nurses are teaching pregnant women adherence to ART and are doing pill counting every time a woman comes to attend ANC. They offer routine ANC, including specimen collection. Even though ART is initiated the very same day a pregnant woman is diagnosed to be HIV-positive, mothers are still dying because of HIV-related conditions such as TB and pneumonia. This is because PN only focus on HIV as a condition itself and forget that there are opportunistic infections that are related to HIV. Most of the time opportunistic infections are not taken into account.

Another consideration is the suppression of viral load (NDoH, 2015). The schedule of taking the viral load is not followed by PN. If the mother's viral load is high, continuous counselling on the importance of taking the drugs is very important, proper diet and use of condoms. This information is not clearly stated to the mothers, although some mothers because of fear and non-disclosure to partners are not done. Mothers will continue to have unprotected sexual intercourse; hence, the viral load will rise. Any patient with a high viral load is supposed to be repeated the viral load testing at 3 months. Some PN do follow the guidelines, whereas others do not. If the viral load is still high, the patient must be changed to the second line regimen (NDoH, 2015).

Even though nearly all PN are trained on ART initiation, the patient regime will remain unchanged until the condition of the woman deteriorates, leading to a high MMR. A mother needs all the support she can get from PN; instead, PN are too busy to see the line moving. This can be caused by shortage of staff and the ministerial priority of reducing patients waiting times. Like any other patient, screening for TB is done on the pregnant woman and, if negative, she is supposed to be initiated on TB prophylaxis. So far the rate of Isoniazed (INH) initiation is low, only 50% of women are initiated; instead of 100%, if the screening test is negative (DoH, 2014).

The other problem which aggravates poor implementation is lack of documentation. Even if PN are following guidelines, they fail to record the management they have implemented. When one assesses the records of the patient, their records will often be incompletely recorded. According to the Saving Mothers Report of 2011-2013, records of mothers indicated no results of CD4 count and viral load. The report further stated that 48% of women who died between 2011-2013 while on ART and most of them died of HIV-related conditions (DoH, 2014).

Professional nurses are taking baseline blood tests the same day a pregnant woman is diagnosed as HIV-positive. This includes full blood count to check the haemoglobin (Hb) level of the pregnant woman. If the Hb is below 8, they must initiate a mother on Zidovudine (ZDV), also known as Azidothymidine (AZT) and refer her to a doctor for ART initiation. Even though they are trying to implement the guideline on the management of HIV/AIDS in pregnant women, it is not enough: more must be done so as to reduce the MMR (NDoH, 2016).

2.5.1.3 Actions That Show That Professional Nurses Are Not Adhering to Guideline Implementation

Although PN are implementing the guidelines, they are not implementing it completely and the researcher has identified the following weaknesses on the implementation of PMTCT guidelines:

- Failure to collaborate HIV and TB, where if women tested positive for HIV, she must be screened for TB and if negative to be initiated on INH prophylaxis for 6 months. Professional nurses will only focus on ART initiation the day the women discovered although they are giving women the return date of after two weeks of beginning ARVs for fear of side effects if the drugs are given the same day, others do not follow the women up to issue INH prophylaxis (DoH, 2014).

- Failure to follow the schedule of taking the viral load in an unsuppressed mother, hence the women's condition will deteriorate.

- Pill counting and education on adherence of drugs are not done by some PN.

- Tracing of defaulters is also a problem. This is aggravated by incomplete records where the contact details of the women will be incompletely recorded.

- Failure to recognize women whose regimen are failing so as to switch them to second line regime. This will only be possible if women with unsuppressed viral load are recognized, as guidelines stated (DoH, 2014).

2.5.2 Guidelines on Hypertensive Disorders in Pregnancy

Hypertensive disorders in pregnancy are the most common causes of maternal and perinatal morbidity and mortality worldwide. Between 2001-2005, about 14.3% maternal deaths were reported and in 2006-2011, there were about 12.4% maternal deaths due to hypertensive disorders in pregnancy though the rate has decreased by 1.9% from 2001-2005. In his study, Cherouny (2014) reported that 12-20% of pregnancies were complicated by hypertension and that 50-70% of deaths due to hypertension could have been prevented if the pregnant women had not presented themselves late for ANC and only if health care providers had not misinterpreted clinical information, resulting in a delay in diagnosis and delayed management in pregnant women. Half of the cases had vital signs or other features that were misidentified (Cherouny, 2014). Hypertensive disorder in pregnancy is covered in Chapter 6 of the Maternity Guidelines in South Africa, Limpopo Province, which South African Nurses are using, including PHC PN. The guideline defined hypertension as BP of 140/90 mmHg or more on two different occasions at least two to four hours apart. The time and onset of hypertension is either before or after 20 weeks of pregnancy, accompanied by proteinuria or not.

Hypertension without protein before 20 weeks have elapsed is described as essential hypertension; hypertension with protein before 20 weeks of pregnancy is defined as chronic renal disease. Hypertension which occurs after 20 weeks of pregnancy without protein is termed gestational hypertension, whereas hypertension which occurs after 20 weeks of pregnancy with protein is labelled pre-eclampsia (NDoH, 2007).

Mild pre-eclampsia is a diastolic BP of 90-109 mmHg with protein, either one or two pluses of protein. Severe pre-eclampsia is defined as a diastolic BP of 110 mmHg with one plus protein or three pluses protein in urine, regardless of BP or dysfunctional organ, regardless of the level of BP or amount of protein. Imminent eclampsia happens when a pregnant woman experiences symptoms that develop in pre-eclamptic women, such as visual disturbance, dizziness, epigastric pain, hyperreflexia, severe headache, fainting and vomiting. Eclampsia occurs when a woman has generalized tonic-clonic seizures after 20 weeks of pregnancy and within 7 days post-delivery, accompanied by high BP and proteinuria (NDoH, 2016). Women at risk of hypertension to mention but few includes; Primigravidas especially teenagers and elderly primigravidas, Multigravidae with new partners and women aged 35 and above. Pregnant women with chronic hypertension are also in danger of developing pre-eclampsia and must be treated as high risk patients. An experienced midwife or doctor must conduct ANC at the hospital level.

2.5.2.1 Implementation of Hypertensive Disorders in Pregnancy Internationally

A report by the American College of Obstetrics and Gynaecologist Task Force on Hypertension in Pregnancy (2013) recommended the prevention of pre-eclampsia as follows: using Calcium to reduce the severity of pre-eclampsia to mothers who reside in areas with low calcium intake, although these findings were irrelevant to areas

where there was adequate intake of calcium. They further stated that the administration of Aspirin 60-80 mg per day as a preventative measure was examined in a meta-analysis of more than 30,000 women and the results showed a slight effect to reduce pre-eclampsia (Roberts et al., 2013). Evidence of bed rest and reduction of salt intake was not found. Ten randomised control studies were conducted in order to find out the effects of Calcium supplementation during pregnancy. Imdad, Jabben & Bhutta (2011) carried out a study in Asia and South America. Health care professionals were implementing WHO guidelines on Calcium supplementation in order to reduce maternal mortality rate. Gestational hypertension was reduced by 45% and the risk of pre-eclampsia was reduced by 59%. Health care professionals gave the women calcium supplements before 20 weeks of gestation until delivery and 2 gram per day. Another one large multicenter trial on the use of Calcium supplementation was carried out by WHO in Argentina, Egypt, India, Peru, South Africa and Vietnam. The same results were found, of reducing gestational hypertension and pre-eclampsia (Imdad et al., 2011).

2.5.2.2 Implementation of Hypertensive Disorders in Pregnancy Guidelines in South Africa

The Saving Mothers Report of 2008-2010 reported deaths from hypertensive disorders of 24.58 and a slow decrease of 22.75 in 2011-2013 for South Africa as a whole. Despite the training which is conducted and maternal guidelines supplied to various health services, the implementation of guidelines is poor. Comparing maternal deaths caused by hypertensive disorders by provinces, Limpopo Province is not doing well at all. The MMR is increasing instead of decreasing. Between 2008-2010, 22, 91 maternal deaths due to hypertensive disorders were reported and between 2011-2013 there was an increase of 8% in maternal deaths, making a total of 31.23% (DoH, 2014).

Midwives at the PHC institutions monitor the BP of pregnant women during every visit as part of basic nursing care. The nurses also check the urine of the pregnant woman for protein. When there is an increase in BP, they refer pregnant women to the hospital for the initiation of anti-hypertensive drugs. They also give them Methyldopa 1 gram orally before referral to the next level. When the woman is referred back, they monitor the BP of the women. Midwives also give the pregnant women Calcium supplements and instruct them to take 1 gram orally daily as a means of preventing hypertensive disorders in pregnancy. At the hospital level, midwives carry out the doctor's orders on the management of hypertensive disorders and report to the doctor if there are changes in the woman's condition. Despite the implementation of the guideline on the management of hypertension, pregnant women are still dying from eclampsia and pre-eclampsia. Some midwives are not implementing these guidelines properly. Some are not competent enough to manage a pregnant woman with eclampsia. Midwives were taught how to prepare an eclamptic box, although the boxes are in each facility, some midwives are not confident enough to manage pregnant women with pre-eclampsia (DoH, 2014).

Other factors which are responsible for the increase in MMR due to hypertensive disorders are shortages of equipment such as BP machines and transport problems. Ambulance response time is supposed to be up to 60 minutes, but in more cases it takes 2 to 5 hours for an ambulance to collect a pregnant woman in need. A pregnant woman who is suffering from chronic hypertension is also at risk of developing Eclampsia. Experienced midwives or doctors conduct ANC at the hospital level.

Professional midwives advise the women on lifestyle modification, such as exercise, high fibre diets, carbohydrates and low fat-low salt diet, avoiding salt after delivery and stopping smoking and alcohol consumption (NDoH, 2016). At each visit, when doing their follow-ups, the nurses check for weight gain, oedema and protein in urine,

give Methyldopa 500 mg twice a day. If the woman's BP is 160/110 or one protein or more, they are admitted per doctor's orders. The doctor will induce labour at 38 to 40 weeks if not yet in labour. If induction fails, a Caesarean section will be carried out. After delivery, they manage the mother like that of a woman with pre-eclampsia (NDoH, 2015).

2.5.2.3 Actions That Show That Professional Nurses Are Not Adhering to Hypertension in Pregnancy Guideline Implementation

- Incompetency of other PN on the management of pre-eclampsia and eclampsia.
- Failure to recognize the signs and symptoms of eclampsia early and timeous referral to hospital caused by PN and delay of transport.
- Poor recording and shortage of equipment such as a BP machine, where a woman is attending ANC and the BP is not monitored, only to be detected late (DoH, 2014).

2.5.3 Guidelines on Postpartum Haemorrhage Care

Postpartum haemorrhage (PPH) is one of the most common causes of maternal deaths all over the country. About 30% of maternal deaths are due to PPH and this is equivalent to 86 000 deaths per year or ten deaths in an hour (Weeks, 2014). The MMR has been reduced globally.

Although it has been reduced, in Sub-Saharan Africa deaths due to PPH is around 150 and in Western countries, the MMR has increased. This is due to retained placenta and PPH itself. WHO's multi country survey has shown that the risk of PPH is high in low and middle-income countries.

Of 275,000 births, 1.2% of the women suffering from PPH and death caused by PPH

account for 38 women per 100,000 live births. Most causes of PPH were found to be atonic uterus, where an inside layer of the uterus called myometrium losses its tone and allows maternal blood to flow to the placenta bed. Other causes are tears from the uterus or from cervix or vagina and retained placental tissues (Weeks, 2014). Postpartum Haemorrhage (PPH) is one of the abnormalities that occur in the third and fourth stage of labour.

PPH is defined according to the guideline as follows: There is primary PPH which is defined as blood loss of greater than 500 ml in a 24 hour period after delivery (NDoH, 2007). Secondary PPH occurs after more than 24 hours of delivery and a mother will experience a passage of fresh blood or clots. Secondary PPH is caused by infection, retained placental products and wound breakdown. Midwives must be able to identify women at risks such as those with Multiple pregnancy, History of postpartum haemorrhage and Parity of above 4. Midwives must know how to prevent PPH and manage women with PPH.. Management depends on the cause and is treated according to the cause, for example, if secondary PPH is caused by infection, antibiotics must be initiated; if it is caused by wound breakdown, repairs must be done and retained products of placenta must be removed (Fawcus, 2010).

2.5.3.1 Implementation of Postpartum Haemorrhage Guidelines Internationally

The WHO guidelines for the prevention and treatment of PPH (2012) provide the active management of 3rd stage of labour and recommend the use of Uterotonics during the 3rd stage of labour, Oxytocin (IM/IV 10 IU). Misoprostol is to be used if Oxytocin is not available. The process of cord control traction was revisited due to new evidence and is regarded as optional management if the skilled birth attendant is assisting the woman with delivery. Early cord clapping is contraindicated and continuous uterine massage is not recommended because it causes maternal

discomfort and requires a dedicated health professional and may not lead to a reduction in blood loss (WHO, 2012).

Tranexamic acid is used in case of refractory atonic bleeding or persistent trauma related bleeding. Resuscitation is done using intravenous fluids with Isotonic Crystalloids. Intra-uterine balloon tamponade for refractive bleeding and if uterotonics are unavailable to help to compress the uterine tears (Hofmey, 2010). Bimanual uterine compression and external aortic compression should be performed for persistent bleeding (WHO, 2012). A retrospective study was conducted in 1999 by a team of obstetricians and gynaecologists, Rizvi, Mackey, Barret, McKenna & Geary (2004) and corrected by Corrigendum in 2007 regarding the management and prevention of PPH. Patients' files were reviewed to check the near misses in order to check the implementation of guidelines on the prevention and management of PPH. It was found that massive PPH was associated with significant maternal mortality as a result of failure by PN to adhere to maternal guidelines (Rizvi et al., 2004). The management of the 3rd stage was done by giving women uterotonics and deviations in hospital guidelines. Deviations were classified under minor where one step from the guidelines was omitted and major if two or more steps were omitted from the guidelines.

Substandard care and lack of familiarity with the guidelines that must be available in maternity sections and failure to report patients in time, were associated with a high rate of maternal mortality due to PPH. Guidelines were not strictly adhered to, but were used only when blood loss was thought to be evident. Professional nurses were using Misoprostol in 50% of women, which produced a more rapid sustained uterine contraction than Carboprost and were found to be effective in the management of atonic PPH; where the 1st line treatment had failed (Rizvi et, al., 2004). The drug was not included in the guidelines as part of the management of PPH, although it was

found to be effective. The following resolutions for reducing maternal mortality rate was made; The focus must be put on clinical governance and clinical risk management, which included an approach to disseminate guidelines regularly, use of practised drills and compliance to guidelines were strictly made. This resulted in a massive reduction of PPH. During their prospective review study in 2002, where clinical audits were made, deviations from guidelines occurred in 13% of cases. Four (4) cases were minor deviations of near-misses and one major deviation from hospital guidelines and all cases resulted in maternal mortality (Rizvi et al., 2004).

According to Ayadi, Robinson, Geller & Miller (2013), a review of experts in obstetrics and gynaecologists, discovered that failure by PN to implement maternal guidelines on the prevention and management of PPH was aggravated by the following: Poor transportation and storage of Oxytocin, poor implementation or provision of maternal health services by skilled health care and lack of skilled workers; Failure to manage the women correctly during the 3rd stage of labour and failure to administer uterotonics was the most challenging aspects in reducing the patterns of PPH world-wide (Ayadi et al., 2013). A sequence of delays in receiving PPH treatment causing high MMR in such settings was aggravated by long transport times from the women's homes to a PHC facility. Lack of transport, shortage of skilled providers and lack of basic medical supplies, which include medications, intravenous fluids, safe blood contributes to delay in diagnosing PPH and initiating the treatment (Ayadi et al., 2013). Therefore, in the context of the current study and in comparison with such results it was necessary to develop a strategy that will facilitate the implementation of maternal health care guidelines by midwives at Limpopo Province.

A mixed methods study was carried out in Uganda in 2015 by Braddick, Tuckey, Abbas, Lissauer & Holland (2015) on the implementation of PPH guidelines by health practitioners. These researchers discovered three barriers which hindered the

implementation of the guidelines. The first barrier was the health system and resource issues. Oxytocin was available at the health care facilities in abundance, but the storage was inadequate. There was a shortage of second line drugs to manage PPH, shortage of staff and lack of other medical resources such as intravenous infusion lines, which was caused by failure by health care professionals to implement the guidelines. Patients and health care professionals were asked to buy some of the resources that were not available, such as drugs. Many patients could not afford them because the medicines were too expensive; hence the increased MMR (Braddick et al., 2015).

The second barrier was lack of current knowledge and awareness and use of guidelines, although health care practitioners perceived them to be important in improving the health of the mothers. Health care professionals stated that they failed to implement the guidelines because the information inside were superficial and there were some discrepancies as to which guideline they were to implement.

The staff were also not aware of the availability of such guidelines in the facility (Braddick et al., 2015). Some verbalized that they did not follow the guidelines because they were adhering to what they had been taught when there were training in basic midwifery. Health care professionals further stated that certain clinical actions were implemented correctly, but they did not understanding the reason for it. An example was the administration of Oxytocin immediately after delivery and the use of Oxytocin as part of the routine. Health care practitioners were clamping the cord immediately after delivery for fear of HIV transmission; hence they failed to adhere to WHO guidelines. Primigravidae were not given Oxytocin as they viewed it as being unnecessary, thus increasing their changes of bleeding from an uncontracted uterus (Braddick et al., 2015).

The third barrier was the attitude of health care practitioners towards updated guidelines. They stated that updated information was disseminated by different sources differently, which caused some confusion on which information to implement (Fawcus, 2010). Researchers stated again that organized workshops on updated guidelines were attended by few practitioners with limited communication and information to all health care practitioners. Health care professionals who acquired their midwifery qualifications a long time ago were reluctant to use the guidelines and to change their practises (Braddick et al., 2015).

In the same study, of 153 mothers who gave birth, researchers reviewed 53 patient files, 34% of which were of mothers who received PPH prevention as stated in the WHO guidelines. Oxytocin was administered in 68.5% of mothers whereas 10 mothers were not given Oxytocin and 6 of 10 were primigravidae. Cord control traction was implemented to 77.3% of deliveries. Clamping of cord happened between 1-3 minutes after delivery in 37% of the 61.7% deliveries. Two minor and one major cases of PPH were discovered (Braddick et al., 2015). The FIGO Safe Motherhood and Newborn Health (SMNH) Committee (2012), endorsed an international recommendation that supports the provision of skilled health care professionals and improved maternal services through the use of maternal guidelines during the provision of maternal health, to reduce maternal morbidity and mortality rate (SMNH, 2012). To address PPH, a combination of approaches will be required to increase access to skilled care services. In the prevention of PPH, they emphasized the active management of the 3rd stage of labour by all skilled birth attendants, regardless of where they function, as well as the administration of Oxytocin, cord control traction and uterine massage after delivery of the placenta.

Two trials were made to compare Misoprostol with a placebo and Misoprostol was found to be effective in the prevention of PPH with or without cord control traction

(SMNH, 2012). Weeks (2014) found in his study conducted at the University of Liverpool, which regardless of the efforts made by the government on maternal health services on the prevention and reduction of maternal death, PPH still remains the major cause of maternal deaths worldwide.

High quality services provided by skilled health care professionals are needed for prevention and management of PPH to reduce maternal morbidity and mortality. All women must be given uterotonics in the form of Oxytocin immediately after delivery and Misoprostol must be used in areas where Oxytocin is unavailable, especially in low-resourced areas. Recent studies have shown that the main benefits of prophylaxis are to reduce the rate of postpartum anaemia, while maternal deaths are reduced. Weeks further discovered that 3% of women at low risk will lose 1000 ml of blood even if they received prophylaxis. Such women require urgent access to lifesaving PPH treatment. Women at risk of PPH will require advanced or extensive management of PPH to prevent maternal mortality and morbidity (Weeks, 2014).

2.5.3.2 Implementation and Management of Postpartum Haemorrhage Guidelines in South Africa

Immediately after delivery, a midwife must administer 20 units of Oxytocin in 1000 ml of Ringers Lactate at 125 ml/hour in case s/he detects that there is PPH. Routine third stage management must be done. Midwives perform active management of third stage to prevent excessive bleeding. They palpate the abdomen immediately after birth to ensure that there is no foetus remaining in the woman's abdomen. If there is no foetus remaining, they give 10 units of Oxytocin intradermally. Midwives place the left hand on the mother's abdomen after uterine contraction to ensure that the uterus has contracted, and using the other hand to hold steadily on the umbilical cord while the left hand is pushing the uterus upwardly (Langenegger & Nout, 2010). Midwives deliver the placenta using gentle control cord traction and examine it for

completeness and abnormalities.

The midwives also examine the vaginal walls for any tears and suture them according to their degree of severity. They rub the fundus of the women and expel the clots. They measure the blood loss after delivery and check for excessive vaginal bleeding to determine if there is PPH. Their assistant monitors vital signs, checks BP, pulse rate and temperature. A mother with secondary PPH is managed the same as one who has primary PPH.

In addition, the midwives identify the cause and treat accordingly, for example, if secondary PPH is caused by infection, antibiotics are initiated; if it is caused by wound breakdown, repairs are done and retained products of placenta are removed (NDoH, 2007). If PPH is diagnosed, the midwives implement the guideline on the management of PPH, but some not successfully. This happens due to the failure to follow the guidelines. At PHC level, the woman is transferred to the next level with a drip of Ringers Lactate after active management of third stage of labour.

Although Oxytocin 20 mg is added to the drip, the management of such women is not sufficient. This is another cause of high mortality rates through PPH by not doing or following the guidelines correctly during the management. A randomized study was carried out in South Africa in 2002 from 93% of mothers who received Oxytocin as a first line drug. Rectal Misoprostol was found to be a safe method of treating PPH. This management was found to be better than the combination of intramuscular Syntometrine and intravenous Syntocinon infusion. No MMR case was reported (Rizvi et al., 2004).

2.5.3.3 Actions That Show That Professional Nurses Are Not Adhering to Postpartum Haemorrhage Guideline Implementation

- Sub-standard care caused by failure to know the availability and content of the guideline in the unit.
- Poor skills in the management of PPH.
- Lack of knowledge on how to manage women with PPH and delays in referring the women, increasing the mortality rate.
- Negative attitude of those who were trained a long time ago, still doing things the old fashioned way and failure to adjust to new changes (Braddick et al., 2015).

2.6 Challenges Faced by Professional Nurses When Implementing Maternal Health Care Guidelines

Health care personnel are faced with various challenges, although these differ from one institution to another. These challenges are in the form of inputs and activities in which, if provided, nurses will implement their guidelines successfully and the output, together with the outcome, will be better. Common challenges of inputs that health care professionals are facing, which also contribute to maternal morbidity and mortality, are shortage of resources, both human and material (Spencer, 2013; Ward, 2014), (See Figure 2.1). They also include shortage of staff which may be due to inequality in the distribution of staff, absentism due to sickness, many workshops planned at the same time or shortage because of those who are resigning. This may result in inadequate nursing care to patients, i.e., a health care provider, especially at PHC facilities will have many patients to attend to, with many programmes that she must provide to each individual patient. Such health care personnel will be in a hurry to see each patient because she must also observe one of the ministerial priorities of waiting time. This might result in the health care provider missing some important

information that can result in the mismanagement of the mother (Fawcus, 2010).

Another challenge may be shortage of material resources such as equipment. This can be due to unequal distribution, especially to facilities that are remote. For example, without a BP machine, one cannot measure the BP of the pregnant woman (see Figure 2.1 of the Logic model on challenges faced by PN and training needed (Clark & Anderson, 2004). Negligence and lack of knowledge: some PN do not follow the available guidelines in their disposal, they do not give themselves time to read and know them in such a way that they do not apply them when rendering health care services (Ward, 2014).

Regardless of the government's effort in providing different training, some health care professionals come back from the training and act like they never received any training. The following activities must be carried out in the form of output and outcomes in order for the department to reach its goals (Braddick et al., 2015). For a person to become or be called a professional, one should have attained a certain qualification. For a nursing profession, a nurse should have obtained a degree or diploma in order to qualify as a Professional Nurse (PN). In nursing, there are various degrees and diplomas. For the purpose of this study, the research focussed on nurses who obtained a qualification, which includes Midwifery Nursing Science (Searle, Human & Mogotlane, 2013). The Midwifery Nursing Science diploma's curriculum includes both antenatal and postnatal care wherein the diagnosis of hypertension in pregnancy is taught, including the prevention of eclampsia and its management, and the diagnosis of eclampsia and its management.

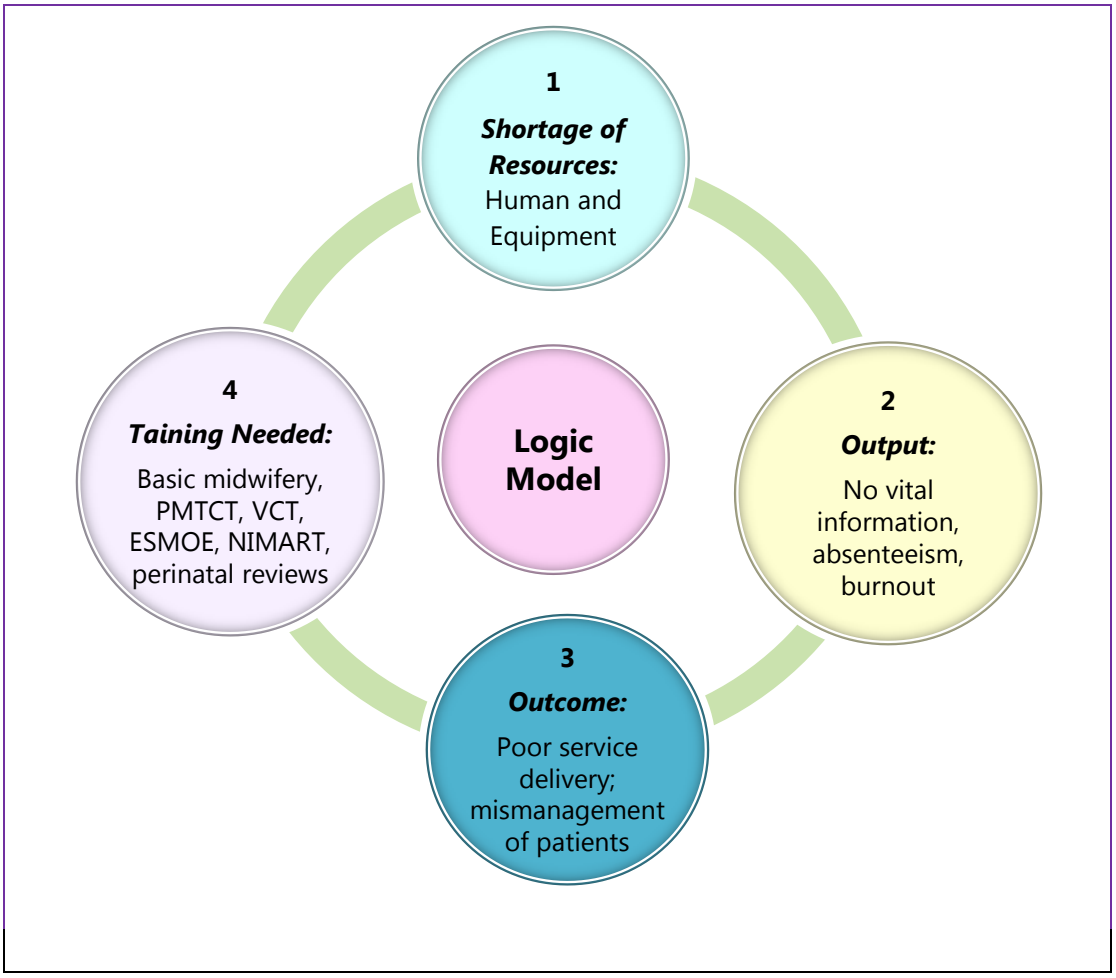


Figure 2.1: The logic model on challenges faced by professional nurses and training needed

The diagnosis and management of HIV/AIDS is not included in the curriculum, but midwives have to attend two weeks' training in provider initiator counselling and testing (PICT) and another week of training on PMTCT, both training programmes have a pre-test and a post-test, which includes practical training in a hospital setting. Diagnosing and management of PPH is indorsed in the midwifery training curriculum (NDoH, 2016). Every month there is a perinatal review meeting which is held at different hospitals with doctors and nurses who are working in the maternity ward and nurses from PHC facilities that are served by that hospital. The purpose of the perinatal review meeting is to review the management of pregnant women who have given birth, especially those who had problem deliveries, so that nurses and doctors are taught the correct management of the identified problems to prevent their re-occurrence. These reviews are also held once per quarter, including the review of

managers from different PHC facilities and one midwife per facility as a district meeting, i.e., all the hospitals and their clinics come together at a chosen place and the objectives are the same.

Different cases from different hospitals, including PHC cases are discussed and at the end lessons are given on the presented cases. In addition to the meetings, there are ESMOE meetings where PN are taught the diagnosis and management of various conditions such as hypertension in pregnancy and the management of PPH (DoH, 2014). Recently, a 3-day workshop was conducted where nurses were taught about the various conditions that may occur during pregnancy and their management. The workshop covered the diagnosis and management of PPH and hypertension in pregnancy. Update workshops on PMTCT are also conducted.

There is also training in the form of a 5-day workshop on Nurse-Initiated Management of Antiretroviral Therapy (NIMART) which include the initiation of ART drugs to pregnant women (NDoH, 2016). All this is done in an effort to lessen the rate of maternal morbidity and mortality. A study was conducted in order to reduce maternal mortality in developing countries in 2009. The study evaluated maternal health care services rendered by skilled birth attendants, namely, which are nurses and doctors and those rendered by unskilled traditional birth attendance. In those rendered by traditional birth attendants, the reduction in mortality rate was found in newborn babies, but not among the mothers. This was caused by lack of formal education on the part of traditional birth attendants (Spencer, 2013); Ward, 2014). Two recent studies that used non-experimental designs were undertaken which compared the relationship between births attended by skilled health care workers and those attended by traditional birth attendants in the reduction of MMR. The results were as follows: no strong link was found between the two groups. One of the studies was conducted in Burkina Faso between two groups and the results were the

same. No statistical difference was found between the two groups in the reduction of maternal mortality.

In studies on common problems in the nursing profession in the United Kingdom, Spencer (2013) and Ward (2014) identified the same challenges, such as inadequate staffing caused by not hiring enough staff or increased job responsibilities resulting in many programmes for one nurse. Inter-professional relationships were also found which may be due to conflicting views and feelings between the staff or nurses and patients. Patient expressed satisfaction is another, where a nurse has to accommodate the staffing needs of patients and their expectations, which may result in many errors.

The study also revealed on-the-job hazards and job safety due to needle pricks, injury from failing caused by slippery floors and cross-infection of diseases from patients who are sick. There was also overtime shifts caused by insufficient staff level, a nurse getting overworked and not being in a good state of mind, resulting in errors in health provision, and increased maternal morbidity and mortality rates (Spencer, 2013; Ward, 2014).

2.7 Experiences of Midwives in Relation to the Implementation of Maternal Health Care Guidelines

A study was conducted in three hospitals in Quebec by Chaillent, Dube, Francoeur and Associates in 2007 using a focus group discussion on 33 available obstetricians. In this study, 27 respondents agreed to participate. The findings were as follows: obstetricians verbalized that clinical practice guidelines were easy to understand, as the guidelines give them directions on treatment of patients prescribing for the patients as well as the management practices to be followed (Chaillent et al., 2007). They further found that guidelines are allegedly evidence-based and are seen as a legal document, meaning that if one follows them when rendering health care

services and something goes wrong in the patient, the professional involved will not be charged.

Although guidelines were viewed as easy, they were barriers which were identified in order for them to be implemented: These included absences of one-to-one patient ratio, insufficient medical equipment, shortage of experienced staff and lack of skills (Chaillent et al., 2007). To avoid all of these problems, in each hospital, obstetricians suggested various strategies that may help in implementing the guidelines and in enhancing their practice. In all the hospitals, health professionals' education was identified as an important factor that may improve the use of guidelines when professionals are rendering their health care services. Obstetricians have indicated that educational workshops will make the guidelines more acceptable and useful to health care professionals (Chaillent et al., 2007).

Another study was conducted by Mnyani and Mcintyre (2013) in Soweto on the knowledge and implementation of PMTCT guidelines among HIV-positive pregnant women. The researcher discovered that 80% of the health care workers viewed the PMTCT guideline as an increased workload, 92.5% felt that more staff were required for the smooth running of the programme and for the guidelines to be implemented effectively (Mnyani & Mcintyre, 2013). Despite the status quo, 80% of the health care workers were satisfied with the knowledge of PMTCT guidelines whilst 91.3% were satisfied with the general knowledge of HIV/AIDS. In the management of HIV-positive pregnant women, 96% felt that they were competent in providing health care services using the guidelines. Also 63.9% perceived the training received as adequate.

2.8 Support Offered by MHCM and OMN to Midwives for Effective Implementation of Maternal Health Care Guidelines

The Saving Mothers Report of 2014 commended the following support and these were recommended after the 2008-2009 results. This support is being implemented

practically, even in Limpopo Province.

- Managers at the district level are providing support to midwives and doctors by asking for permission from the District Executive Managers (DEM) to release midwives and doctors to attend ESMOE training. They insist that on a monthly basis each facility must conduct EOST. In turn, the DEM are releasing doctors and midwives to attend the training (DoH, 2014).

- Maternal health managers are offering ESMOE training.

- Managers ensure that there is enough staff and equipment, so that midwives can implement the maternal guidelines successfully. However, the results are unexpected, as mothers are still dying from PPH, hypertensive disorders such as pre-eclampsia and eclampsia. The Saving Mothers Report showed that there were 640 maternal deaths from 2011-2013, of which the Capricorn District reported the highest MMR of 73.26/100,000 live births caused by hypertension (DoH, 2014).

- Health education in health care facilities are being taught through dashboard indicators and through Mom-Connect because health care professionals were taught on how to conduct the programme.

- Ensuring that ambulance services are available for pregnant women, although in some facilities, they do not comply with the standard. The results of this delay sometimes results in an increase in MMR.

- Managers are providing health facilities with maternal guidelines and protocols on the management of PPH, hypertensive disorders in pregnancy and HIV/AIDS management and also providing training in relation to such maternal guidelines for effective implementation by midwives. They are also monitoring to ensure

that such guidelines are implemented. However, the MMR remains high (DoH, 2014).

- Managers are providing health care facilities with the criteria for mothers who are supposed to be referred to the hospital and they are encouraging OMN to establish referral routes in their facilities. A list of conditions which guide the midwives on whom to refer to the next level is available in all health care facilities and is being implemented.

- Continuous education is offered through monthly perinatal meetings where midwives are taught about the management of various obstetric conditions, including basic emergency obstetric care such as providing Magnesium sulphate to pre-eclamptic women and Oxytocin to prevent PPH. Education that is offered to midwives includes the following: preparation of an eclamptic box, preparation of a PPH box, in which all the boxes were prepared by midwives and are currently available in most health care facilities.

- Monitoring of data and communication channels of reporting incidences within 24 hours in which the rate of incidence reporting before 24 hours is slow (DoH, 2014).

Operational managers are monitoring and evaluating if guidelines are implemented effectively by conducting audits on maternal health records. On a monthly basis they audit the maternal case register to check if all the spaces are filled correctly and if the partogram is used correctly. If not, planned training is conducted to improve the service. OMN are checking if midwives have enough drugs and those which are used during emergencies, such as magnesium sulphate, are checked on a daily basis for availability. OMN also make sure that basic equipment such as BP machines are available although they sometimes do the requisition of equipment without success. OMN are also allowing midwives to attend training such as ESMOE and ensuring

that EOST drills are conducted, although the drills are not conducted satisfactorily. OMN are encouraging midwives to give health education on dashboard indicators such as encouraging pregnant women to attend ANC before 20 weeks of pregnancy and HIV testing (DoH, 2014).

2.9 Strategies That Have Been Developed to Reduce Maternal Mortality Rate

A push to focus on efforts to reduce MMR was made globally, specifically on the care of obstetric emergencies. This was led by a group of researchers from Columbia University, USA. Chapter 9 of the Monograph Postpartum Haemorrhage, Be Prepared: Training and Ongoing Educational Initiatives written by Pattinson in 2010, indicated that in South Africa, a strategy was developed for midwives and doctors to manage maternal health care services called Essential Steps in Managing Obstetric Emergencies. This training programme aims to improve the knowledge and skills of health care professionals in managing obstetric emergencies (Pattinson, 2010).

The partnership of clinicians from obstetric departments in all medical schools, members of the National Committee for Confidential Enquiries Into Maternal Health, the Maternal and Infant Health Care Strategies Research Unit, the South African College of Obstetrics and Gynaecology, the South African Chapter, the South African Paediatric Association, the Midwifery Association, and others, developed this programme (Pattinson, 2010). ESMOE was adopted by the NDoH so that as a strategy it improves the knowledge and skills in managing obstetric emergencies of health care professionals all over the country, including PHC facilities being implemented to reduce MMR. The programme is convened by master trainers who have received a 4-day training programme to train midwives in 3 days on managing obstetric emergencies, but also training them to conduct Emergency Obstetric Stimulation Training (EOST) exercises in their facilities (Pattinson, 2010). These

exercises include simulations and demonstrations on the management of PPH, eclampsia and other obstetric emergencies within the facility. The crucial elements for this programme is for health care workers to be able to respond in an obstetric emergency, to be able to utilize and demonstrate the knowledge and skills they have acquired and their ability to apply them in a multidisciplinary team.

In the Monograph, Pattinson (2010) further indicated that for health care professionals to be prepared for PPH management, every maternity unit needs to have the following:

- Poster on the wall outlining the protocol on the management of PPH.
- Conduct in-service training for the staff where protocols are reviewed. Audit of patient maternity records using a checklist to review the management of the patient on services rendered.
- Conduct regular EOST exercises on the management of PPH based on simulations developed from the ESMOE training package. All health care professionals to be involved and allocation of scores to be done. After the simulation, the document is to be stored in a safe place for comparison of scores in the future.
- The manager of the institution is to make it a point that professionals' knowledge regarding EOST is sufficient, by sending health care professionals to ESMO training regularly.
- Proof of EOST exercises must be kept at the facility/institution with the scores, and must be available for inspection by the District Manager (Pattison, 2010).

At the present moment, in-service training is being conducted and 3 days' training has just been done at PHC facilities. It is difficult for nurses to conduct EOST

because of lack of equipment, although they have started with the demonstrations. If PN are provided with sufficient equipment and enough human resources such as doctors, at PHC level, the strategy can be effective in the reduction of MMR caused by obstetric emergencies. However, in spite of implementing ESMOE, women are still dying of PPH and hypertensive disorders in pregnancy, hence the increase in MMR.

Weeks (2014) have developed the following strategy in relation to management of PPH: PPH management improvements may be done through the following: Prevention, treatment and rescue. Prevention includes antenatal strategies, management of third stage of labour actively and management of retained placenta. The treatment of PPH is medically and surgically, PPH therapy through intravenous fluids, blood transfusion, coagulation correction and supportive care such as garment compression. Anaemia in pregnancy must be diagnosed through blood collection and investigation of the haemoglobin level. Any diagnosed Anaemia must be treated by giving iron supplements and deworming because it also predisposes a pregnant woman to PPH. Routine episiotomy must also be avoided because it is associated with 27% of PPH (Weeks, 2014).

2.10 Active Management of the Third Stage of Labour

Many strategies were discovered and used for active management of the third stage of labour. Weeks, (2014) revealed that Ergometrine, combined with Oxytocin can sustain the contractions following the effects of Oxytocin. There is a drug which is also used, called Syntometrine, which contains 5 IU of Oxytocin and 500 grams of Ergometrine. If this combined drug is used, it is more effective in the prevention of PPH. The use of Misoprostol orally in low resource areas where Oxytocin is not available is an effective strategy in the prevention of PPH (Weeks, 2014). A traditional cord control traction method is still a strategy that is used in the prevention

of PPH. A trial was made by WHO from 24,390 women who received Oxytocin prophylaxis and were randomized to either cord control traction or placental delivery by gravity and maternal effort alone. The results showed no difference in the rate of severe PPH and only one uterine inversion on the cord controlled traction group. Furthermore, the results showed that cord control traction reduces the rate of retained placenta for women who received Oxytocin/Ergometrine prophylaxis, but no result was found in those who received Oxytocin alone.

Uterine compression through bimanual compression, where a midwife or doctor applies a fist in the vagina and another hand on the abdomen is a highly effective strategy, but used as a last resort because of the invasive nature of the procedure (Weeks, 2014). Cherouny (2014) has developed the prevention, recognition and management strategies on hypertensive disorders in pregnancy. Midwives must do the following:

- Screen and diagnose maternal hypertension early.
- Identification and use of protocols in to assess BP, to assess those who are at risk and early warning signs for hypertension in pregnancy.
- Acute management of hypertension, pre-eclampsia and eclampsia.
- Pre-eclamptic box to be always available and ready and a rapid response team to always be ready for intervention.
- Health education on signs and symptoms on hypertension pre-eclampsia and eclampsia.
- Giving patients pamphlets and booklets so that they can be ready.
- Emphasizing change in culture, safety and improvement.

- EOST drills regularly, lines of communications to be clear for all, auditing of patients' records who suffered from eclampsia and pre-eclampsia.

- Staff orientation on the management of pre-eclampsia and eclampsia.

- Health care workers must always be ready, recognized signs and symptoms, respond on time and refer the patients to the doctor.

- Initiate anti-hypertensive drugs within 15 minutes of taking BP of 160/110 to reduce high BP, standardized protocols must be used to prescribe drugs.

- Anti-seizure medication must be used, Magnesium Sulphate is the drug which must be used for preventing pre-eclampsia (Cherouny, 2014).

In relation of HIV/AIDS, in 2010, the government launched the HIV Counselling and Testing Campaign as a plan to reduce morbidity and mortality rate to all people of South Africa. The campaign's main objectives were to promote Voluntary HIV Counselling and Testing (VCT) and encouraging all South Africans to know their status (DoH, 2011). PMTCT is a strategy which was developed for HIV-positive pregnant women to reduce MMR and to reduce HIV infection to the newborn baby. Before 2014, HIV-positive pregnant women were initiated on ART when they were 14 weeks pregnant and with a CD4 cell count of 350. Maternal mortality was slightly reduced.

In January 2015, the strategy was revised, and a new guideline was implemented on fast tracking of the initiation of long life ART the same day the pregnant women is diagnosed to be HIV-positive, regardless of her CD4 cell count (NDoH, 2015). Even with the development of all the strategies discussed above, MMR is still high far from the annual decline of 5.5% required to achieve the SDGs. If only health care professionals can be cautious when providing health care services to pregnant

women before pregnancy, during pregnancy and post-pregnancy, and if they can implement the guidelines on the management of each condition and followed them carefully, maternal mortality and morbidity can be greatly reduced. The provision of equitable resources in the form of human and material resources by the government can also play a role in combating the burden of diseases hence reducing maternal death.

This study was conducted in order to identify the gaps, weaknesses and strengths in the implementation of maternal health guidelines so that a strategy can be developed that will facilitate the implementation of maternal guidelines so as to reduce MMR, and hence reach the SDG number four, of reducing MMR by three quarters by the year 2030.

2.11 Summary

This section presented the definition of maternal health guidelines, available guidelines in relation to maternal health, conditions covered by the guidelines with their preventions and management. The implementation of maternal guidelines internationally and in South Africa was also presented. Studies conducted in relation to guidelines and their findings were indicated. It also presented the challenges and experiences of PN in relation to the implementation and provisions of maternal health care services. The support system offered by MHCM and OMN to PN so that they can implement the maternal guidelines was outlined; as well as the strategies that have been developed to reduce MMR and improve access to PHC facilities.

CHAPTER 3

Research Methodology

3.1 Introduction

The previous chapter dealt with the literature review. The present chapter focuses on the methodology of the study. Methodology is defined as the means of obtaining, collecting, organizing, analyzing and interpreting data (Brink, Van der Walt & Van Rensburg, 2012). The focus of this study was exploratory in nature, describing and assessing the knowledge that PN have related to the implementation of maternal health guidelines during the provision of maternal health care services. Therefore, the study adopted a convergent parallel research design. The research design and methods, population and sampling, pilot study, data collection methods, data analysis, validity and reliability, trustworthiness and ethical considerations are described.

3.2 Research Methodology

The research methodology decided upon depend on the topic and the nature of the research hypothesis, which influences the design and interpretation of the findings (Brink et al., 2012). This was a mixed method research study, which consisted of quantitative and qualitative research strands as presented in Table 3.1.

3.3 Study Setting

The study was conducted in Limpopo Province (Figure 3.2) which has a population of 5,273,642 people (Census, 2011).

Table 3.1: Research methods

Phases	Objective	Research design	Population	Sampling approach	Data collection	Data analysis
Phase 1	1	Quantitative	PN with midwifery working at primary health facilities	Systemic sampling method	Self-administered questionnaires	Statistical Package for Social Sciences (SPSS) version 23
	2	Quantitative	MHCM and OMN	Convenience & systematic sampling method	Self-administered questionnaires	
	3	Qualitative	PN with midwifery working at primary health facilities	Purposive & Convenience sampling method	In-depth interview	Tesch's methods
Phase 2	4	SWOT analysis approach	Results of Collected data	Build strengths, Overcome weakness, Explore opportunities and Mitigate threats (BOEM)		
Phase 3	5	Quantitative	PN with midwifery & Managers	systematic & purposive	Self-administered questionnaires	SPSS

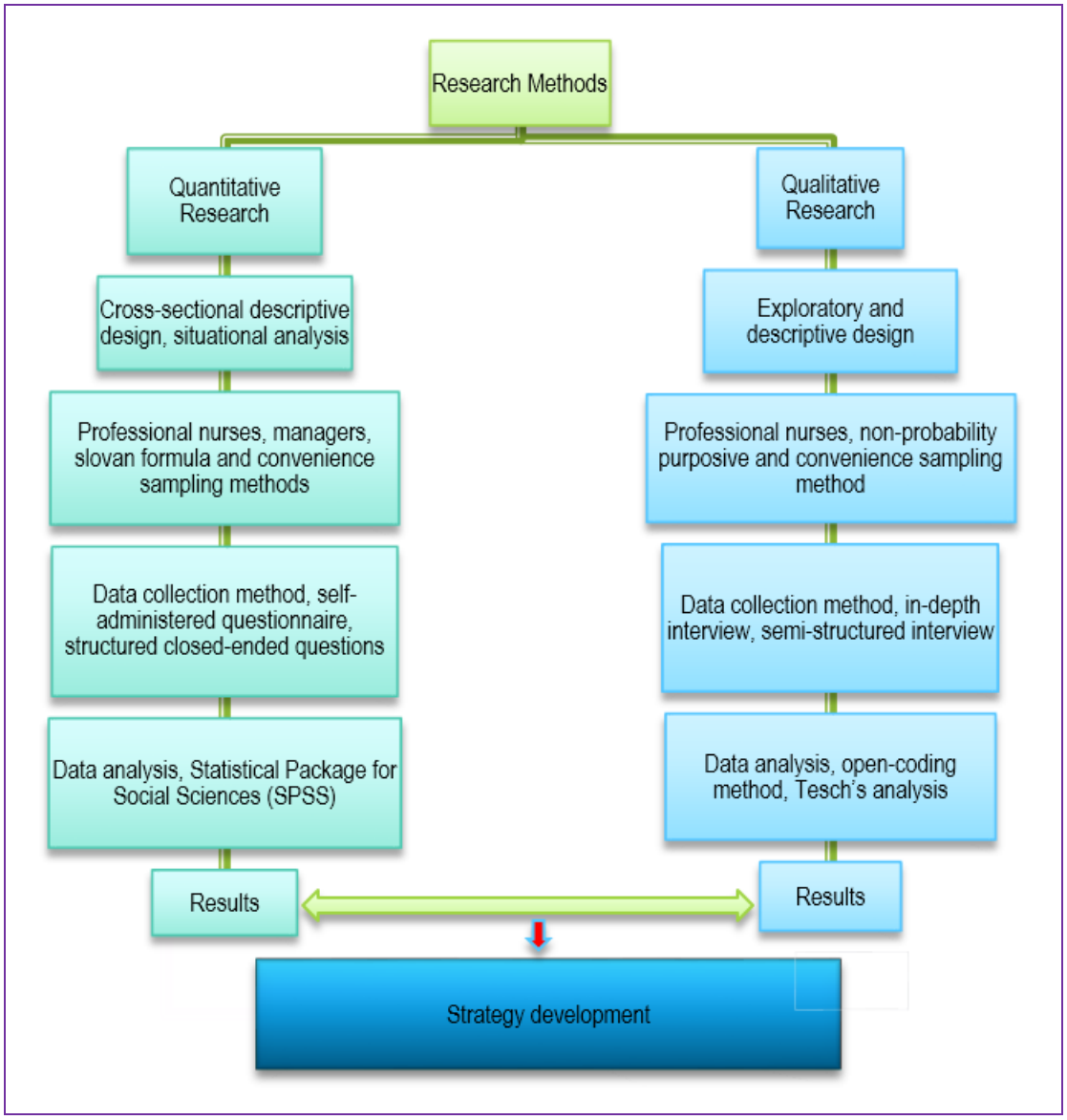


Figure 3.1: Research designs used in this study

The study covered a geographical area of 124,000 square kilometres. Limpopo Province is situated in the North East of South Africa. It borders with Botswana on the North East, North West Province on the South West, Gauteng Province on its South and Mpumalanga Province on its South East. It is made up of five districts, namely, Vhembe, Mopani, Sekhukhune, Capricorn and Waterberg. From the estimated population, about 54.6% are women; about 45.4% are men and about 39.4% are youth. In 1996, about 42.2% of the population aged 15 years and above were illiterate, with no schooling or with the highest educational level of less than grade 7 (Census, 2011). In 2001, about 41.0% of the population of the same age was

also illiterate, but a drastic change took place in 2011 because only 24.0% of the same population was illiterate, meaning that the population took a stand on education and made education their priority (Census, 2011). The labour market in Limpopo Province accounts for 45.7% and men are the leading population, followed by women. The unemployment rate is 38.9%. The most challenges experienced in Limpopo Province are as follows: poverty, unemployment, illiteracy rates, HIV/AIDS, the rural nature of the province, lack of appropriate skills and the migrant population. The numbers of PN for the whole province as indicated by the South African Nursing Council (SANC, 2016) were 11,853. There are 477 PHC facilities at Limpopo province, which includes mobile, and community health care centres. Within the province, 444 facilities are offering 24 hour on call system and 65 offering 24-hour services (Limpopo DoH, 2016).

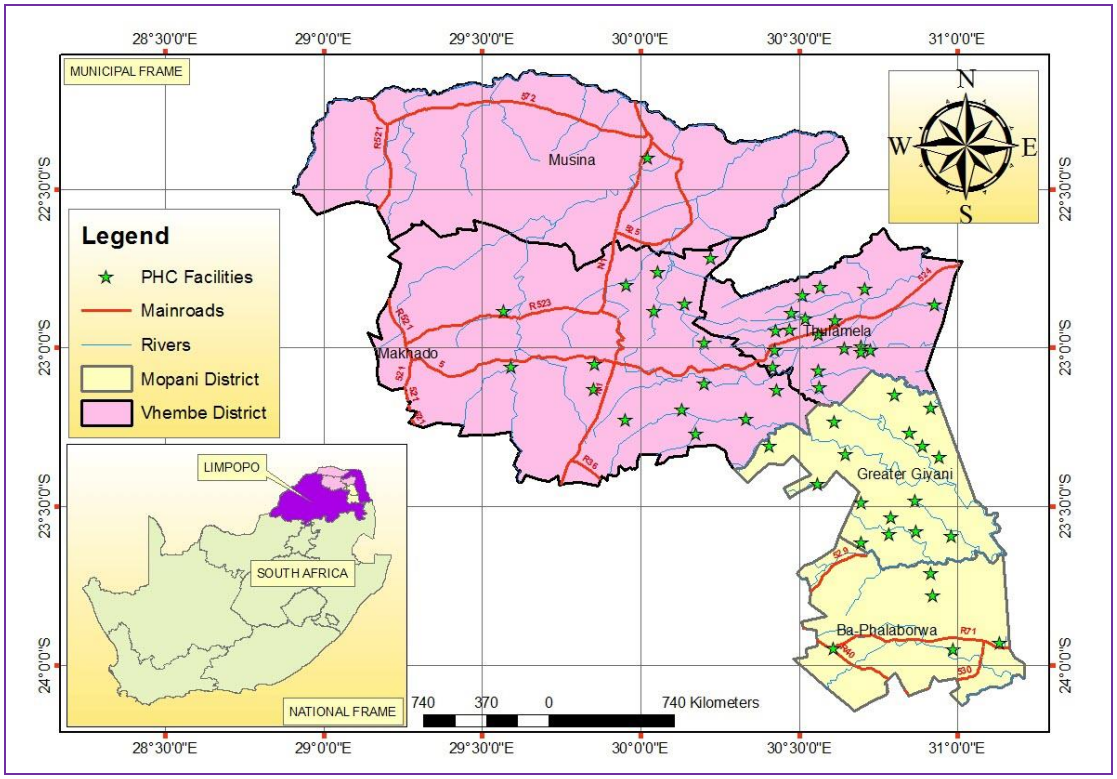


Figure 3.2: Map of Limpopo Province showing PHC facilities in Vhembe and Mopani districts

Like in other areas, there are traditional healers in Limpopo Province and these are still utilized by those who believe in them, especially after giving birth. Women

consult traditional healers for treatment of conditions such as “gokhonya,” literally meaning a form of sexually transmitted infection where some parts of vaginal growths are removed and mixed with traditional medicines to treat the child. If this procedure is not performed properly, it may result in severe bleeding, followed by a rise in the MMR as engorged blood vessels are mistaken for growths. In past decades, traditional healers were used as birth attendants, but nowadays this is no longer done because of the availability of health care facilities and fear of infection, as they used unsterile techniques that led to high MMR (Spencer, 2013). The Mopani and Vhembe Districts (Figure 3.2) were chosen as the area of study because of the 2011/20130 statistics from the interim report, which reported 269/100,000 of MMR.

The two districts were sampled because of the high MMRs which are related to the borders or the neighbouring countries, namely, Botswana, Zimbabwe and Mozambique (Limpopo DoH, 2013). These countries are also affected by the high morbidity and mortality rates caused by diseases such as HIV/AIDS. Vhembe District consists of four municipalities Musina, Makhado, Mutale and Thulammela. The pre-dominant group in Vhembe District are the Venda speaking people, followed by Tsongas, foreigners like Zimbabwians and a small population of whites. Mopani District consists of five local municipalities, namely, Greater-Letaba, Greater-Giyani, Greater -Tzaneen, Ba-Phalaborwa and Maruleng.

There are 223 PHC facilities and community health care centers within these two districts. Each PHC facility consists of 4 to 7 PN and community health centre consists of 20-25 PN. Most PN in PHC facilities are playing double roles, they are doing administrative and management work as well as midwifery roles. From the number of PN mentioned above, some have a single qualification without midwifery, hence those with midwifery are seeing around 40-45 pregnant women who are coming for antenatal health care services. Midwives (about 5 to 7) are rendering

maternal health care services at community health care centers caring for about 50-60 antenatal women and above 50 deliveries per month. Hence, some PHC facilities are experiencing a high rate of staff shortages, with a huge burden of programmes to be implemented (Limpopo DoH, 2013).

3.4 Research Design

Research design is defined as a plan that shows how the study will look; it is a plan according to which data will be assembled. Its purpose is to provide a scheme for achieving the objectives of the study by providing the research questions, hypothesis and study objectives (Brink, 2007). Creswell & Plano Clark (2011) defined a research design as the design where the researcher uses concurrent timing to implement the quantitative and qualitative strands during the same phase of the research process. It prioritizes the methods equally and analyzes the methods independently and interprets them together. This study used a convergent parallel research design. The researcher collected both qualitative and quantitative data during the same phase of the research process, analyzed and presented both results separately and merged the results during discussion. Figure 3.1 illustrates the research designs used in this study.

The convergent research design and its assumptions were compatible with the study's purpose, research hypothesis, research question and research objectives, namely, to assess and develop the strategy that will facilitate the implementation of maternal health care guidelines by PN. This will reduce maternal morbidity and mortality rate in Limpopo Province. Furthermore, it aided in identifying the gaps PN have in relation to their knowledge and use of guidelines. A convergent research design was deemed suitable for this study because both designs complemented each other. The philosophical paradigm of this method called pragmatism put focus on the value and consequences this study, which will lead to decrease MMR through

the implementation of the developed strategy. The necessity of using convergent research design was seen through its use of multiple methods that answered the research questions in order to inform the study. The information, which was not obtained through the quantitative research design, was obtained using the qualitative research design as the method allowed participants to narrate their experiences when implementing maternal health guidelines. Both designs were used to solve the research problem under study.

3.4. Quantitative research strands

In a quantitative research strands, the researcher uses a non-experimental descriptive cross-sectional design, and situational analysis in collecting data from a defined population. This allows the researcher to make full descriptions of the phenomena under study with the aim of utilizing the results to justify current conditions and practices, or to make further plans to improve the situation (Brink, 2017). With situational analysis the researcher of this study identified the strengths and weaknesses on the use of available maternal health care guidelines by PN. Hence, a strategy was developed that will facilitate the implementation of maternal health care guidelines by PN with the aim of reducing maternal morbidity and mortality rate.

3.4.1 Research Objectives

- To assess the knowledge and skills of PN regarding available maternal health care guidelines and the implementation thereof.
- To assess the support system offered by MHCM and OMN to PN on the implementation of maternal health care guidelines.

3.4.2 Population and Sampling

A population is group of persons or objects that are of interest to the researcher, in other words, those who meet the criteria of the researcher (Brink, 2007; 2017; Burns & Grove, 2011; Polit & Beck, 2006; 2014). In this study, the population was All Professional Nurses (PN) with a midwifery nursing qualifications working at Limpopo Province. Hence, the researcher had the target population because not all the PN with a midwifery nursing qualifications can be included on the study. In this study, the target population was the following group of nurses working at Vhembe and Mopani Districts, Limpopo Province.

- All Professional Nurses (PN) working at PHC facilities with a midwifery nursing science qualification for more than one year.
- Maternal health care managers (MHCM).
- Operational managers (OMN)

PN with less than one year of experience and those working at the hospitals and other districts such as Capricorn, Waterberg and Sekhukhune were excluded from the study. The findings from target population will generalize the whole population.

3.4.3 Sampling of the Districts and Municipalities

Non-probability sampling methods were used to select the districts for this study. Non-probability sampling methods imply that not everybody in the population has an opportunity to be selected. Purposive sampling is the conscious inclusion of an element in the study based on the information the researcher understand and had under the study (Polit & Beck, 2014). Maximum variation /Heterogeneous purposive sample is the type of purposive sampling which provide more insight and diverse range of cases relevant to the phenomenon/event understudy (Crossman, 2018).

Vhembe and Mopani districts were heterogeneously purposely sampled and chosen because of the 2011/2013 statistics from the interim report, which reported statistics of 269/100,000 of MMR. Within the districts, five municipalities were purposely selected, that is; Musina, Thulammela, Makhado from Vhembe, Ba-Phalaborwa and Greater Giyani from Mopani. These municipal areas were sampled because they present cultural diversity and borders with Zimbabwe, Mozambique and Botswana which predispose them to increased maternal morbidity and mortality rate.

3.4.4 Sampling of PHC Health Facilities

In the quantitative research strand, the researcher used probability-sampling method to select PHC facilities. This method allows each and every facility equal chances to be selected for the study (Polit & Beck, 2014; Brink, van der Walt, van Rensburg, 2012). The systematic or interval sampling method entails that the researcher must have a list of the total population and then formulate a starting point to randomly select the sample (Brink et al., 2012). The researcher used the systematic method to sample PHC facilities. A list of all facilities was obtained from the DoH of each district. The 2 municipalities at Mopani District consists of 37 PHC facilities. The 3 municipalities at Vhembe District consists of 104 PHC facilities. Each and every third PHC facility was selected from Vhembe District because of the large number of PHC facilities. Each and every second PHC facility was selected at Mopani District because of the smaller number of PHC facilities in the district.

Systematic sampling was done in order to have an appropriate representation of the entire PHC facilities. Nineteen (19) PHC facilities from Mopani District and 34 from Vhembe District were randomly selected systematically (Table 3.2 indicated the number of sampled PHC facilities). Sampling of these facilities was sufficient to achieve the two objectives; of assessing the knowledge and skills of PN had in relation to the implementation of maternal health guidelines; and of the support

offered by managers to PN during the implementation of maternal health guidelines.

Table 3.2: List of sampled primary health care facilities from the sample frame

District	Municipality	Total number of PHC facilities per municipality	Number of PHC sampled
Vhembe	Makhado	49	16
	Musina	3	1
	Thulammela	52	17
Mopani	Ba-Phalaborwa	10	5
	Greater Giyani	27	14
Total		141	53
Limpopo Province DoH, 2015			

3.4.5 Sampling of MHCM and OPM

From the sample frame above as indicated in Table 3.2, a systematic probability sampling method was used to select OMN from the total number of 141 PHC facilities. Operational managers were sampled randomly so that each respondent may have an equal chance of being selected. This method of sampling was suitable because each PHC facility had 1 OMN. Meaning that, from 141 PHC facilities, there were 141 OMN. Every second OMN from the second PHC facility was selected giving a total number of 70 that formed part of the study. This was done to sample the population that represented the entire population. Again, 2 MHCM from the 2 districts were sampled conveniently because each district had 1 manager in order to form part of the study.

3.4.6 Sampling of Professional Nurses

A sample is a portion of a complete or subject of a larger set chosen by the researcher to partake in a research study (Brink et al., 2012). The sample consisted

of the selected group of PN with midwifery qualifications working at PHC facilities and having more than 1 year of working experience with pregnant women. The researcher used the Slovan formula to determine the number of PN as respondents from the list of the sampling frame as indicated in Table 3.3. The systematic or interval sampling method entails that the researcher must have a list of the total population and then formulate a starting point to randomly select the sample (Brink et al., 2017). The researcher used the systematic method to sample 211 PN randomly so that they have an equal chance to participate in the study. A list of all PN was obtained from the duty rooster drawn from each PHC facility. From the list of duty rooster, the researcher formulate the starting point and each and every second PN was selected to form part of the study. The sampled respondents were the representatives of the entire population from the two selected districts. The selected respondents were suitable in answering objective number 1 where the researcher assessed the knowledge and skills of PN regarding available maternal health care guidelines.

Table 3.3: Sample frame for professional nurses with midwifery

Municipalities	Number of PHC facilities sampled	Number of PN with midwifery	Number of PN sampled	Percentage
Ba-Phalaborwa	5	47	24	12%
Greater Giyani	14	114	57	28%
Makhado	16	117	58	29%
Musina	1	8	4	0.98
Thulammela	17	121	60	30%
Total	**53**	**407**	**211**	**100%**
Limpopo Province DoH, 2015				

The sample size was calculated using Slovan formula below:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = sample size of the adjusted population and N= population size

e = accepted level of error set at 0.05.

$1 + 407x (0.05)^2$

n =407/(1 +407 x (0.05)2

= 407/(1+ 1.13)

407/2.13

Sample size (n) = 192

The sample size, however, should be increased to 10% to leave room for non-response (n = 192 + 19 = 211).

3.4.7 Pilot Study

A pilot study is defined as a small-scale version or dummy run of the major study so that unforeseen problems which can arise in the course of the project can be prevented (Brink et al., 2012). In a pilot study, the research instrument is tested on a small number of the population to be studied that had similar characteristics as the population for the main study. The researcher can thus recognize and address some of the problems by making adjustment to the instrument and reassessing the feasibility of the study (Brink et al., 2014). Convenience sampling was used to select respondents. A pilot study was conducted on 20 PN with midwifery for objective no.1 that assessed the knowledge and skills PN has regarding available maternal health care guidelines and the implementation thereof. Six (6) OMN answered objective no.2 of the support offered by MHCM and OMN during the implementation of maternal health care guidelines to PN. Respondents sampled were from Vhembe District at Mutale Municipality. The respondents of the pilot study were not included in the main study. The same self-administered questionnaires that were used for main study was used for respondents to determine if the design was suitable, or not. The

cost and length of the main study was estimated from the pilot study and confusing questions were changed. Two questions on the questionnaire of managers were changed. There was a question on staff that is appointed according to the needs of the facility, which was paraphrased as allocated instead of appointed. Another question was on supervision by MHCM and OMN which is done every 2 months; this question was paraphrased separating MHCM from OMN because OMN were supposed to supervise PN daily. On part of the questionnaire of PN, the bibliographical data were changed from just indicating professional omitting nurse which was added. This was done in order to ensure validity and reliability of the instruments.

3.4.8 Preparation for Data Collection

Burns, Grove and Gray (2013) defined data collection as a precise and systematic gathering of information relevant to a study. Gaining entry to the study setting involved obtaining approval from the University's Ethics Committee (Annexure A) and the Limpopo Provincial DoH and Social Development Research Committee (Annexure C). Approval was sought from the District Executive Managers (DEM) of Vhembe and Mopani districts (Annexure B). The research assistant was trained in order to acquire sufficient knowledge and skills to collect the data. The research team consisted of the researcher a midwife..

3.4.9 Data Collection Methods

Data collection methods often employ measuring instruments to gather research data or information from the target population (Burns, Grove & Gray, 2013; Brink et al., 2014). The data collection instrument suitable for this study was a questionnaire self-administered where structured closed-ended questions were constructed. This instrument was used to assess the knowledge and skills of PN regarding available maternal health care guidelines and their implementation thereof. The questions

(Annexure H) were designed in English because respondents were professionals. Respondents completed the questionnaire in the presence of the research team although some were left in the facilities and collected at another date because respondents were busy seeing patients. The researcher and one member of the research team gave specific instructions to clear up possible uncertainties. Structured closed-ended questions were formulated. The first section of the questionnaire covered biographical information and subsequent sections covered the objectives of the study, namely:

- **Objective 1:** To assess the knowledge and skills of PN regarding available maternal health care guidelines and their implementation thereof;
- **Objective 2:** To assess the support system offered by MHCM and OMN to PN on the implementation of maternal health care guidelines.

The research team collected data from all 283 respondents, namely, 211 PN with midwifery and 70 OMN from PHC facilities and 2 maternal health managers from each district. Completion of questionnaires took 1 hour and 30 minutes. Data collection lasted for the period of 2 months and 3 weeks.

3.4.10 Data Analysis

Data analysis in a quantitative research study entails categorizing, ordering, manipulating and summarizing data and describing them in meaningful terms (Brink, 2007). A descriptive approach employs measures such as frequency distributions and measures of central tendency. Descriptive statistics was used to describe and summarize data collected in this study. The researcher and the research assistant checked questionnaires before taking them to the statistician, from PN's questionnaires, 11 were incompletely filled so they were discarded.

As such, 200 completed questionnaires were submitted to the statistician for analyses. Of the 70 completed by OMN, 12 were not fully completed and as such were discarded, leaving the total number of 58 questionnaires from OMN and 2 from MHCM. The total completed questionnaires submitted were 260. Data were analysed using the Statistical Package for Social Sciences (SPSS) version 23. The data were presented graphically (Burns, Gray & Grove, 2013; Brink, 2007). The researcher worked closely with the statistician and the data were tabulated using Microsoft Excel and analyzed using SPSS version 23 for cross-tabulations.

3.4.11 Validity and Reliability

Validity refers to the degree to which an empirical measuring instrument correctly reveals the concept it is meant to measure (Brink et al., 2012). For example, Objective 1 of the study was to assess the knowledge and skills of PN regarding available maternal health care guidelines and their implementation thereof. The researcher constructed questions for respondents from this objective, using quantitative research instruments in a form of closed-ended questions; another researcher must be able to use the same instrument covering the same content. Validity has to do with whether a measuring device covers the full range of meanings or forms that would be included in a variable being measured.

To ensure validity of the measuring instruments, face validity, which means that the instrument seems to measure what it was supposed to measure, was applied. Thus, the measuring instruments were submitted to experts who judged the instrument and their judgment was based on their knowledge and experience in the field. (Brink et al., 2012). **Content validity** is when the instrument includes all the information of the variable to be measured. It is used mainly in the development of a questionnaire. The researcher constructed the instrument based on the aims and literature review. To ensure content validity, the instrument was offered to midwives practising midwifery

and OMN who evaluated the content validity of the instrument with regard to the extent to which the variables to be tested was represented as well as the instrument's overall appropriateness for use (Brink, 2007).

Reliability is defined as the extent to which the instrument yields the same results on repeated measures. The reliability of a measurement procedure is stability or consistency of the measuring instruments (Brink et al., 2012). A pilot study was done and there were less errors, i.e., the instrument had high reliability because it yielded the same results even for the present study. **Equivalence reliability** is defined as a test of equivalence that attempts to determine whether a similar test, if given at the same time, will yield the same results or whether the same results can be obtained by using different observers at the same time (Brink et al., 2012). If other researchers were to use the same instrument at the same time using PN, they must obtain comparable results.

3.5 Qualitative Research Method

Qualitative research is defined as a design that is used by researchers from the conceptual phase of problem identification up to when the researcher writes stories collected from participants to data analysis (De Vos et al., 2014; Burns, Grove & Gray, 2013). For the purpose of this study, the researcher used a qualitative, exploratory research design. A phenomenological approach was used because the researcher explored the experiences of PN when implementing maternal health guidelines in their natural settings. The advantage of using this method was that it involves participants during data collection in their own place of work. It's systemic and subjective attributes helped the researcher to explore the life experiences of participants and assigned meaning to those experiences. This design helped the researcher to collect in-depth information that was not collected through the quantitative research methods. Identified gaps helped the researcher to develop a

strategy that will facilitate the implementation of maternal health care guidelines by PN when providing nursing care to mothers.

3.5.1 Qualitative research Objective

- To explore the experiences or challenges faced by professional nurses when implementing related maternal health care guidelines.

3.5.2 Sampling of PHC Health Facilities

Non-probability sampling method is defined as a method where the researcher sample participants based on the knowledge possessed by subjects under study (Brink et al., 2014). Non-probability sampling was used to sample PHC facilities purposely for this study. Purposive sampling method was based on the judgment of the researcher regarding the subject that was the representatives of the phenomenon being studied. Maximum variation /Heterogeneous purposive sample is the type of purposive sampling which provide more insight and diverse range of cases relevant to the phenomenon/event understudy (Crossman, 2018). Some of the PHC facilities that fall under Greater Giyani, Ba-Phalaborwa, Musinah, Thulammela and Makhado within Vhembe and Mopani districts were selected heterogeneously purposely because of the 2011-2013 Savings Mothers Report that indicated higher MMRs within these districts. Sampling of these facilities was done to achieve the objective indicated in 3.4.2.1.

3.5.3 Sampling of Professional Nurses

A sample is a part or fraction of a whole or subject of a larger set selected by the researcher to participate in a research project (Burns et al., 2013). In this study, the sample consisted of a selected group of PN with midwifery having 1 year and above

of midwifery experience working at the PHC facilities of Mopani and Vhembe districts. Non-probability purposive and convenience sampling method was used to sample the participants. A homogeneous purposive sample is defined as a sample where participants have shared characteristics (Crossman, 2018). Convenience sampling is the sampling method that is used because participants are easily accessible and readily available (Polit & Beck, 2014). PN with midwifery qualifications working at PHC facilities were homogeneously purposively and conveniently sampled. PN who were available and on duty during data collection rendering maternal health care services were selected to form part of the study. When using the qualitative research method, the researcher did not have the knowledge of how many participants were needed. As a result, data were collected until saturation occurred (Brink et al., 2014). The researcher collected data until participants repeated the same information again and again regarding their experiences and challenges when implementing maternal health guidelines and was saturated on the 18th participant.

3.5.4 Data Collection Methods

An in-depth interview method of data collection is a method used in qualitative research designs. An interview as a method of data collection is a method in which an interviewer obtains information from the participants in a face-to-face encounter (Brink et al., 2012). An interview is mostly used in descriptive and exploratory studies. In this method, information or data is collected directly from the participants. Experiences, beliefs attitudes and interest are ascertained through the use of an interview as a data collection method (Brink et al., 2012). For the purpose of this study, the researcher constructed and used an interview guide with three semi-structured open-ended questions to collect data from participants. Questions were formulated in English. The first section was bibliographical data. The second section

covered qualitative objective that explored the experiences or challenges faced by professional midwives during the implementation of maternal health guidelines.

The researcher introduced the topic of the study and its aims to the participants. The researcher collected data with participants on a one-to-one, face-to-face encounter through the in-depth interview. An in-depth interview was relevant for this study because the researcher explored the experiences and challenges faced by PN when implementing maternal health care guidelines when providing health care to mothers. The researcher visited the participants and collected data in their workplace. Probing and follow-ups after the participants responded helped the researcher to get more in-depth information. Probing also helped because it encouraged the participants to elaborate on the topic being investigated.

The researcher listened to each participant attentively and avoided interruptions when the participant was talking. The researcher used non-verbal communication such as nodding of the head to encourage communication. The researcher sought clarity to get the true reflection of the meaning of each participant's answers. This encouraged the discussion or the interview. The researcher used an audiotape to record individual in-depth interviews. The researcher took field notes, especially on non-verbal communications that could not be recorded by the audiotape recorder, key words or drawings, so that the researcher remembered important information when data were analysed.

The participants were informed of the reasons behind taking the field notes. Field notes is defined as a written account of things the researcher heard, saw, experienced and thought of during data collection (De Vos et al., 2013). The interview lasted for 30 to 45 minutes depending on how the participants related their experiences. Data were saturated on the 18th participant. Data saturation occurs

when the information being shared and ideas are repeated by other participants. As soon as data collection was done, the team sat down and discussed the collected data. Data were collected concurrently together with quantitative research design data at the same place, but with different participants that did not participate in the quantitative study to prevent participants from being biased.

3.5.5 Data Analysis

Data in qualitative research is narrative, unlike in a quantitative research strands which is numerical. Data is in the form of written words, narration in audiotapes, video tapes and photographs. Analysis of data in qualitative research study involves the examination of information collected (Brink et al., 2012). This data is usually massive in amount, which makes analysis time-consuming. The researcher was deeply involved in analyzing qualitative data. This process was time-consuming because of the nature of data collected. For the qualitative research design, Tesch's 8 steps of open coding method (thematic analysis) was used (Tesch, 1990). The researcher read the entire field notes taken, listened to audiotape recorder, so as to get the sense of meaning and understanding of collected data. The researcher followed the following steps in analysing qualitative data:

I. Get a sense of the whole. Read through all of the transcriptions carefully. Jot down some ideas as they come to mind.

II. Pick one document (one interview, Participant J from Lev (Annexure L) the most interesting, the shortest, the one on the top of the pile. Go through it, asking yourself, what is this about? Do not think about the "substance" of the information, but rather its underlying meaning. Write thoughts in the margin.

III. When you have completed this task for several informants make a list of all topics. Cluster together similar topics. Form these topics into columns that might

IV. be arrayed as major topics, unique topics, and leftovers.

V. Now take this list and go back to your data. Abbreviate the topics as codes and write the codes next to the appropriate segments of the text. Try out this preliminary organizing scheme to see whether new categories and codes emerge.

VI. Find the most descriptive wording for your topics and turn them into categories. Look for reducing your total list of categories by grouping topics that relate to each other. Perhaps draw lines between your categories to show interrelationships.

VII. Make a final decision on the abbreviation for each category and alphabetize these codes.

VIII. Assemble the data material belonging to each category in one place and perform a preliminary analysis.

IX. If necessary, recode your existing data.

3.5.5.1 Organizing Data

The researcher started to analyze data during data collection like when field notes were taken. The researcher recorded important information through writing. The researcher wrote collected information in the interview guide. Later it was read through and transcriptions were made. The researcher was immersed in the details so as to get the sense of the interview. The researcher listened to information from

the audiotapes, made reflective remarks, marginal remarks and memoing from collected data. The researcher picked up interesting, useful information and assigned meaning to data. This helped the researcher to get richer data (De Vos et al., 2014).

3.5.5.2 Finding Patterns from Collected Data

The researcher used inductive and deductive reasoning to find patterns and to categorize data into segments called coding. The researcher used descriptive codes wherein data were organized closely from the words used by participants. The researcher continued to listen, looked for collected data to get a deeper meaning of what the participants said and this process is called interpretive codes. The researcher further more applied explanatory codes by discovering and understanding deeper the true meaning of collected data (Brink et al., 2014).

3.5.5.3 Categorizing Data

The researcher reduced the data, examined them closely for similarities and differences. Similar data were grouped together into themes and sub-themes, categories and sub-categories so as to get a sense of data collected. The researcher created columns between categories so as to indicate and show how data were related. Before data analysis was finalized, the researcher gave the analysed data to the independent coder who further analyzed the data. Further analysis was conducted for reliability and to ensure validity of analyzed data (De Vos et al., 2014).

3.5.5.4 Final Analysis of Data

After data analysis was validated and reliability confirmed, the researcher made the decision on analyzed data through the use of Tesch's method. Final re-coding was done by the researcher. Results were presented in to three main themes with themes and subthemes (see Chapter 4).

3.5.6 Measures to Ensure Trustworthiness

Trustworthiness in this design has to do with the correctness and truth of precise findings. Establishing trustworthiness requires determining the extent to which conclusions effectively represent empirical reality and assessing whether constructs devised by the researcher represent or measure the categories of human experience that occurred (Brink, 2007). In qualitative research, credibility and authenticity are taken as internal validity. The findings of the study were credible to the people under study as well as to the readers.

The technique that the researcher used to achieve credibility included establishing mutual relationship and trust with the participants. Remaining in the field for a long time and engaging with participants during data collection until data were saturated. Random selection of participants to avoid being biased. Apart from face to face individual interviews, the researcher used observations during data collection where non-verbal communications were recorded on the field notes (triangulation). Authenticity was established through context-rich and meaningful thick descriptions (De Vos et al., 2013). In this study, credibility was ensured when the research topic or problem was explored fully through the use of in-depth face-to-face interview with participants. Participants from various PHC facilities and from two Districts were used as informants in order to ensure credibility. Participants were informed of the voluntary nature of engaging in the study to ensure that they give the information freely.

Transferability is defined as the degree to which the results of a study can be generalized to settings or samples other than the ones studied. The conclusions of the study must be transferable to other contexts (De Vos et al., 2013). The findings of this study reflected all PN who were working in Limpopo Province, including those who did not participate in this study. To ensure transferability, Shenton (2004)

indicated that generalisation could be ensured by employing the same instrument to other participants with the same characteristics but in a different geographical area.

Dependability is another criterion that had ensured trustworthiness of the study and it refers to reliability (Brink, 2007). It means that if another researcher used the same instruments and research methods, the same results will be found (Shenton, 2004). An audit trial was conducted after completion of the study to establish dependability. Procedures used by the researcher in this study was followed to determine whether they were acceptable, or not, through audit trials. Confirmability of the findings of the study, its conclusion and the recommendations, were in agreement with the actual collected data and data interpretations. This was accomplished by incorporating an audit procedure.

3.6 Ethical Considerations

Ethical considerations implied that the researcher carried out the research competently, managed resources honestly, and acknowledged fairly those who contributed guidance or assistance, and communicated results accurately and considered the consequences of the research for society and by acknowledging any contributor to the research in the report (Akinsola, 2005). Ethical clearance was obtained from the University of Venda Research Ethics Committee (Annexure A) and permission to conduct the study was obtained from the University Of Venda Higher Degrees Committee, the DoH Ethics Committee in the Limpopo Province Department of Health and the District Managers of the two districts (Annexures C-E). The principles of respect for person, principles of beneficence and justice were considered, as well as the issue of vulnerable subjects.

3.6.1 Principles of Respect for Person

The principle of respect for person has to do with the right to self-determination, right to self-disclosure and informed consent.

3.6.1.1 The Right to Self-Determination

The right to self-determination has to do with autonomy, i.e., that agreeing to participate rest on the minds of the participants without pressure (Brink et al., 2012). Participants were made aware that they had the right to stop participating at any time, were free to refuse to give information on any question and were at liberty to ask for clarification at any point. The risk of coercion was dealt with by indicating the nature and purpose of study (Annexure F).

3.6.1.2 The Right to Self-Disclosure and Information

The right to full disclosure and information implies that participants must be told about the nature of the study (Brink et al., 2012). Participants were fully briefed about the extent of the study before data collection (Annexure F).

3.6.1.3 Informed Consent

Informed consent means that subjects had full knowledge and understand the research project in which they were asked to participate. It included providing subjects with a full description of the purpose of the project and its general value. All procedures used in the research and why, the amount of time and energy that the research took and the manner in which data would be used were spelled out clearly to participants (Brink et al., 2014). About 1 hour 30 minutes was required from the participants to complete the self-administered questionnaires. Also, the consent form (Annexure F) was designed so that the participants signed it to show that they have entered voluntarily into an agreement with the researcher and that they were free to

withdraw from the study at any time (Brink et al., 2014).

3.6.2 Principles of Beneficence

This principle dealt with the right of the participants to freedom of choice, out lined the risk/benefits of participating in this study and the vulnerability of participants.

3.6.2.1 Right to Freedom

Freedom from harm involved the researcher taking actions necessary to diminish threats from the subject of the study, including physical harm such as injury or fatigue, harm to participant's development, loss of self-esteem, stress, fear or economic harm such as loss of wages (Brink et al., 2012). The researcher was aware that the study did not expose participants to any physical harm, but nevertheless made an effort to be sensitive and responsive to any psychological discomfort and was prepared to provide clarification where necessary. The risk of economic harm was addressed when informed consent was obtained and commitment made regarding the use of time as adhered to by the researcher.

3.6.2.2 Risk/Benefit Ratio

Before the inception of the project, the researcher must check the ratio between the benefits and the risk of the study. If the risks are more than the benefits, an effort must be made to maximize benefits and minimize risks (Brink et al., 2012). In this study, the benefits outweighed the risks. Midwives gained knowledge from the study and the strategy that was developed will capacitate them, hence successful implementation of maternal guidelines. The community represented by pregnant women and mothers will receive better care and thus ensure good maternal outcomes. The possible risks identified were loss of time during data collection.

3.6.2.3 Vulnerable Subjects

The term “vulnerable subjects” is in terms of children, mentally ill subjects who cannot give consent (Burns, Grey & Grove, 2013). Again it has to do with hiding important information from the subjects during data collection and deceiving them, where the researcher failed to explain fully procedure that will be used because of fear that subjects might refuse to participate, subjects are made vulnerable this way (Brink et al., 2012). In this study, the researcher explained to the participants all the information that was necessary regarding the study, how the study was conducted and reasons behind data collection.

3.6.3 Principles of Justice

This principle embraces subjects’ right to fair selection and treatment and the right to privacy.

3.6.3.1 Right to Fair Election

Brink et al. (2012) indicated that participants must be chosen because they possess the characteristics that are related to the problem under study, but not because of their availability. In this study, participants were selected because they were suitable and met the requirements for study. Although purposive, convenience and systematic random sampling was used, subjects were selected fairly as they were neither related to the researcher nor the researcher’s friends.

3.6.3.2 Right to Fair Treatment

Subjects must be treated fairly and the researcher has to respect any agreement made with the subjects. When data collection requires an appointment, the researcher should be on time and should terminate data collection process at the agreed time. The benefits promised the subjects should be provided. Subjects should

be treated respectfully and courteously at all times (Brink et al., 2014). In this study, subjects were respected by recognizing and understanding their culture. The researcher indicated that the completion of the questionnaire took 1 hour 30 minutes, the researcher and her team did not exceed this agreed time.

3.6.3.3 Right to Privacy

Privacy is defined as the extent in which the participant's information will be shared with or withheld from others. Invasion of privacy occurs when private information is shared without the individual's knowledge and against his/her will or wishes (Brink et al., 2012). Therefore, data were collected with the subjects' knowledge and consent. Individuals who agreed to participate in research had the right to expect that the information collected from or about them remained private and this occurred through either anonymity or confidentiality procedures. The researcher collected data in a private consulting room with the each participant.

3.6.3.4 Confidentiality and Anonymity

Confidentiality entails that no information provided by the participant should be revealed or made available to any person (Brink et al., 2012). When the participant agreed to take part in a research project, this right does not apply anymore since the information provided was included in a research report. The researcher, however, ensured that anonymity of any person or institution was protected in the report by safeguarding that it was not possible to relate particular data to a particular person. The project leader and all professional people who participated in the research were responsible for this aspect of the research.

Complete anonymity, i.e., when not even the researcher can trace the data to a specific subject, is seldom possible (Brink et al., 2012). This fact was brought to the attention of people participating in the investigation. If the anonymity of participants

was threatened, all research records should be destroyed. A code was assigned to every participant so that they remained anonymous. Participants did not write their names on the questionnaires and also did not include anything that one can trace to them.

3.6.3.5 Protection from Harm

Research was planned and undertaken in such a manner as to avoid as far as possible any physical or psychological harm to the subject. Participants were respected, not looked down upon. The researcher related well to participants, understood their culture and did not say anything which might be regarded as an insult and had not asked questions that offended participants. The researcher was transparent during questions (Brink et al., 2012).

3.7 Phase 2: Strategy Development

A strategy was developed after data analysis and interpretation so that PN will be able to deliver quality health care services through the use of maternal guidelines to mothers, hence reducing maternal morbidity and mortality rate. In order to do so, 10 steps were used in the SWOT analysis in order to identify the strengths, weaknesses, opportunities and threats (Pearce, 2007), (see Chapter 5). The steps were as follows as indicated by Pearce (2007).

- **Step 1:** Consider the use of SWOT as a tool for strategic management and to make decision.
- **Step 2:** Prepare the ground where the researcher will list all the strength, weakness, opportunities and threats and divide them into sections after data have been analyzed and interpreted.
- **Step 3:** Consider the strength

- **Step 4:** Consider the weakness which are internal factors
- **Step 5:** Consider the opportunities which are external factors
- **Step 6:** Consider the threat which are also from outside (external factors)
- **Step 7:** Use information, internal factors
- **Step 8:** Use information, external factors
- **Step 9**: Use SWOT in career planning
- **Step 10:** Words of caution.

From SWOT analysis, the researcher did the following: strengths and weaknesses were identified from the internal environment and the researcher built on strengths and overcame the weakness and challenges through activities/actions that were indicated in Table 5.3 of strategy development; opportunities and threats were identified from the external environment, the researcher explored opportunities and minimized threats that were harmful in the implementation of maternal health guidelines and action taken was also indicated in Table 5.3 of the developed strategy (see Chapter 5).

3.8 Validation of Strategy

Validation is defined as the scientific process where collected and analyzed data are checked for their accuracy (Chinn & Kramer, 2015). The main purpose of validation was to ensure the effectiveness of the strategy which was developed. Validation of the strategy was done with 2 MHCM, 4 OMN and 16 PN with midwifery from Mopani and Vhembe districts. The researcher made an appointment with respondents and visited them in their districts where the workshop was conducted. The background of the study and results were presented.

The researcher then presented the developed strategy to respondents who brought in their suggestions. Afterwards, self-administered questionnaires were distributed for them to complete (see Chapter 6).

3.9 Summary

This chapter dealt with the research methodology and it was a mixed-method research study in which the researcher combined elements of the qualitative and quantitative research approaches for the purpose of the breadth and depth of understanding and corroboration. Therefore, a convergent research parallel design formed the basis of the research design and methods, population and sampling, pilot study, data collection methods, data analysis, validity and reliability, trustworthiness and credibility, ethical consideration, privacy, as adopted was explained. The next chapter presents results of the two methods and the discussion.

CHAPTER 4

Results and Discussion

4.1 Introduction

The previous chapter described the research methods and non-experimental designs. This chapter presents the results of the two research strands which were qualitative and quantitative, followed by the discussion. For the qualitative research study, the main objective was to explore the experiences and challenges faced by PN in relation to the implementation of maternal health guidelines. Eighteen (18) participants were interviewed using unstructured open-ended questions.

In-depth face-to-face interviews were conducted with participants in their place of work and others in their homes. Seventeen (17) females and 1 male participant were interviewed, the reason for 1 male was that during the study in almost all the facilities visited, they were no males found. The interview lasted for about 45 minutes. Qualitative data were analyzed using Tesch's 8 steps of inductive, descriptive and open-coding techniques (Tesch, 1990; Creswell, 2014). From the results, 3 main themes with themes and sub-themes emerged.

For the quantitative research design, the objectives were to: Assess the knowledge and skills of PN regarding available maternal health care guidelines and their implementation thereof; Assess the support system offered by MHCM and OMN to PN on the implementation of maternal health care guidelines. Two hundred and sixty (260) respondents were sampled, wherein 200 were registered midwives, 58 OMN and 2 MHCM from PHC facilities. Self-administered closed-ended questions were used in data collection in the respondent's workplace.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Tables were used to present data. Discussions were based on the merged data of the two research strands. It has flown according to main themes, themes and sub-themes contained in the interview guide as well as in the questionnaire, and in relation to objectives of the study, namely, biography, experiences of PN in relation to the implementation of maternal health guidelines for qualitative and quantitative research strands.

Discussions were supported by literature review and were conceptualized within the *Basic Logic Model Theory of Change* (Kellogg, 2004). The *Basic Logic Model Theory of Change* (hereinafter referred to as *the theory*) includes inputs, activities, outputs, outcomes and impact that the organization required. The results of this study indicated inputs as midwives, infrastructure, equipment, ambulance needed for activities to take place. Activities were actions required from inputs to reach the objectives of the organization such as rendering of maternal health care services to women or transportation of women to hospital.

Outputs discerned from the results included frustrations and confusion by midwives when rendering maternal health care services, vital data measured by BP machines, delayed ambulance services and poor adherence to maternal guidelines by midwives. Outcomes were results of all performed activities such as knowledgeable competent midwives, poor implementation of maternal guidelines leading to poor maternal outcomes.

4.2 Presentation of the Results

The results of the two research strands were presented stating from the biographical data of participants followed by qualitative then quantitative results.

4.2.1 Biographical Data of the Participants

Table 4.1 shows the biographical data of the participants. A total of 278 participants were sampled from the two districts, i.e., Vhembe and Mopani.

Table 4.1: Biographical data of the participants

Variable	Frequency	Percent
RACE GROUP		
African	278	100.0
Total	**278**	**100.0**
AGE		
20-29	22	7.9
30-39	65	23.3
40-49	116	41.7
50-59	65	23.3
60 and above	10	3.5
Total	**278**	**100.0**
NATIONALITY		
South African	277	99.6
Other	1	0.4
Total	**278**	**100.0**
OCCUPATION		
Professional nurse	218	78.4
Maternal Health manager	2	0.07
Operational manager	58	20.8
Total	**278**	**100.0**

YEARS IN CURRENT POSITION						
Years	Midwives	Managers	Midwives	Managers	Total F	Total%
	Frequency (F)		Percent (%)			
1-3	21	6	9.5	10.0	27	9.71
4-5	18	9	9.0	15.0	27	9.71
> 5	179	45	81.5	75.0	224	80.5
Total	**218**	**60**	**100**	**100**	**278**	**100**

Continued/…

Table 4.1: Biographical data of participants (continued)

Variable					Frequency	Percent
HIGHEST LEVEL OF EDUCATION						
Years	PN	OMN/MHCM	PN	OMN/MHCM	Total F	Total%
	Frequency (F)		Percent (%)			
Diploma	121	26	56.5	43.3	147	52.8
Degree	87	27	39.0	45.0	114	41.0
Other	10	7	4.5	11.7	17	6.1
Total	**218**	**60**	**100**	**100**	**278**	**100.0**

PN: Professional Nurse; **OMN:** Operational Manager; **MHCM:** Maternal Health Care Manager

Two hundred and eighteen (218) PN, 58 OMN and 2 MHCM were sampled. At least 41.7% of participants were between the ages of 40-49 years, which was the mean matured age. All participants were African and 99.5% were South Africans. With respect to occupation, 218 participants were midwives who were providing maternal health care services at PHC facilities (Table 4.1), 58 OMN supervising and monitoring the implementation of maternal guidelines by midwives and 2 were MHCM who supervise maternal health care programmes at the district level.

In relation to the level of education, 52.8% had a diploma in nursing as their highest qualifications, 41.0% a degree and 6.1% were categorized as other.

With years of experience, 9.7% had 1-3 years, 9.7% had 4-5 years and 80.5% had more than 5 years of experience as PN and as managers. Professionals who had more than 5 years had expertise the field of nursing. Though with such experience, some were still not knowledgeable when it comes to the management of women with either PPH or pre-eclampsia.

Table 4.2 summarizes the PHC facilities where qualitative data were collected. Each facility has been coded with an acronym for use in this study.

Table 4.2: PHC facilities where qualitative data were collected

PHC facility	Acronym
Tshiungani	Tshn
Tshimbupfe	Tshm
Davhana	Dav
Levubu	Lev
Mashimane	Mash
Manavhela	Man
Nancefield	Nanc
Thohoyandou	Thh
Ha-Mutsha	Muts
Tiyani	Tiy
Makushane	Mak
Lambani	Lam
Mpheni	Mph
Tshino	Tsh

4.2.2 Presentation of the Qualitative Research Results

Table 4.3 summarizes the main themes, themes and sub-themes indicating the experiences of PN in relation to the implementation of maternal health guidelines (n=18).

Table 4.3: Themes that emerged from the qualitative data analysis

Main Themes	Themes		Sub-Themes	
1. Experiences of midwives in relation to the implementation of maternal guidelines in a woman with PPH	1.1	Dominant tales related to experiences of midwives when taking care of women with PPH	1.1.1	Managing women with PPH a difficult task resulting in feelings of frustrations and confusion
			1.1.2	Adherence versus lack of adherence to care guidelines during management of women with PPH
			1.1.3	Description of feelings of relieve experienced when women are finally transferred to next level of care
	1.2	Causes of PPH as observed by midwives	1.2.1	Causes of PPH known versus unknown to midwives
			1.2.2	Causes of PPH associated with lack of co-operation of women during pregnancy and labour
	1.3	Description of management of PPH by midwives	1.3.1	Known versus lack of knowledge related to measures used to stop PPH
			1.3.2	An outline of available assistance to midwives during management of women with PPH
			1.3.3	Importance of transferring women to the next level of care timeously outlined
	1.4	Challenges experienced in managing women with PPH	1.4.1	Managing PPH alone with maternity guidelines not an easy task
			1.4.2	Abrupt PPH after normal delivery experienced
			1.4.3	Shortage of midwives problematic leading to poor management of women

Continued/…

Table 4.3: Themes that emerged from the qualitative data analysis (continued)

Main Themes	Themes		Sub-Themes	
			1.4.4	Delayed versus prompt response by emergency services to transport patients to next level of care
			1.4.5	Failure to disclose PPH history experienced which results into poor management
2. Experiences of midwives in the implementation of maternal health guideline, eclampsia and gestational hypertension	2.1	Experiences related to the management of women with eclampsia and gestational hypertension by midwives	2.1.1	Managing women with eclampsia and gestational hypertension an easy versus an a difficult task
			2.1.2	Existence of signs and symptoms dictates for the management of the women
			2.1.3	Lack of proper management of the women by the next level of care experienced by midwives
			2.1.4	Accompaniment of women to the next level of care by midwives dictated by the presenting symptoms
			2.1.5	Existence of feelings of disrespect by the professionals from the next level of care
			2.1.6	Present symptoms a reason for women to visit the health care facility
	2.2	Management of women with eclampsia and gestational hypertension	2.2.1	Gestational hypertension a rare condition as compared to eclampsia based on admitted cases
			2.2.2	Professionals at the next level of care informed about the patients in order to prepare to receive them
			2.2.3	Treatment used to treat the patients outlined

Continued/…

Table 4.3: Themes that emerged from the qualitative data analysis (continued)

Main Themes	Themes		Sub-Themes	
			2.2.4	Usage and adherence of maternity guidelines assist in proper management of patients
	2.3	Support experienced during management of complicated maternity cases	2.3.1	Existence versus lack of support experienced from colleagues during care of women with complications
			2.3.2	Existence versus lack of support from by managers experienced by midwives
			2.3.3	Anger emanating from decisions opposed by next level of care on referred women
	2.4	Challenges experienced during management of women with eclampsia and gestational hypertension	2.4.1	Shortage versus availability of drugs in the health care facilities experienced
			2.4.2	Shortage versus availability of equipment in the health care facility experienced
			2.4.3	Lack of adherence to medical advises by women result in unmanageable complications
			2.4.4	Socioeconomic status of women problematic and affect management
3. Experiences of midwives in managing HIV-positive women	3.1	Experiences of midwives during provision of care to HIV-positive women	3.1.1	Difficulty experienced on multiple levels of provision of care to HIV-positive women
			3.1.2	Shortage of staff, including midwives experienced which lead to poor management
			3.1.3	Several management procedures employed lead to delayed care provision to other women

Continued/…

Table 4.3: Themes that emerged from the qualitative data analysis (continued)

Main Themes	Themes		Sub-Themes	
			3.1.4	Increased workload when carrying for pregnant women who are HIV-positive experienced
	3.2	Management of HIV-positive women as per guidelines	3.2.1	Treatment guidelines easy to implement to women adhering to ARTs
			3.2.2	Provision of continuous counselling provided to HIV-positive women
	3.3	Challenges experienced by midwives carrying for HIV-positive women	3.3.1	Patients' complains are related to length of stay before consultation in health care facility
			3.3.2	Lack of adherence to ARTs lead to difficulty in managing HIV-positive women
			3.3.3	Shortage versus availability of consulting rooms

4.2.3. Presentation of the Quantitative Results

Table 4.4: Knowledge of midwives related to available guidelines

Knowledge of guidelines	Correct response	Frequency (%)
HIV in pregnancy	Prevention of mother to child transmission	172 (86.0)
Third stage of labour	Rubbing up the fundus, Cord control traction	153 (76.5)
An HIV-positive pregnant women	Initiation of ART drugs the same day	179 (89.5)
Pregnant woman with a diastolic blood pressure of 110	Maternity care guideline in South Africa	173 (86.5)
Women are at risk of developing pre-eclampsia	Primigravida, Women with chronic hypertension	142 (71.0)
Magnesium sulphate in pre-eclamptic	Patellar reflexes present	109 (54.5)
The importance of blood pressure checking	Maternity care guideline in South Africa	184 (92.0)
Induced hypertension in pregnancy	Maternity care guideline in South Africa	144 (72.0)
Pregnant women presented with abdominal pains for about 3 hours	Maternity care guideline in South Africa	144 (72.0)
Bleeding more than expected	Maternity care guideline in South Africa	124 (62.0)
Para 3 gravida 4 tested HIV-positive	National guideline on prevention of mother to child transmission	141 (70.5)
The definition of PPH	Blood loss of 500 ml and more	167 (83.5)
n=200		

Table 4.5: Challenges faced by professional nurses in the implementation of maternal guidelines

Question	Yes		No		Don't know	
	Frequency	%	Frequency	%	Frequency	%
1. Is the number of professional midwives correlate with the number of pregnant women seen on a daily basis	36	18	155	77.5	9	4.5
2. Do you sometimes experience a burden of workload	175	87.5	25	12.5	0	0
3. Have you ever experienced a needle prick when rendering your services	64	32	136	68	0	0
4. Do you have the basic essential equipment to carry out your normal duties	72	36	127	63.5	1	0.5
5. Were you provided with enough knowledge to manage a women with pre-eclampsia	176	88	22	11	2	1.0
6. Do you have enough drugs to manage a women with pre-eclampsia	149	74.5	50	25	1	0.5
7. Do you have the necessary skills to manage PPH	181	90.5	17	8.5	2	1.0
8. Do you sometimes experience difficulties in the management of women with PPH	72	36	123	61.5	5	2.5
9. Are two midwives allocated during the night to help each other	50	25	150	75	0	0
10. Is the ambulance turnaround times within norm (less than 60 minutes)	36	18	164	80.4	0	0
11. Do you sometimes experience complains from patients in relation to waiting periods	120	60	80	40	0	0
n=200						

Table 4.6: Competencies of health care professionals in the provision of maternal health

Question	Agree		Disagree		Don't know	
Implementation of maternity health care guidelines: Antenatal Care	**F**	**%**	**F**	**%**	**F**	**%**
1. Will you advise a woman to start ANC if she discovered she is pregnant after a gravidex test	194	97	6	3	0	0
2. The department is advising women to start ANC before 20 weeks of pregnancy, do you think this is correct	186	93	13	6.5	1	0.5
3. Do you think it is important to follow BANC during pregnancy	191	95.5	6	3.0	3	1.5
4. Blood for WR, Rh, Hb are taken during the first visit and at 32 weeks	169	84.5	31	15.5	0	0
5. Iron supplements are only given during pregnancy	53	26.5	144	72	3	1.5
Implementation of maternity health care guidelines: Postpartum Haemorrhage (PPH)	**F**	**%**	**F**	**%**	**F**	**%**
6. Misoprostol may be given as part of 3rd stage of labour if Oxytocin is not available	76	38	54	27	70	35
7. A woman who is 35 years old and above is at risk of developing PPH after delivery	151	75.5	43	21.5	6	3
8. Prevention of PPH include rubbing up of the fundus after delivery	177	88.5	23	11.5	0	0
9. Inserting an indwelling urinary catheter is part of management of PPH	170	85.0	27	13.5	3	1.5
10. Infections can cause PPH	152	76.0	36	18.0	12	6.0
Implementation of maternity health care guidelines: Hypertensive Disorders in Pregnancy	**F**	**%**	**F**	**%**	**F**	**%**
11. It is important to monitor the blood pressure of each pregnant women at each visit to prevent pre-eclampsia	188	94	11	5.5	1	0.5
12. Gestational hypertension occurs before 20 weeks of pregnancy	112	56	85	42.5	3	1.5
13. Essential hypertension occurs after 20 weeks of gestation in pregnancy	117	58.5	70	35	13	6.5
14. A primigravida is not at risk of pre-eclampsia because of her first pregnancy	34	17.0	165	82.5	1	0.5
15. You must go and call for an ambulance to avoid noise in the labour room of a women with eclampsia	56	28	131	65.5	13	6.5

Table 4.6: Competencies of health care professionals in the provision of maternal health (continued)

Question	Agree		Disagree		Don't know	
16. You must continue with Magnesium sulphate even when the respiratory rate is less than 16 b/minutes	55	27.5	127	63.5	18	9.0
17. A primigravida with elevated blood pressure and protein in urine will need transfer to hospital without initiation of treatment	35	17.5	160	80	5	2.5
Implementation of maternity health care guidelines: HIV in pregnancy	**F**	**%**	**F**	**%**	**F**	**%**
18. The HIV test for a pregnant women is done during the first visit and each every 3 months until the cessation of breastfeeding	149	74.5	49	24.5	2	1.0
19. ART drugs, especially fixed dose combination is given at any stage during pregnancy if tested positive for HIV	178	89	19	9.5	3	1.5
20. It is safe to give a pregnant women Efavirenz at any gestational age	128	64	57	28.5	15	7.5
21. Co-trimoxazole tablets to be prescribed if the pregnant women is HIV-positive regardless of WHO clinical staging.	61	30.5	124	62	15	7.5
22. An HIV negative woman to be tested during delivery if tested two days ago	119	59.5	76	38.0	5	2.5
23. An HIV-positive mother must not breastfeed her child to prevent HIV transmission to the baby	40	20.0	158	79.0	2	1.0
24. If the Hb of a pregnant HIV-positive women is less than 8 g/dl, ART must be initiated the same day	138	69.0	46	23.0	16	8.0
n=200						

Table 4.7: Support offered by DMHM and OMN to midwives in the implementation of maternal guidelines

Question	Yes		No	
Support related to midwives training	**F**	**%**	**F**	**%**
1. Do the District Executive Manager (DEM) and OMN release midwives without difficulties for the purpose of attending training	56	93.3	4	6.5
2. Do you consider delivery statistics for nurses to be trained	52	86.7	8	13.3
3. Are midwives trained if there is an updated or new guideline before its implementation	50	83.3	10	16.6
4. Is continuous education (updates) on maternal guidelines offered through out	43	71.1	17	28.3
5. Is the monthly perinatal mortality meeting effective in the provision of maternal health care	58	96.7	2	3.3
Support in relation to supervision	**F**	**%**	**F**	**%**
6. Is the supervision by district maternal health managers done to monitor the implementation of maternal guidelines once in two months	19	31.7	41	63.3
7. Is the supervision and monitoring of professional midwives in the implementation of maternal guidelines done daily by OMN in a health care facility	28	46.7	32	53.3
8. Is staff allocated according to the needs of the facility	29	48.3	31	51.7
9. Are two midwives allocated to attend to pregnant women including during the night	10	16.7	50	83.3
10. Are EOST drills conducted and monitored twice per month	13	21.7	47	78.3
Support in relation to maternal health care	**F**	**%**	**F**	**%**
11. Is the criteria for transfer of women at risk and emergency known and followed by midwives	53	88.3	7	11.7
12. Are maternal health incidences reported and investigations started within 24 hours	47	78.3	13	21.7
13. Is health education with regard to dashboard indicators given daily	28	46.7	32	53.3
14. Is basic equipment such as blood pressure machine always available all the time	17	54.0	33	55.0
Support in relation to equipment	**F**	**%**	**F**	**%**
15. Is there a standardized eclamptic box at each and every facility	53	88.3	7	11.7

Continued/…

Table 4.7: Support offered by DMHM and OMN to midwives in the implementation of maternal guidelines (continued)

Question	Yes		No	
Support in relation to availability of drugs	**F**	**%**	**F**	**%**
16. Are emergency drugs such as magnesium sulphate always available	57	95.0	3	5.0
17. Are uteretonics always available and used to all women delivered	46	76.7	14	23.3
Support in relation to availability of transport	**F**	**%**	**F**	**%**
18. Is emergency transport always available in case of Emergency	22	36.7	38	63.3
19. Are the ambulance's turnaround times within norm, arrive within 60 minutes after a request	16	26.7	44	73.3
Support in relation to availability of guidelines & stationary	**F**	**%**	**F**	**%**
20. Are maternal guidelines available in each consulting room	27	45.0	33	55.0
21. Is there a client satisfaction questionnaire/survey available in a health care facility, to be completed by mothers after delivery	16	26.7	44	73.3
22. Are clinical audits conducted on maternal records once per month	36	60.0	24	40.0

n=60; **DMHM:** District Maternal Health Managers; **OMN:** Operational Managers

Table 4.8: Training received by professional nurses as part of support by managers

Question	Yes		No	
	F	%	F	%
Did you ever receive training on voluntary training and testing (VCT/HCT/PIT)	184	92.0	16	8.0
Were you trained on prevention of mother to child transmission	183	91.5	17	8.5
Did you receive training on the management of obstetric emergency (ESMOE)	129	64.5	69	34.5
Were you ever exposed to the training of management of hypertension in pregnancy	143	71.5	57	28.5
Do you know the management of Pueperial sepsis	141	70.5	59	29.5
Have you ever received training on the management of sexual transmitted infection	145	72.5	55	27.5
Were you trained on ART management	168	84.0	32	16.0
Were you ever trained on ionized prophylaxis initiation	107	53.5	93	46.5
Do you attend peri-natal mortality meetings	172	86.0	28	14.0
Have you ever attended a training on immunization especially on Tetanus Toxoid for pregnant women	64	32.0	136	68.0
n=200				

4.3 Discussion of the Findings

Qualitative research findings were supported by quantitative findings during discussion. The discussion also included the support offered by managers to midwives. There were some qualitative sub-themes which were not supported by quantitative results. The information in Table 4.8 which was not merged with qualitative results is presented separately towards the end of the chapter.

4.3.1 Main Theme 1: Experiences of Midwives in Relation to the Implementation of Maternal Health Guidelines, Postpartum Haemorrhage

The NDoH (2016) indicated that immediately when a midwife discovered that the women is experiencing PPH, she must call for help, rub up the fundus, resuscitate

the women by inserting intravenous fluids, give 20 units of Oxytocin in Ringers Lactate, insert a urinary catheter and monitor vital signs, including the urinary output (NDoH, 2016). From the results of this study, participants indicated their experiences when taking care of the women with PPH. Participants indicated the causes of PPH, as discovered during their management and they indicated their experiences in the management of a woman with PPH as:

Participant A from TSHN:

> *I did everything I can for the woman who was bleeding, which included inserting a drip of Ringers Lactate and loading her with Pitocin 20 units in her drip. But her uterus remained atonic. I tried to rub it and explore the vaginal wall to check if there were no tears inside by inserting a speculum but only to come out with clots, by that time I had instructed an assistant nurse to call an ambulance. By that time her blood pressure was dropping to 90/50.*

The information cited by the participant above indicated that the guideline was partially implemented as the midwife did not empty the women's bladder because a full bladder may result in PPH. Under this main theme the following themes and sub-themes as presented in Table 4.9 emerged.

4.3.1.1 Theme 1.1: Dominant Tales Related to Experiences of Midwives When Taking Care of a Woman with PPH

The maternity care guidelines indicated that all women experiencing PPH must end up in a hospital, but midwives must stabilize the women before referral and the midwife must call for help from another experienced health care personnel for proper implementation of the guideline (NDoH, 2016).

Table 4.9: Experiences of midwives in relation to the implementation of maternal health guidelines, postpartum haemorrhage

Themes	Sub-Themes
1.1 Dominant tales related to experiences of midwives when taking care of women with PPH	1.1.1 Managing women with PPH a difficult task resulting in feelings of frustrations and confusion
	1.1.2 Adherence versus lack of adherence to care guidelines during management of women with PPH
	1.1.3 Description of feelings of relieve experienced when women are finally transferred to next level of care
1.2 Causes of PPH as observed by midwives	1.2.1 Causes of PPH known versus unknown to midwives
	1.2.2 Causes of PPH associated with lack of co-operation of women during pregnancy and labour
1.3 Description of management of PPH by midwives	1.3.1 Known versus lack of knowledge related to measures used to stop PPH
	1.3.2 An outline of available assistance to midwives during management of women with PPH
	1.3.3 Importance of transferring women to the next level of care timeously outlined
1.4 Challenges experienced in managing women with PPH	1.4.1 Managing PPH alone with maternity guidelines not an easy task
	1.4.2 Abrupt PPH after normal delivery experienced
	1.4.3 Shortage of midwives problematic leading to poor management of women
	1.4.4 Delayed versus prompt response by emergency services to transport patients to next level of care
	1.4.5 Failure to disclose PPH history experienced which results into poor management

Participants reported that managing women with PPH was viewed as a difficult task that resulted in feelings of frustrations and confusion. Some of participants indicated difficulties in the adherence of maternal guidelines while others were adhering well with the guideline during the management of women with PPH. Most of the time a woman with PPH ends up being transferred to the hospital and participants felt relieved when the women was finally transferred to the next level. Participants had fears that the women could die if the ambulance was delayed and, thus were relieved

when the women was out of their hands.

Participant G from Tsh:

> *I found that there was a lot of blood that was coming out just like an opened tap of water flowing. I changed the Ringers Lactate, inserted a new one with 20 units of Syntocinon added on it, rubbed up the fundus. I changed her linen and I repeated Syntocinon 10 units again. Hey…it was difficult and I was confused. I then called an emergency ambulance. I wheeled the women to the bathroom. She urinated a lot of blood, and then she collapsed. I tried to wake her up, I called wake up…. Wake up…, but she did not answer, after 2 minutes she waked up, she told me that she was sleeping peacefully…Hmm…I was afraid. I had to transfer and accompany the women using her own transport because the ambulance was delaying. I was relieved when I reached the hospital.*

Various authors, including a group of Association of Ontario for Midwives, indicated the experiences of midwives in the management of PPH that though it was stressing and difficult for midwives to manage the women, they rubbed the fundus, inserted an intravenous (IV) line and administered uterotonic drugs as part of their management, then referred the women to hospital using an emergency ambulance and sometimes they had women who were not responding well to management accompanying them to the hospital where they were handed over to the report to staff at the next level (Thompson, Ford, Greene & Roberts, 2011; Hinton, Locock Knight, 2014 ; Robertson, Kehler, Meuser, MacDonald, Gilbert & Bennett, 2017). From this theme, the sub-themes as presented in Table 4.9 emerged:

4.3.1.1.1 Sub-Theme 1.1.1: Managing Women with PPH, a Difficult Task Resulting in Feelings of Frustrations and Confusion

In the management of woman with PPH, participants indicated confusion and frustration during the interview. They reported the feeling of guilt because of the management they have rendered to the woman. Participants who indicated the difficulty in the management of women reported that they felt they had skipped other steps in her management. This was indicated by:

Participant C from Tshm:

> *It becomes difficult because one tends to miss some of the steps in the management of patient.*

Participant Q from Wat:

Concurred when indicating to have applied ice packs on the abdomen of the women for the woman's uterus to contract as an indication of confusion:

> *Hey … It happens long time ago, I cannot relate it well. I still remember one woman whom I met with PPH. I still remember injecting her with syntometrine, and though she was injected, the bleeding did not stop. Hmm. It was confusing, we tried to rub the fundus, we even wrap up ice packs and put them on the abdomen for the uterus to constrict, we also inserted a drip.*

Managing PPH was seen as a challenging task. When one was managing women and the woman was not responding participants became restless thinking about the condition of the women. The participant showed her frustrations as follows:

Participant G from Tsh:

> *Hey … When you are in an emergency situation, even when 3 minutes pass, you fill that it is delaying. You know what, I was sweating a lot and afraid not knowing what to do.*

Table 4.5 shows that 36% of respondents had difficulty in the management of women with PPH. This might be due to lack of knowledge and skills that was indicated by 30% of the participants. More than half, 53.3% of participants (as OMN) indicated that they failed to support midwives through supervision and monitoring their performance in the implementation of maternity care guideline although 46.7% indicated that they were able to do so (Table 4.7). This was influence by the absence of OMN most of the days because OMN were always out of their facilities because they were attending many meetings.

The NDoH (2014) has stipulated the job description of OMN; one of their key performance areas is to conduct daily monitoring and supervision of health care personnel so that they evaluate the services rendered by health care personnel (NDoH, 2014). From the results of studies conducted from midwives in Ghana and by the Association of Ontario for Midwives, participants indicated difficulty and frustrations when managing women with PPH, especially when they had to use an Active Management of the Third Stage of Labour (AMTSL) in the management of the women.

Some mentioned that they ended up communicating with God to help them as they were managing these women alone. Some of the participants mentioned that they forgot some of the steps in the management because of the difficulties they experienced (Schack, Elyas, Brew & Petterson, 2014; Gowan, 2015; Robertson et al., 2017).

The implications of frustration and confusion as output according to the theory might be caused by lack of knowledge of midwives which may lead to poor implementation of maternal health guidelines and, hence, poor maternal outcomes (Kellogg, 2004).

4.3.1.1.2 Sub-Theme 1.1.2: Adherence Versus Lack of Adherence to Care Guidelines During Management of Women with PPH

Participants reported that they do follow the guidelines during the management of women with PPH while others mentioned that it was difficult to implement the guideline while faced with a complicated case. Participants mentioned that they had to do most of the management alone which led to failure to adhere to guidelines while the assistant nurse was just there to follow the orders of the midwife. For the successful implementation of maternal health care guideline, two midwives are needed to assist each during the management of pregnant women especially when in labour. The reason being of reminding each other especially when dealing with an obstetric emergency. This was indicated by:

Participant L from Tiy:

> *It was not easy to implement the guideline while I was alone and coming across a case such as PPH, it needs two midwives to manage such a case even with that assistant nurse, but to find one midwife managing such a patient alone, Adherence to guideline is difficult. It is easy to work being two midwives because you advise each other on what to do. If I am alone and forget something, the assistant nurses will not remind me.*

Participant *A* from Tshn:

Concurred when indicating that this year she had experienced and managed a lot of cases with PPH and, as such, she had mastered the skills in the management of PPH.

> *It will have been easier to implement the guideline because one midwife will be checking the guideline while one will be implementing its information on the patient, but I think I have mastered the skills of PPH management since this year, we had a lot of cases with PPH.*

Another participant who failed to adhere to the guideline reported that she managed a woman with PPH through experience because there was no time to check what the guideline says as she was the only midwife managing the women with an assistant nurse.

Participant O from Mak:

> *There was no time to follow the guideline; I have to manage the patient through experience. Like the patient we are talking about, I did not have time to open it, I just manage the patient.*

Participant E from Thh:

The direct quotation by this participant who adhered to guidelines during management indicted a different version:

> *But most of the time, I am used to use the maternity care guideline. It is the one that helps me a lot.*

Table 4.6 summarizes data on the implementation of maternal health guideline PPH, namely, that 38% of the participants used Misoprostol in the management of third stage of labour whereas 27% disagreed and 35% did not know the use of the drug in order to prevent PPH. Hence, there was a failure to implement the maternal health guideline and this will lead to increased maternal morbidity and mortality rate. The lack of the knowledge on the use of the drug was influenced by the unavailability of this drug from PHC facilities. The drug was especially known by advanced midwives and midwives who were rendering termination of pregnancy services. The same table indicates rubbing up of the fundus after delivery as a measure to prevent PPH, where from the results, 88.5% indicated adherence in the use of the guideline whereas 11.5% indicated failure to use the maternal health guideline.

In a study conducted by Braddick and his associates in 2015, midwives indicated that they were unable to implement maternal health guidelines correctly because the information within the guideline was not enough, not clear and that there were a lot of contradictions within the guideline. Some of the midwives did not even know of the availability of such guidelines because they were not distributed amongst the health care facilities (Braddick, Tukkey, Abbas, Lissauer, Ismail, Holland, Ditai & Stokes, 2015). Fawcus et al. (2010) found the views of midwives' in relation to updated maternal guidelines to imply that information was transferred differently by different trainers.

As a result, midwives were confused on which information to implement to mothers, hence, they failed to adhere to the guideline. Again, midwives indicated that only few staff members had a chance to attend the update and therefore failed to disseminate the information to their colleagues. Midwives who trained a long time ago were reluctant to change their practice in line with the updated information on the guidelines; hence, they implemented what they have learned from their academic

studies leading to poor adherence to guidelines (Braddick et al., 2015). Some of the midwives were adhering to maternal guideline, managers were supporting midwives by providing maternal health care guidelines, although the results of the study showed that only one or two maternal health guidelines were provided regardless of the number of the consulting rooms the facility had. From Table 4.7, on the support offered by managers in relation to guidelines, it is evident that not all PHC facilities had maternal health guidelines in each and every cubicle. In case of an emergency, it will be highly impossible for the midwife to run and collect the maternal health guideline from another consulting room. Half of the participants (33) indicated shortage of maternal guidelines in some consulting rooms.

The ideal clinic realization programme requires that each and every consulting room be supplied with a maternity guideline for easy implementation of the guideline by midwives. It was discovered that health care workers complained that guidelines were not made available to them in time; by the time midwives were aware of such guidelines, they were in a process of being updated. Also, midwives indicated that some of the staff were never aware of the availability of the maternal guidelines in their respective facilities (Khan, Timmings, Vogel, Islam, Puchalski & Straus, 2014).

Midwives who were adhering to maternal health guidelines during the implementation of maternal health care services according to the theory were in a position to reduce maternal morbidity and mortality rate, thus, accomplishing the Sustainable Developmental Goals of 2030. Consequently, those who were not adhering to the guidelines posed a risk to themselves and the women and thus increased maternal morbidity and mortality rate as an outcome (Kellogg, 2004).

4.3.1.1.3 Sub-Theme 1.1.3: Description of Feelings of Relief Experienced When Women Are Finally Transferred to the Next Level of Care

Participants reported a feeling of relief as soon as the patient was transferred to the next level, especially from women who were becoming worse. They feared the worst, like death, may happen in their presence. Participants indicated that their patients have collapsed, some once, others twice, in their presence:

Participant J from Lev:

> *Hey…when a patient is sick, you also feel somehow, because you don't know what she will meet on the way to the hospital. The patient collapsed twice in the facility, the third time was when we were on the way to the hospital when I was accompanying her. I felt relieved when we reached the hospital.*

Other participants concurred when indicating that they felt relieved and well as soon as the women was out of their hands being alive, though they were still responsible and accountable for the well-being of the women. This was indicated by the following quotations:

Participant E from Thh:

> *One feels well because you have saved the life of a woman, because if the patient dies, one will have a wound in your heart.*

Participant A from Tshn:

> *I felt relieved because she has gone; she went out of my hands alive stable but not in a good condition.*

Participant C from Tshn:

Concurred, but with different feelings:

> *But there was a pain that I felt, I asked myself if the patient will survive or not because she collapsed once at the clinic, what the hospital staff will find, was it uterine tear, where was the bleeding coming from because the placenta was complete, and the patient did not have any tear from external.*

Table 4.7 on the support offered by managers on the implementation of maternal health care services indicated that out of 60 participants, nearly all (88.3%) indicated that the criteria for referral of women was known by midwives and this made the transfer of women easy by midwives. Midwives knew which women to transfer to the next level and when. This type of a support eased the uncertainties that midwives experienced in case of unexpected conditions. The results of this study differed with the views of health care professionals and women in the study conducted by Christiaens, Gouwy & Bracke (2007) and Visagie & Schneider (2014), namely, that health care professionals, instead of being relieved, were dissatisfied and worried by the way the doctors at the hospitals were treating patients. They viewed the care given by doctors as sub-standard. The doctors did not even write the report back to the referring facilities. Ultimately, patients were reluctant when they were told that they were to be referred to the next level of care. The transfer of women to the next level as related to the theory implied that the women will receive appropriate care and hence reduced MMR.

4.3.1.2 Theme 1.2: Causes of PPH as Observed by Midwives

The maternity care guidelines indicated the causes of PPH as atonic uterus, lacerations, uterine invasion, though there are risk factors such as age and parity

associated with the causes of PPH (NDoH, 2016). From the results, participants discovered the cause of PPH in women as influenced by advanced age, some women experienced PPH because they were not cooperating, other participants indicated that women were pushing with each and every contraction although they were advised not to do so. Other participants did not know the causes of PPH, hence, they experienced an abrupt PPH from women after delivery.

Participant M from Mash:

> *I have also witnessed cases with precipitated labour, where the woman was 3cm dilated knowing that she was still in the latent phase and she will be checked after four hours. In a short period the women was 8 cm dilated, then the women said she want to deliver, I checked and found that she was fully dilated at the end, after delivery the women bleeds excessively. I also witnessed affected women, those who are exposed on ARV drugs, at the end of delivery; they also experience postpartum haemorrhage. Some women experienced PPH because of full bladder after emptying the bladder, the bleeding stopped.*

From the experiences of midwives who managed women with PPH, it was discovered that the causes of PPH was uterine atony caused by full bladder, some of the researchers indicated that causes of PPH as advanced age (Edhi, Aslam, Naqvi & Hashmi, 2013). From this theme, the sub-themes as presented in Table 4.9 emerged:

4.3.1.2.1 Sub-Theme 1.2.1: Causes of PPH Known Versus Unknown to Midwives

Participants reported that they found the causes of PPH in women as vaginal tear, advanced age, grand multiparous and full bladder, though some did not find any cause of PPH and this makes midwives to become uncomfortable. Participants indicated their experiences as follows:

Participant M from Mash:

> *Most of the cases that I have managed were having 5 to 6 children and they also experience postpartum haemorrhage after delivery with their last pregnancies and were at an advance age of 40 years and above.*

Participant B from Tshn:

Concurred and indicated:

> *I think for this woman, the cause of PPH was a tear which was not seen as it was up on her vagina wall.*

Another participant reported that after examining the women, the participant did not find any cause of PPH from her examination, but she thought that the cause of PPH might have been full bladder because after empting the women's bladder, bleeding stopped.

Participant F from Tsh:

Expressed her experiences as follows:

> *I think the cause of PPH was full bladder because when she pushes her baby, her bladder was full and that disturbed the*

contraction of the uterus, because after she urinated, the bleeding stopped.

Another participant indicated that after she delivered a women, she conducted third stage of labour and explored the women's vaginal canal. The women did not have any tear. The participant advised the women to sleep on her abdomen, when the woman was following the orders of the midwife; the participant discovered that the woman was bleeding more than expected. The participant did not anticipate that the women would bleed because there was no indication nor history of PPH before.

Participant G from Tsh:

Related her experiences as follows:

Hmm ... What I have experience was a women whom I did not know that she had a history of PPH but she knows that she has experience PPH with the past pregnancies. The women was Para 4, I am sure. When we deliver her, I had inserted a drip of Ringers Lactate. After delivery, I gave the patient syntometrine on her thigh, delivered her placenta and expel cloths. I checked her perineum inside and out and there were no tears. I told her to rest for a little so that I can take her to postnatal room. But to my surprise I found that the bed was full of blood.

The same participant went further and said that from the women that she had managed whom she discovered to have had PPH after delivery, the midwife did a follow up and discussed the condition of the women with her colleagues, only to learn that the women had a history of PPH and that all her children were delivered at the hospital. This information was supported by the quotation below:

I did a follow up and discovered that all her children were delivered at the hospital because of the same problem. She did not disclose this information during her first visit to the professional nurse who assisted her.

Table 4.6 on the competencies of midwives in the implementation of maternal health guideline PPH, the results of the study showed that most midwives were able to identify the causes of PPH as advance age. More than half indicated that women who were 35 years and above were at risk of developing PPH. From the same table, participants also indicated that infection can cause PPH. The knowledge of women at risk of PPH implies that midwives were vigilant in the management of women because midwives knew the age group of women at risk, hence, they will refer women in time to the next level for proper management and so reduced maternal morbidity and mortality rate as related to the theory (Kellogg, 2004). In support of the above results, Fawcus et al. (2010) recommended that the following women with a history of PPH, aged 35 years and above and women who had more than five pregnancies must deliver at the hospital where all the resources to manage such women were available, and not at the PHC facility.

However, within this study, midwives who indicated that they disagreed that women above 35 years were at risk of developing PPH might mismanage the women and will not be alert if PPH can develop and, hence, fail to initiate treatment in time. It was observed that failure to initiate treatment in time and to give the required resuscitation treatment was also the cause of maternal death. Therefore, in order to improve health care services, it was recommended that focus be placed on the training of midwives and medical doctors in order to improve the health care system to achieve reduction of deaths from PPH (Fawcus et al., 2010).

In a study conducted by the Royal College of Obstetricians and Gynaecologists (RCOG) in 2011 recommended that all women who have delivered by Caesarean section and those who had placenta accrete should be referred to the hospital during pregnancy as they were at risk of developing PPH (USAID, 2010; RCOG, 2011; McInnes & Mc Intosh, 2012; O'Connor, Doris & Skirton, 2014

4.3.1.2.2 Sub-Theme 1.2.2: Causes of PPH Associated with Lack of Co-operationof Women During Pregnancy and Labour

Participants reported the causes of PPH as lack of co-operation by women. Some women were pushing even before they were fully dilated hence this resulted in cervical tears and even vaginal tears caused by the pressure of the presenting part. Other participants indicated that the women in labour did not hear her advice. The participant indicated that the women continued to push during their presence, even when she was not yet due to deliver. The women ended up delivering at 8 centimetres, this resulted in PPH. The direct citations by participants were:

Participant C from TSHM:

> *She was just pushing with each and every contraction, my patient was very much unco-operative, she was pushing with each and every contractions, even when I was standing there, she was pushing, patient delivered at 8 cm.*

Participant M from Mash:

> *The woman was pushing with each and every contraction. The woman was 3-4 cm dilated. At the end at 8cm, she was still pushing with each and every contraction; especially because it was not her first time to deliver.*

Other participants indicated that women started to push their baby as soon as they heard that they were to be transferred to the hospital. So to avoid going to the hospital, the women pushed their babies even when they were not yet due. The women knew that they had a history of PPH that resulted from their last pregnancy and they were told during ANC that they had to deliver at the hospital because they were high risk clients.

Participant D from Dav:

> *If a woman is told that she is supposed to be transferred to the hospital, because of her previous history of PPH, she will start to push even though she is not yet fully dilated.*

The information on causes of PPH, in particular, that the women were uncooperative was not supported by the quantitative research results. During labour, women are to be given pain relief measures such as analgesia and, if not so, given support and companionship in order to promote co-operation, hence, women will not push before they are fully dilated which, in turn, contributes to the prevention of PPH (NDoH, 2016). In various studies conducted on the co-operation of patients, the authors viewed co-operation as an integral part of the health care system and, as such, recommended that patients and health care professionals must support each other and work together for the benefit of all involved. The researchers mentioned that personal factors on the side of patients and the health care providers as well as the health organization, were the barriers affecting the health care service delivery (Mosadeghrad, 2014; Visagie & Schnider, 2014; Mahnava, Durrant & Luchters, 2015). The implications of lack of co-operation as an output according to the theory by women meant that women were placing their lives at risk because they might experience uterine rupture that can result in death and, hence, increasing the number of MMR (Kellogg, 2004).

4.3.1.3 Theme 1.3: Description of Management of PPH by Midwives

The management of women with PPH was already explained in main theme 1, according to the Maternity Care Guidelines used in South Africa, 2016. Most midwives had knowledge about the management of PPH, while few lacked the knowledge on the measures used to stop PPH. All professional midwives reported that when they rendered maternal health care services, an assistant or enrolled nurse was always there to help them in the management of a woman with PPH. Professional midwives were able to identify women who needed urgent transfer to the hospital though sometimes it was not possible to do so immediately because of delayed emergency services.

Participant J from Lev:

> *I called my assistant to come and help me. I rubbed the fundus and emptied the women's urinary bladder. I inserted a drip of Ringers Lactate and added 40 units of Syntocinon on the drip then I opened it while observing how the patient was reacting to treatment. I had to call an ambulance when I have observed that there was no improvement.*

A study on midwives in the Vanga Health Zone in the province of Bandundu on the active management of PPH in women showed that the midwives immediately discovered that the women were experiencing PPH, midwives indicated the use of AMTSL in the management of the women (Lubaki, Ngolo & Maniati, 2010).

From this theme, the sub-themes as presented in Table 4.9, emerged:

4.3.1.3.1 Sub-Theme 1.3.1: Known Versus Lack of Knowledge Related to Measures Used to Stop PPH

Information related to the management of PPH according to maternity care

guidelines were already indicated under the main theme. From the interviews, participants have been shown to possess knowledge of the management of PPH whereas others lacked such knowledge. Participants who had knowledge on measures to stop PPH indicated that their colleagues wanted to transfer a woman who was experiencing PPH to the hospital without exploring the causes of PPH. Hence, the participant managed to check and determine that the cause of bleeding was just a tear. She managed to arrest the bleeding by suturing the vaginal tear and the bleeding stopped. The information was echoed by the following participants:

Participant E from Thh:

> *I had managed a women, gravida 3 P2, the women I have seen and managed was being managed by my colleagues, she asked me to bring a transfer letter for, I asked if she has checked the women to identify where the problem lies, the patient was bleeding profusely, she said she will not check because this bleeding is not the kind that will stop because it is a lot. I asked the patient to lie on the bed on her back, I inserted my fingers, expelled the clots. I palpated the uterus and it was still high meaning that it has not yet contracted, I rubbed it and bit by bit the bleeding slowed down slowly, unfortunately on the side there was a tear, which I sutured and the patient becomes stable within 3 minutes. I then cancel the ambulance which was called. I inserted a drip of Ringers Lactate and ask the patient to drink a lot of fluids including juice that the relatives has brought. After 2 hours the patient was stable and child was okay also.*

Participant F from Tsh:

Concurred with the information from the participant above and indicated:

> *I found that there was a lot of blood that was coming out just like an opened tap of water flowing. I changed the Ringers Lactate, inserted a new one with 20 units of Syntocinon added on it. I gave her some minutes and I opened the Intravenous infusion to run faster. I discovered that the women were collapsing and I checked and found that again she was in a pool of blood. I changed her linen and I repeated Syntocinon 10 units again.*

The participant who lacked knowledge on measures to reduce PPH indicated that she gave the women 10 units of Oxytocin after delivery, this measure was not sufficient to manage the women who was experiencing PPH. The doses that the participant gave were meant to prevent PPH, not to treat it.

Participant R from Mph:

> *I still remember one woman whom I met with PPH. I still remember injecting her with 10 units of oxytocin after delivery, and though she was injected, the bleeding did not stop. We tried to rub the fundus, we even wrap up ice packs and put them on the abdomen for the uterus to constrict, we also inserted a drip.*

Table 4.4 shows on knowledge of available guidelines and the implementation thereof. Most participants indicated the knowledge on the management of third stage of labour, more than half, i.e., 153 participants out of 200, indicated that cord control traction and rubbing up of the fundus and uterotonics were used in the management

of third stage of labour as a means of reducing maternal morbidity and mortality rate. Again, from the same table, 167 participants were able to define PPH; this means that they were able to detect and diagnose the women earlier and start management as soon as possible like what participant F did on the implementation of maternal health care guideline.

Fawcus et al. (2010) stated that to improve the status of women in relation to PPH, AMTSL of the women must be done correctly to reduce the occurrence of PPH. Giving of uterotonics in AMTSL was seen to reduce the risk of PPH. Syntometrine (one ampule) may be given apart from Oxytocin in case the women does not suffer from cardiac conditions. Misoprostol 600 µg orally in case where it is available and in areas where they were no refrigerators was seen as effective in the reduction of PPH. However, WHO recommended the use of Oxytocin alone in the management of PPH rather than Ergometrine or Syntometrine as the first- or second-line drug (Hofmery, 2010). Furthermore, he indicated that immediately a midwife recognizes that a woman is experiencing PPH, she should call for help, to insert two IV lines immediately using a wide IV cannula so that 1 ml of lost blood be replaced with 3 ml of fluid, rub the fundus, give 20 units of Oxytocin in one litre of Ringers Lactate, check that there are no retained products of the placenta (Hofmery, 2010: 67).

Another study was conducted in relation to measures to stop PPH amongst health care professionals in the United Kingdom (UK). The effectiveness of uterotonic drugs as a measure to prevent and reduce PHH amongst women and the use of bimanual uterine compression in order to treat PPH at a lowest cost in order to prevent bombarding the women with uterotonic drugs was assessed. The study revealed that doctors were reluctant to use bimanual uterine compression because it required an effort on their side so as to exert pressure of the atonic uterus, they indicated the use of drugs because it did not cause discomfort, even on the patient.

The researcher concluded that the new method that can be used to treat PPH at its onset through the use of a new method called butterfly PPH which will make the compression of the uterus much simpler and non-invasive (Aflaifel, 2015; Cunningham, Watt, Aflaifel et al., 2017). It was further discovered by Banchani & Tenkorang in 2014 that midwives had lack of information related to health policies. All those challenges caused midwives to fail to implement maternal health care guidelines successfully, hence, failure to reach the MDGs.

To improve the knowledge, managers were capacitating midwives through continuos education and training. Though from the results of the study in Table 4.7 on support offered to midwives, it showed that more than half of the participants (71.7%) indicated that continuous education on maternal guidelines were offered throughout whereas 28.3% of participants indicated that continuous education was not done throughout. Figure 4.1 shows the results of perinatal meetings where information regarding maternal health care services was discussed and, at the end, education was provided in relation to the gaps identified during the presentation of maternal cases. Almost all participants, 58, indicated that perinatal mortality meetings were effective. Professional development was seen as important for the improvement of midwives knowledge and skills. With the guideline update, from the researcher's point of view, the guideline in which professional midwives were updated most on was the national PMTCT than any other guideline related to maternal health care services.

In support of the information above, a study conducted by Samal (2016) in India, health professionals revealed the need for colleges and universities to include guidelines in their training. Moreover, related matters of midwives' training as necessary which must include the exposure of the students before placement at institutions providing maternal health care services to commencement of training

followed by assessment after training so as to determine the knowledge gained in relation to guidelines (Janmejaya, 2016). The implication of lack of knowledge will result in poor implementation of maternal health guidelines, hence, increased MMR, according to Kellogg (2004).

4.3.1.3.2 Sub-Theme 1.3.2: An Outline of Available Assistance to Midwives During Management of Women with PPH

The recommendations of 2011-2013 by Saving Mothers Report indicated that more than one midwives must assist each other in order to attend to pregnant women every time the women presented herself for health care services (DoH, 2014). Though with shortage of staff, few facilities do have two midwives that helped each other at night although thus far this arrangement is not viable. Participants reported that assistance and enrolled nurses were always there to support them during the implementation of maternal guidelines. Though assistant and enrolled nurses are outnumbered in all the PHC facilities, they were always available, giving assistance to professional midwives. Some of the participant's views were as follows:

Participant A from Tshn:

> *It was during the night. I was alone with an assistant nurse. I will never forget that day.*

Participant C from Tshm:

> *Yoo ... (rubbing hands together) I was on a call system and working with a junior nurse (assistant nurse) alone as a registered midwife.*

Participant J from Lev:

> *I was alone with a junior nurse, because there is no other midwife that helps during the night. A junior nurse that helped*

me was the one whom I called so that she can assists me. I send her to collect some of the equipment and drugs that I needed.

Some midwives reported that assistant nurses do not offer much help because of their scope of practice—what they knew was to bring what the midwives instructed them to do.

Participant D from Dav was:

Sometimes you will tell an assistant nurse to bring some equipment but she will bring something different from what you required (laughing both Participant & Researcher).

Participants with different views regarding available assistance to midwives indicated that two midwives were allocated with an assistant nurse in a call system in her facility. She reported that it was a waste of human resources because since she came back to work, they only saw few minor ailments and no maternity cases during the night.

Participant N from Mash:

That system they just says it, it is not feasible because it is not only pregnant women who are coming during the night. I felt it as a waste of resources because on Monday, I have seen a minor ailment being two midwives and yesterday we also saw minor ailments during the night and I think it is a waste of personnel, it is fine if we are seeing a maternity case not minor, I still and sees it as a waste of personnel.

Another participant reported that she was allocated with another registered midwife

during the call system, but the problem was the registered midwife was new and was not conversant with the duties she was supposed to do. The new midwife was of no help to her because she was not yet competent, hence, the participant was orientating her on how the services were rendered. That night, the facility was busy and the participant admitted three pregnant women.

Participant M from Mash:

> *I was alone, I was with a commserve (Newly Qualified Midwife), so I realized that she does not understand anything that was happening, but she was on orientation. Unfortunately she was orientated the day the facility was busy, because that day I admitted three women, one delivered, and one was 16 weeks pregnant with hyperemesis gravidarum. I managed her and discharge her and the last one was that of eclampsia.*

According to Table 4.5, no assistance was offered because 77.5% of participants indicated that the numbers of PN did not correlate with the number of pregnant women seen, meaning that there was a higher possibility of one midwife, one assistant nurse or enrolled nurse to render 24-hour services. From the results in Table 4.7 of the support offered by managers in relation to supervision of midwives, it was evident that assistance was offered by junior nurses because two midwives were not allocated, especially during the night to assist each other with the implementation of the maternal health guidelines. Instead, an assistant nurse was allocated on behalf of the professional midwives though such information does not apply in few PHC facilities. Only 16.7% of the respondents indicated *Yes* to allocation of two midwives during the night compared to 83.3% who indicated *No*. Spencer (2013) and Ward (2014) reported that assistance to midwives were offered by junior nurses whereas midwives failed to assist each other due to shortage of midwives which was

associated with failure to implement maternal guidelines adequately by midwives; shortage of midwives played a role in the rise of maternal morbidity and mortality rate. Lack of assistance was aggravated by inequality in staff allocation and distribution, failure to report on duty caused by illness, unplanned workshops and resignation of staff (Spencer, 2013).

The implications of available assistance as an assistant nurse which were inputs according to the theory will result in poor implementation of maternal health care guidelines and, hence, the standard of nursing care offered will be compromised (Kellogg, 2004).

4.3.1.3.3 Sub-Theme 1.3.3: Importance of Transferring Women to the Next Level of Care Timeously Outlined

Almost all the participants interviewed indicated the need to transfer their patients to the hospital in order for the hospital to check the haemoglobin (Hb) level of the women if it was within the normal ranges or not. Those who did not transfer their patients initially, only did so after they sought second opinion from the hospital and was given advice on what to do. The researcher saw this as a good practice because professional midwives understood the reasons why they were transferring the women to the hospital. Participants indicated their views as follows:

Participant D from Dav:

> *I have transferred some women, even though the ambulance has delayed because if I have seen a woman who bleed for more than 500 ml, I end up transferred them to hospital so that she can be checked some of the things that I did not recognize at the clinic.*

Participant J from Lev:

> *I transferred her to hospital so that they can check her Haemoglobin (Hb) level, because even though she did not experience dizziness, the women's Hb might fall because of blood loss. She needs to be checked at the hospital.*

Participant F from Tsh:

Concurred when indicating that she detected signs of Anaemia such as skin pallor and dizziness in the women.

> *I transferred her to the hospital because after assessment I found that she was pale. She went to the hospital and was admitted for 2days and then discharged on the third day.*

Another participant who did not transfer the women to the hospital reported that he contacted the hospital staff that they gave him advice on how to manage the women. In which the women was not transferred to the hospital, but because her objective data were within the normal ranges. The women were given follow-up dates so as to monitor their condition until discharge.

Participant L from Tiy:

> *I called the hospital and explain the condition in which at the end they told me not to refer the client if her vital signs were normal. But I must do close monitoring on her even after discharge but she was not transferred to hospital.*

Though the researcher under this strand did not question the participants on the issue of transferring the women to hospital after delivery for the purpose of Hb checking and control, from the results of the study in the Table 4.6 under the

subheading “implementation of maternal guidelines during ANC”, the researcher asked participants regarding the issues of blood tests that included the Hb of the women regarding the schedule where the blood was taken so as to detect the normal Hb and to refer women with lower Hb during pregnancy.

This included also the use of Iron supplements by women in order to prevent Anaemia if the women can experience PPH after delivery. Participants responded as follows: Blood for syphilis serology, Rhesus factor (Rh), Hb are taken during the first visit and at 32 weeks, 84.5% agreed, which was not the correct answer, and 15.5% disagree which was true. Blood for Rh is only taken at the first ANC visit. But the two blood tests (Rh and Hb) are taken as the researcher asked. Iron supplements are only given during pregnancy to which 72% disagree (true) whereas 28% disagreed.

Information on the support of midwives in the transfer of the women to the hospital where managers made the information available in relation to referral route were already discussed under the sub-theme 1.3 that indicated the description of feelings of relief experienced when women are finally transferred to next level of care. According to Fawcus et al. (2010), during ANC, the midwife must monitor the Hb level of the women so that when the women reaches term, to have the normal Hb. The researcher further stated that a Hb of less than 8 g/dL, that women must be referred to the doctor for high risk clinic, Hb to be checked during the initial visit at 32-34 weeks of gestational pregnancy and even at the onset of labour (Fawcus et al., 2010).

A study carried out in the United States of America (USA) indicated that only a minimal number of women was transferred hospital because of PPH and retained placenta and they were transferred while in labour (Bonadio, Schneck, Pire et al., 2011). Again (Kelly, Kohls, Poovan, Schiffer et al., 2010) indicated that high risk

women were transferred to the waiting facilities 2-4 weeks before their due date so that midwives can assess the women in time, hence, identification of risk factors that might be posed by the women's condition so that they anticipant management.

Implementation of maternal care guidelines will lead to reduced rate of maternal morbidity and mortality rate because preventable conditions that may affect women during pregnancy will be detected early and management will be initiated at the earliest point. The implication of prompt referral of women by midwives will lead to early initiation of treatment as an activity by the next level, hence, reduced MMR (Kellogg, 2004).

4.3.1.4 Theme 1.4: Challenges Experienced in Managing Women with PPH

From the report given by participants, women delivered well without problems, but immediately or few minutes after delivery, women started to bleed without giving the midwife any warning. Participants reported that woman did not give the correct information during history taking in ANC. This, in turn, increases the burden of workload when the women experienced PPH, therefore, there is shortage of PN/midwives. Almost all the women with PPH were referred to the hospital in which, at that point, most participants reported delay in the ambulance to transport women to the next level of care.

Participant F from Tsh:

> *I came across a women, she did not have a history of PPH. She was gravida 4, she came being in labour. I progressed her well until she was fully dilated. Now I suspected that the cause of PPH on her was full bladder because when I was checking, we had shortage of urinary catheters, and when she was*

urinating, only a small amount of urine was coming out. Then the patient became fully dilated, after delivery i did everything even to expel the clots but the patient was bleeding profusely. The women ended up in the hospital.

From the study conducted by Schack, Elyas, Brew & Pettersson (2014) in Ghana, midwives indicated shortage of staff where the staff ended up referring women for AMTSL to other health care staff. Another challenge discovered was that women did not give the correct information on admission and that midwives were not following the Ghanaian National Guidelines in their management and, hence, they had to refer some women to hospital. From this theme, the sub-themes as presented in Table 4.9 emerged:

4.3.1.4.1 Sub-Theme 1.4.1: Managing PPH Alone with Maternity Guidelines Not an Easy Task

According to the NDoH (2016), immediately a midwife identifies that the woman is experiencing PPH she is to call for expert help. Participants reported that a midwife managing a woman alone without the help of another midwife and implementing the guideline in order to follow its guidance was difficult. Most of them reported that they managed the women through experience. A woman with PPH needs urgent attention and if a midwife comes across such a woman unexpectedly, she has to do whatever it takes to save the life of the woman. Participants reported that they did not have time to consult the guidelines because the situation they have experienced was an emergency.

Participant G from Tsh:

Indicated that she managed the women according to what she knows:

There was no time to check what the guideline says, there was

no one to help me, I managed the women according to the knowledge that I have.

Another participant concurred when indicating that referring to the guideline when managing the women being the only midwife was impossible. Though the participant indicated that she managed the women haphazardly not following the guideline because she had knowledge of what was to be done in the management of the women.

Participant O from Mak:

It is not easy to manage the women alone as a midwife, practically, I was not using the guideline, by then I just manage the women haphazardly because I know what to do and using the guideline alone in reality is not possible.

Other participants reported that they know the content within the guideline because they took time to study emergency conditions before they can experience the real patient so that they are ready for any emergency situation that might arise. The participant further indicated the difficulty of referring to the guideline when one is faced with the real patient alone as a midwife.

Participant Q from Man:

I am used to study the guideline while I am not busy, like I will tell myself that today; I am studying PPH so that when I came across such a condition I know what to do, because it is difficult to consult a guideline when one is having a real patient. Like the patient we are talking about, I did not have time to open it, I just manage the patient, it is not easy when one is alone with a junior nurse and there is no time to open a

guideline. Meaning that the time for one to can master these conditions is when one created a time by herself to study the guideline.

From the results of the study in Table 4.5, 75% of respondents indicated that two midwives were not allocated during the night. From the results in Table 4.7 on the support offered by managers, almost all (83.3%) the participants indicated that two midwives were not allocated, especially during the night to assist each other with the implementation of the maternal health guideline. The health care service system is faced with numerous challenges such as shortage of staff which leads to one midwife working alone, some during the day and even at night. This situation is not a desirable one, because it places the lives of pregnant women as well as midwives in danger.

The recommendations of 2011-2013 by Saving Mothers Report indicated that more than one midwife must attend to the pregnant woman every time the woman presented herself for health care services (DoH, 2014). Hofmeyr (2010) indicated that one midwife was not in a position to manage an emergency situation alone and effectively; he recommended the need to call for help if one is in the emergency situation, so he referred to a call for the doctor to come and help in such a situation, meaning that in a PHC facility, that will be another midwife not an assistant nurse (Hofmeyr, 2010).

Spencer (2013) and Ward (2014) reported the following barriers in their studies which were associated with failure to implement maternal guidelines adequately by midwives: shortage of resources which included staff in health care facilities, yet they played a role in the rise of maternal morbidity and mortality rate; shortage of human resources was aggravated by in equality in staff allocation and distribution; failure to

report to duty caused by illness; unplanned workshops and resignation by staff (Spencer, 2013).

The implications of managing PPH as an only midwife will result in poor implementation of maternal health guidelines which will result in high maternal morbidity and mortality rate and, hence, failure to reach the SDG by 2030 as an outcome (Kellogg, 2004).

4.3.1.4.2 Sub-Theme 1.4.2: Abrupt PPH After Normal Delivery Experienced

Participants reported that the women reported labour and after examination everything was okay. She became fully dilated and delivered well. Immediately after delivery, the women started to bleed unexpectedly. The participant went further and reported that the women did not have signs of excessive bleeding and no tearing of the vaginal wall and perineum.

Participant A from Tshn:

> *The women delivered well, but immediately after delivery, the women started to bleed profusely with no reasons, the women was not having any visible tears in her perineum and vagina.*

Participants reported that everything went well regarding the women's delivery. Because participants were in a call system, after they conducted fourth stage of labour, they left the women comfortable so that they can go and rest. Immediately they went into their rooms, they were called back by relatives/general worker because the women were bleeding profusely.

Participant B from Tshn:

> *I left her being comfortable and went to sleep. Around 05h00 in*

the morning, the general worker wake me up, at said I must come quickly for something is wrong with the women. I quickly go to postnatal room and found that the woman was soaked in the pool of blood.

Participant C from Tshm:

Concurred and stated her experiences as follows:

Then we went and sleep. She remained with a relative. After a short period the women wake up from bed, she was bleeding severely. The relative came to call us, we came back and found. Aaa … She was really bleeding.

The researcher asked if midwives would be able to identify a woman with PPH so that proper management is initiated as soon as possible. From the results of the study in Table 4.4 on the knowledge of available guidelines, almost all the midwives (83.5%) indicated that they were able to identify if the women was experiencing PPH through the blood that the women has lost. Again in Table 4.6, midwives indicated that they had the necessary skills to manage women with PPH, regardless of the fact that there was no history of PPH and it happened abruptly.

This was indicated by 90.5% of women although 9.5% indicated that they did not have the necessary skills to manage women with PPH. Though from the Table 4.8, on the training received by midwives, for Essential Steps in the Management of Obstetric Emergencies (ESMOE), 64.5% of PN were trained whereas 34.5% were not yet trained. The remaining midwives need to be trained on the management of (ESMOE) which included an abrupt occurrence of PPH so that they will be in a position to implement the guideline effectively and, hence, reduced the MMR rate.

However, midwives were supposed to practise the skills on the management of emergency conditions such as PPH through EOST drills. Table 4.7, on support offered to midwives by managers, indicated that EOST drills were not conducted and monitored as suggested so by the Savings Mothers Report of 2011-2013 (NDoH, 2014). Only 21.7% of the participants indicated that the drills were being conducted as suggested, whereas 78.3% of participants indicated that the drills were not conducted. If EOST drills were conducted as stated, PN would acquire more knowledge through practice, be confident in themselves and adhere to maternal guidelines during the management of women with PPH. Chapter 8 of the monograph, indicated that because PPH might happen in women with no history of PPH in a facility at any time, midwives must always be prepared and ready. Their readiness will be determined by their knowledge, skills and availability of resources (Pattison, 2010).

Pattison (2010) recommended continuous education and training of midwives so that they would able to manage emergency conditions such as PPH and pre-eclampsia. Managers must organize workshops and in-service training so that midwives are able to respond and to provide immediate medical treatment in an emergency (Pattison, 2010; Van Lonkhuijzen, Dijkman, van Roosmalen et al., 2010; Lee, Cousens, Darmstadt et al., 2011). Fawcus et al. (2010) had another version regarding abrupt PPH by women—he discovered that professional workers played a role in the death of women which accounted to nearly half of the female mortality.

Midwives failed to recognize the emergency situation earlier and failed to monitor the patient during labour and after delivery; they misdiagnosed women and mismanaged them. Again sub-standard care was observed that accounted for 40% of deaths in both primary and secondary health care facilities (Fawcus et al., 2010). The implication of abrupt PPH was viewed as an emergency situation where midwives

must always be ready to manage women all the time in order to reduce MMR.

4.3.1.4.3 Sub-Theme 1.4.3: An Outline that Shortage of Midwives is Problematic Leading to Poor Management of Women

Participants reported shortage of staff as one of their challenges that leads to poor management of women with PPH. Participants reported shortage especially during the night where one midwife was allocated to manage the facility, hence, poor management of the patient. Participants indicated calling the security guard to go and call another midwife who was not on call, but sleeping in the nurses' home to come and help her with the management of another patient that needed urgent attention.

Participant A from Tshn:

> *Shortage of midwives is a problem in our facility, I send the security guard to go and call another professional nurse who was not on call to come and help me because the relatives of the other patient were not happy.*

Participant B from Tshn:

Indicated her experiences as follows:

> *It was not easy because that time I was alone with the assistant nurse who does not know anything regarding PPH. If I was having another Registered Nurse, It will have been easier.*

Another participant reported that she was going all over the place opening the guideline at the same time going back to the patient to implement it because of shortage of staff. The participant went further and indicated that some of the information was missed out in the management of the women because of shortage

and this led to poor implementation of the guideline and, hence, the condition of the women will deteriorate.

Participant C from Tshm:

Indicated the challenges she experienced as follows:

> *Shortage of midwives makes management of women to become difficult because one midwife will miss some of the steps in the management of patient. Because as a nurse I am the one who was going up and down, opening a guideline, referring to it, checking if what you are doing was on the book and doing everything while the patient is waiting and the patient's condition was deteriorating.*

Table 4.5 shows the challenges faced by midwives as follows: almost 77.5% indicated that the number of midwives did not correlate with the number of pregnant women seen on a daily basis and, as such, there was shortage of midwives. Shortage of staff might have been influenced by inequality in the distribution of health care personnel, failure to hire more staff to replace those who left the services. Table 4.7 indicates the support offered by managers in relation to staff allocation and the needs of the facility. From this study, nearly half indicated that staff was allocated according to the needs of the facility whereas more than half, 51.7% indicated that staff was not allocated according to the needs of the facility.

The Royal College of Midwives (RCM, 2015) conducted a survey on MHCM, and their main questions were on the availability of staff, how they recruited and retained staff, staff motivation and morale and management of budget through reduction of finance. From the results, the chief executive officer indicated that there was overload of work on the staff, reduction of services caused by budget cuts and staff

shortages. In the same survey, it was reported that there was reduction in the training of the staff between the year of 2014 and 2015 by 1.6%. There was a concern that the reduction will lead to poor quality of care by midwives to mothers and their newborn babies (RCM, 2015).

Likewise, it was indicated from the survey that midwives tried their level best to keep the services running by working long hours, overtime and sometimes that they did not eat their food during lunch time. This led to compromised services and a lot of mistakes were made because quality care services which were of high standard were provided by the same staff (Scheffler, Visagie & Scheider, 2015; RCM, 2015).

A telegraph conducted by Warwick in February 2017 indicated that there was high rate of women who are falling pregnant and giving birth that the number of midwives to render maternal health care services to women. Midwives were seen to be overburdened because those who trained a long time ago were leaving the services and they needed replacement by younger midwives. Replacement of old midwives by younger ones looks like a dream because the England government ceases the bursaries that they were awarding for the training of midwives as a means of cutting cost and thus they remained with shortage of midwives (Warwick, 2017).

Spencer (2013) and Ward (2014) indicated shortage of staff as one of the barriers aggravating MMR. The implication of shortage of midwives as inputs according to the theory poses a risk to midwives who were faced with a lot of challenges in which most of them indicated that it was difficult to implement maternal guidelines alone. This caused poor performance and, hence, a high morbidity and mortality rate (Kellogg, 2004). Midwives are overloaded with work due to the domino effects of abseentism and staff turnover. This will also result in much litigation by the regulating bodies and the government, in turn, will receive lawsuits from the public.

4.3.1.4.4 Sub-Theme 1.4.4: Delayed Versus Prompt Response by Emergency Services to Transport Patients to Next Level of Care

The National Core Standards of South Africa indicated that the ambulance turnaround times must be within the norm of 60 minutes and not more than that (NDoH, 2014). Most participants verbalized delays by the emergency services to come and collect the patient from the clinic to the hospital. For the ambulance to be reported as complying with the norms and standards of the DoH, it must take less than 60 minutes to arrive to transport the patient to the next level. Most of the participants stated the following in relation to such a delay.

Participant A from Tshn:

> *The ambulance took more than one hour to collect the patient to the hospital.*

Participant I from Nanc:

> *The ambulance took 1 hour 30 minutes to 2 hours to collect the patient from here to the hospital.*

Participant B from Tshn:

Indicated delay as follows:

> *I then called an ambulance which took hours before arriving like about 3 hours. By then the women was stable. I was relieved when the ambulance took her to hospital.*

Few participants indicated that the ambulance responded quickly, that was less than 60 minutes, and these were midwives whose their facilities were nearer to where the ambulance were stationed and those whose roads were accessible (tarred roads).

Participant K from Muts:

> *We don't have a problem with an ambulance, because of our road is tar and the ambulance is not far.*

Participant P from Lam:

Concurred:

> *I then transferred her to hospital; the ambulance did not take time because they are stationed nearer.*

Table 4.5, on the challenges faced by professional midwives, indicates that the ambulance turnaround times were not within norm, that is, less than 60 minutes. The results of the study showed that 80.4% participants indicated non-compliance of the ambulance services whereas only 18% indicated the ambulance services were complying with the norms.

This was also conveyed by managers in Table 4.7, i.e., 26.7% participants indicated the emergency transport which was always available and 73.3% indicated that was not the case. Participants indicated the delay to transport the women to the next level. This might be influenced by poor access to PHC facilities caused by poor roads, distance from where the ambulances were stationed, poor communication between ambulance personnel and shortage of ambulances.

Khan, Timmings & Vogel (2014) discovered the following barriers which hindered health care workers to implement maternal health care guidelines successfully: shortage of transport in the form of ambulances and poor roads and the far areas where patients lived. Again, postnatal mothers failed to access health care services in time which led to delay of a certain health care service to be offered to both mother and child—this was caused by unavailability of transport and lack of money to pay for

transport. Again, a report was made regarding the state of ambulances in rural areas which forms a barrier to health care services because of failure by patients to access the area. This was aggravated by poor roads and longer distances to health care facilities (Gaedda & Versteeg, 2011).

Boyce (2016) reported the state of emergency medical services in the Eastern Cape that led to the death of a 10-year old boy, women who gave birth at home and cases that complicated while awaiting for an ambulance. In his report, he indicated a lot of complaints by the community and relatives of patients in relation to delay by the ambulances. Forces behind delay were due to poor communication services caused by the phones that were not positioned well and poor roads. Another relative was heard by the researcher during the news on the 4 July 2017 from SABC 2; the relative was blaming the emergency services that delayed to the scene of an accident that occurred in Mpumalanga. He complained that had the ambulance arrived in time, some of the lives of the 18 people who lost their lives during that accident could have been saved.

The implications of delay by the emergency ambulances as related to the theory have resulted in late initiation of treatment at the next level of care. Sometimes it resulted in a loss of life before the public could transport the patients to the hospital and lack of trust in the health care system. This also led to poor implementation of maternal health care guideline by the next level of care (Kellogy, 2004).

4.3.1.4.5 Sub-Theme 1.4.5: Failure to Disclose PPH History Experienced which Results in Poor Management

This was indicated by most participants. Participants were concerned that during the first visit ANC, women did not disclose their experiences or their previous history of PPH. Thus, professional midwives had incorrect history and to failed to anticipate the occurrence of PPH. In other words, they were unprepared to manage such women.

Participants learnt about the previous history of these women while they have already delivered—some when the woman was already transferred to the hospital.

Participant G from Tsh:

Indicated her experiences as follows:

> *I did a follow up and discovered that all her children were delivered at the hospital because of the same problem. She did not disclose this information during her first visit to the professional nurse who assisted her.*

Participant K from Muts:

Concurred when indicating that the women told her that all their children were delivered at the hospital because with their last pregnancy, they collapsed after delivery and that they were bleeding profusely after delivery. The participant indicated that the women did not disclose this information because it was not indicated in their ANC card.

> *When she was delivering, she told me that even with her previous babies, isn't it that on their 1st booking, they don't tell the truth during ANC, she said with my previous baby, after delivery, I collapsed, even with the 3rd child, I gave birth at the hospital after delivery I bleed a lot.*

Participant D from Dav:

Reported that culture was a barrier that led women to lie regarding their previous experiences of PPH. The participant reported that women do lie during their first visit, especially if they were asked about the information that will end up in them being transferred to the next level.

I don't know if it is because of culture, our women don't tell nurses if they have experienced PPH. Whether the women bleed excessively after delivery or if blood was transfused on her, our women tends to lie about such things during history taking, she will tell you that she delivers well and no problems'.

From Table 4.6 on the competences of professional midwives in the implementation of maternal health care guidelines during ANC, the results of the study showed that most of the professional midwives were implementing maternal health care guidelines because almost all midwives (97%) agreed that they will advise women to start ANC if she discovered they are pregnant after gravidex test whereas 3% disagreed. During ANC, midwives collect history from the pregnant women which included the past obstetrics history where they will ask the women about the history of PPH with the previous deliveries and that where now the women hide the information from nurses only to discover the truth about PPH during delivery. Various authors indicated that proper history taking of PPH must be taken with emphasis on previous history of PPH every time the women visited the health care facility to avoid and to rule out any false information given by the women. They also emphasized the issue of health education regarding the dangers of PPH and the appropriate place where the women must deliver in case of previous history of PPH (Fawcus et al., 2010; Khan et al., 2014; Al-Ateeq & Rusaiess, 2015).

The implication of failure to disclose PPH history will result in poor implementation of maternal guidelines and, therefore, poor maternal outcomes, according to the theory (Kellogg, 2004). In conclusion, under this main theme, the researcher discovered that some of the participants had difficulties in the management of women with PPH. This was influenced by lack of knowledge and that most of the midwives were left alone to manage the women. This led to failure by midwives to adhere to maternal health

guidelines. Most participants were relieved after the women were transferred to the hospital though there was delay in ambulance services. Midwives discovered that women did not disclose their previous history of PPH which caused more frustrations to midwives. As indicated by the Maternity Care Guidelines of South Africa, immediately the midwife identifies that the women is experiencing PPH, she is to call for help and resuscitate the women rapidly by inserting two IV lines, one with Oxytocin 20 units, explore the causes of PPH, monitor vital signs and transfer the women to the next level.

4.3.2 Main Theme 2: Experiences of Midwives in the Implementation of Maternal Health Guideline, for Pre-Eclampsia, Eclampsia and Gestational Hypertension

The NDoH (2016) indicated that a woman with eclampsia must be turned on her side, airway opened and oxygen initiated. She must be given anti-eclamptic drugs to prevent further occurrence of eclampsia and anti-hypertensive drugs and then referred to the hospital (NDoH, 2016). Participants reported their experiences in the management of women with pre-eclampsia, eclampsia and gestational hypertension. They indicated the support they had experienced in the management of women and the challenges they had come across when managing the women.

Participant R from Mph:

> *Yaaa ... I have managed a woman with pre-eclampsia, her pregnancy was not that much big, at first I thought it was epilepsy. When I was busy collecting data, she started to experience jerking movements. It was during the day. Hey…, I opened my guideline and manage her according to what the guidelines said. It was difficult as i was the only midwife. I even called an ambulance for her. The ambulance did not delay because it was stationed near our facility. Together with the*

paramedics, we worked together to stabilize the patient before transfer to hospital and to do all the necessary things like giving Magnesium Sulphate.

From the quotation above, the maternal guidelines on the management of hypertensive disorders in pregnancy was partially implemented because hypertensive drugs were not indicated by the participant. Stellenberg & Ngwekazi (2016) conducted a study in the Eastern Cape in PHC facilities on the experiences of midwives in the management of women with hypertension in pregnancy. The researchers identified that midwives partially implemented the maternal guidelines and some lacked knowledge on the management of women with hypertension, especially the management of pre-eclampsia. Table 4.10 indicates the experiences of midwives when managing women with gestational hypertension, pre-eclampsia and eclampsia.

4.3.2.1 Theme 2.1: Experiences of Midwives Related to the Management of Women with Gestational Hypertension, Pre-Eclampsia and Eclampsia

Almost all participants indicated the implementation of maternal guidelines in relation to gestational hypertension. With the management of pre-eclampsia, some midwives stated that it was easy to implement maternal health guidelines. They indicated the urgency of diagnosing and managing of pre-eclampsia as a matter that needs immediate attention. The Maternity Care Guidelines in South Africa indicate that midwives must exclude protein in urine, oedema and increased weight in order to exclude pre-eclampsia and eclampsia when assessing pregnant women with hypertension and to refer the women to a doctor who will initiate treatment (NDoH, 2016). Participants stated the importance of using and referring to maternal guidelines when diagnosing and managing pregnant woman with hypertension and referred to the maternal guidelines as useful resources.

Table 4.10: Experiences of midwives in relation to managing women with gestational hypertension, pre-eclampsia and eclampsia

Themes	Sub-Themes
2.1 Experiences related to the management of women with eclampsia and gestational hypertension by midwives	2.1.1 Managing women with eclampsia and gestational hypertension an easy versus an a difficult task
	2.1.2 Existence of signs and symptoms dictates for the management of the women
	2.1.3 Lack of proper management of the women by the next level of care experienced by midwives
	2.1.4 Accompaniment of women to the next level of care by midwives dictated by the presenting symptoms
	2.1.5 Existence of feelings of disrespect by the professionals from the next level of care
	2.1.6 Present symptoms a reason for women to visit the health care facility
2.2 Management of women with eclampsia and gestational hypertension	2.2.1 Gestational hypertension a rare condition as compared to eclampsia based on admitted cases
	2.2.2 Professionals at the next level of care informed about the patients in order to prepare to receive them
	2.2.3 Treatment used to treat the patients outlined
	2.2.4 Usage and adherence of maternity guidelines assist in proper management of patients
2.3 Support experienced during management of complicated maternity cases	2.3.1 Existence versus lack of support experienced from colleagues during care of women with complications
	2.3.2 Existence versus lack of support from by managers experienced by midwives
	2.3.3 Anger emanating from decisions opposed by next level of care on referred women
2.4 Challenges experienced during management of women with eclampsia and gestational hypertension	2.4.1 Shortage versus availability of drugs in the health care facilities experienced
	2.4.2 Shortage versus availability of equipment in the health care facility experienced
	2.4.3 Lack of adherence to medical advises by women result in unmanageable complications
	2.4.4 Socioeconomic status of women problematic and affect management

Participant D from Dav:

> *The women diagnosed with hypertension in pregnancy are being managed well because at the end the patient is transferred to hospital for high risk clinic and for the doctor to do the assessment, he will refer the patient back to the clinic for continuous ANC when the women becomes stable and to return back to hospital while in labour. With the use of maternity guidelines, the treatment that they receive makes them to become stable, hence they deliver well and their babies turn to be healthy.*

The Guidelines for Maternity Care in South Africa indicate that if midwives diagnose the women with gestational hypertension, must contact an experienced doctor so that he can advise if treatment must be stated immediately or not and refer the women within three to five days **(**NDoH, 2016). From the theme, sub-themes emerged as presented in Table 4.10.

4.3.2.1.1 Sub-Theme 2.1.1: Managing Women with Pre-Eclampsia, Eclampsia and Gestational Hypertension An Easy Versus a Difficult Task

The management of pre-eclampsia according to the South African Maternity Care Guidelines indicate that women with mild to moderate pre-eclampsia must be give anti-hypertensive drugs and referred to the hospital the same day. If pre-eclampsia is severe, anti-hypertensive drugs and anti-eclamptic drugs must be given and then the women must be transferred to the hospital. From the results, some participants indicated they had knowledge of the management of gestational hypertension and that they were implementing the guideline correctly. Participants stated that some women were referred back to the clinic from the hospital so that their BP be monitored at the clinic, but to be transferred back to the hospital when in labour.

Participants mentioned that management of gestational hypertension depended on the readings of the systolic and diastolic BP. The participants continued and said that women with mild hypertension were given non-drug management whereas those with moderate hypertension were given drugs that were to be taken at different intervals. In case the women was diagnosed with pre-eclampsia, participants mentioned that they administered anti-hypertensive drugs so that the BP can be reduced to normal and the women needed referral to hospital immediately for fear of an eclamptic attack.

Participant O from Mak:

> *The management depends according to the severity of hypertension, mild hypertension in which the diastolic is 90, the patient will be treated with non-drug therapy, moderate diastolic of 110, I give them Methyldopa 500mg stat and the patient needs to take the drugs 8 hourly. In case of pre-eclampsia, I gave Amlodipine 10 mg and Methyldopa and the women need to be referred to hospital stat because at any time the patient can have an eclamptic attack.*

Participant J from Lev:

Concurred when indicating that after diagnosing the women, she referred the women to hospital for further investigations.

> *I have managed some patients where I checked their blood pressure and found that it came after 20 weeks of gestation. I gave them Methyldopa and refer them to hospital for Urea & Electrolytes (U&E) to be taken so as to check how their kidneys are functioning.*

Another participant reported that the doctor was the one who prescribe drugs and decided whether the women to continue with ANC at the hospital or the clinic but most of the time the women will attend ANC at the hospital until delivery.

Participant Q from Man:

> *I refer them to hospital, the hospital is the one who prescribed the drugs and they are also in a position to decide whether to send the patient back to clinic so as we continue with care but at 36 weeks to come back to hospital. But most of the time, patients are not referred back to the clinic, they attend their ANC there until they deliver and come back after delivery.*

In relation to the management of a woman with pre-eclampsia, some of the participants indicated that they did not experience difficulty in implementing the maternal guidelines on the women with pre-eclampsia because it was during the day and their colleagues helped them with the management. One participant went further and said if she was alone, she don't think that she would have managed the women.

Participant R from Mph:

> *Because it was during the day, we were many, so in relation to her management, we did not encounter any problems. We were helping each other with ideas, but if I was alone, I would not have managed her.*

In cases where pregnant women whose diastolic BP was 110 and more measured in two occasions, most participants 86.5% indicated that in the management of a women with gestational hypertension, they used maternity care guideline in their management, whereas 23.4% disagreed (Table 4.4). The results were influenced by the knowledge as shown in Table 4.5 where 88% of the midwives indicated that they

were provided with knowledge on the management of women with pre-eclampsia whereas 12% disagreed with the statement of having adequate knowledge. Table 4.8 on training received on ESMOE, shows that 64.5% of PN were trained whereas 34.5% were not yet trained. Though from all the results indicated, the researcher discovered that few who were not trained will contribute to an increased rate of maternal morbidity and mortality rate.

From the study conducted by the University of Stellenbosch in the PHC facilities on the knowledge of the management of women with hypertension, it was discovered that most midwives had knowledge on the management of gestational hypertension as well as pre-eclampsia, though few were not knowledgeable. Midwives who did not have knowledge were lacking theoretical and even clinical knowledge and, as a result, this will lead to poor maternal outcome (Stellenberg et al., 2016).

In a study conducted by Kattah & Garovic (2013), midwives indicated that the management of women with preeclampsia through treatment was recommended when the diastolic BP of the women was above 105 mmHg though it was indicated by experts that drugs must be initiated when the BP was 110/150 in order to prevent cerebral and cardiovascular complications (Kattah & Garovic, 2013). According to the NDoH (2016), the women's blood pressure must be kept below 160 mmHg systolic and 110 mmHg diastolic with the use of Nifedipine 10mg orally. The implication of the management of women as related to the theory will lead to improved maternal outcomes when midwives find it easy to manage the women correctly and for those who had difficulty, it will lead to poor management (Kellogg, 2004).

4.3.2.1.2 Sub-Theme 2.1.2: Existence of Signs and Symptoms Dictates for the Management of the Women

The Maternity Care Guidelines indicate that the signs and symptoms of women with severe eclampsia, BP of 160/110 with protein and neurological signs such as

headache, visual disturbances and dizziness (NDoH, 2016). Immediately when PN assess and detect the signs and symptoms of pre-eclampsia and gestational hypertension, they started to load the patient with treatment. Most of the midwives indicated the signs such as a rise in BP or increased BP of more than 140/110 accompanied by protein in urine. They also reported that an elevated BP of a woman in comparison with baseline also dictates treatment and referral to the next level.

Participant C from Tshm:

> *I once experienced the woman who came complaining of dizziness, she was drowsy and swollen with 3+++ of protein and her blood pressure was 170/110, she was about to fit, she was lucky she got transport from home to the clinic, if it has delayed, she would have fallen on the way to the clinic.*

Other participants concurred when indicating their experiences as follows:

Participant F from Tsh:

> *What I have experienced while working, it was a 17 years old pregnant women. All along when she was attending her ANC, her blood pressure and her urine was normal. The time she was in labour, when we assessed her she was having generalized oedema of the whole body. She was 3cms dilated and her blood pressure was 149/90 with 2++ of protein and pitting oedema.*

Participant J from Lev:

> *A woman came presenting with epigastric pain on the right side. One can see that she was in real pain. When I checked her blood pressure, it was 190/120. I assessed her and found*

that the patient was having severe pre-eclampsia that can become imminent eclampsia at any minute. I checked her blood pressure three times using different blood pressure machines and it remained the same.

Table 4.6 on the implementation of maternal health guidelines, hypertension in pregnancy, shows that 80% of participants indicated that they will transfer the women with treatment though few 17.5% indicated they won't give treatment and 2.5% said they don't know. Study participants who will transfer the women with treatment being initiated were seen by the researcher as implementing the guideline because the maternity guideline stated that treatment must be initiated as soon as possible at the same time the midwife will be calling for help which include transfer of a women to the hospital.

Participants who will not initiate the treatment were seen as putting the lives of both mother and baby a risk because women might have an ecliptic attack at any time. Managers were supporting midwives by providing in-service training in a form of perinatal review meetings that were held monthly, though during the review, only maternal death cases were being reviewed. From the cases presented, education was conducted which included the management of such a case. It was indicated that women with a diastolic BP above 100 mmHg without protein, must be managed as outpatients provided that they will come regularly for review and treatment. Hypertensive treatment does not prevent pre-eclampsia, but improves the lives of baby and mother (Black, Zhou, Dublin et al., 2016; Kattah et al., 2013).

The existence of signs and symptoms of either pre-eclampsia or eclampsia has resulted in midwives initiating treatment as soon as the woman was discovered, hence improving MMR.

4.3.1.2.3 Sub-Theme 2.1.3: Lack of Proper Management of the Women by the Next Level of Care Experienced by Midwives

The NDoH (2016) indicated that women with mild or moderate pre-eclampsia must be referred to the hospital the same day. The hospital must confirm the diagnosis with a 24-hour urine collection for protein, except if there is persistent protein in a urine dipstick (NDoH, 2016). Participants indicated that they diagnosed and referred women with pre-eclampsia to the hospital and the patient was misdiagnosed at the hospital and discharged as having gestational hypertension. This has put the pregnant women in danger where the midwife reported that the patient came back to the clinic, now with imminent eclampsia.

Participant A from Tshn:

> *Hmm … I have seen a few of them; the last case was transferred a week ago. It was a 30 weeks pregnant woman whom I referred as having pre-eclampsia having two pluses of protein and BP of 140/90 though the hospital returned her back being diagnosed as gestational hypertension.*

The same participant said:

> *But to my surprise, the very same day she was discharged from the hospital, she came back with imminent eclampsia; she had headache, blurred vision and a respiratory rate of less than 16. She was lucky because I managed to load her with 14 vials of Magnesium Sulphate (4 gram in 200 ml of sodium chloride and 5 gram intramuscularly on each buttocks, insert all the Iv lines and immediately call for an ambulance with the help of my colleague.*

According to the management rendered by the participant, the participant followed the guidelines though she did not mentioned measures to reduce hypertension. The information above was not included in the quantitative research data. From the study conducted in Tanzania in 2015 regarding the care of pregnant women at the hospital, the results indicated that there was lack of care of women who needed assistance during delivery, the women ended up delivering alone by themselves caused by workload where the number of midwives did not correlate with the number of women who were in labour. It was observed that three midwives were allocated in a maternity ward where 40 to 70 women delivered during their shift (Tibandebage et al., 2015).

Furthermore, there was dissatisfaction among PN who have referred the patient to the hospital where the participant indicated that the skills of the doctors at the hospitals were not up to standard. The PN further indicated that there was no support from the hospitals even from the specialist. Also (Visagie et al., 2014). Because the researcher also worked at the PHC facility, the researcher has witnessed a number of cases where patients were returned back from the hospital or even misdiagnosed. Lack of proper management of the women as an activity by the next level of care might result in poor implementation of maternal health care guidelines hence complications of the women's conditions that will increase MMR, according to the theory (Kellogg, 2004).

4.3.2.1.4 Sub-Theme 2.1.4: Accompaniment of Women to the Next Level of Care by Midwives Dictated by the Presenting Symptoms

The Maternity Care Guidelines of South Africa indicate that women who are critically ill are to be accompanied to the hospital by an experienced midwife in order to ensure that continuity of care is rendered (NDoH, 2016). Participants reported that they accompanied the patient to hospital because of the woman's condition and

because they felt that a trained professional midwife needs to accompany the patient. They did these in order to ensure the patient's safety and to continue to manage the patient on the way to the hospital. Participants mentioned that the woman's condition was deteriorating because the woman was about to have an attack caused by eclampsia. This was the same patient that was discharged from the hospital, i.e., the misdiagnosed pregnant woman. Midwives had no choice, but to leave the facility unattended in order to save the life of the woman at hand.

Participant A from Tshn:

> *I had to accompany the patient to the hospital myself because her condition was not good. I wanted to monitor her condition on the way so that I can assist her in case her condition worsens.*

Participant G from Tsh:

Concurred when indicating that she had to run outside to inform the relatives that it would be better for the family to organize transport for the woman because the ambulance was delayed and the woman's condition was deteriorating. This woman had PPH and collapsed three times in the facility.

> *I run out and told others that the ambulance is delaying, lets organize transport for her. Her mother in law said it will be better to wait for her husband; he is the one that will take his wife to hospital after work. I told her that, that will not work, the women needs urgent attention. The mother of the woman was also there, she said no this is my child I will provide transport for her. Then the mother says this is the transport, I had to organize the women, removed the drip from the drip stander,*

and accompanied the women to the hospital to monitor her on the way. I had to leave the facility unattended. At least we reached the hospital and they admitted the women for five days.

Participant J from Lev:

Reported on the state of the women accompanied by a nurse to the ambulance on transfer to the hospital.

The patient was well when she went to the hospital though she was complaining of pain on the chest. Another thing that I heard was that, she was also complaining of dizziness, I heard from the nurse who accompanied the patient to the ambulance because I was already in the nurse's home bathing.

In the quantitative study, the researcher questioned participants on the issue of accompaniment of the women and if they would leave the women with eclampsia alone for purpose of calling an ambulance. The results of the study in Table 4.6 showed that more than half of the participants (65.5%) indicated that they would not leave women with pre-eclampsia alone whereas 28% will do so and 6.5% don't know what to do. From the researcher's knowledge of the way PHC services are provided, if after the initiation of the treatment the midwives observed that the woman's condition is deteriorating instead of improving, the midwife must accompany the woman to hospital herself in order to continue with drug administration where necessary. Managers should support midwives by allocating enough staff to PHC facilities so that when one midwife accompanied the women to the hospital, the facility is not left unattended, even though in most of the facilities, they will be left unattended especially during the night where one midwife was allocated with a junior

nurse (Table 4.6). According to Mahnava et al. (2015), managers indicated shortage of midwives in maternity ward where one was allocated with 2 enrolled nurses instead of 5 midwives. The Association of Ontario for Midwives (AOM) indicated the experiences of midwives in the management of women with complicated cases in labour.

Midwives indicated that as part of their management they referred the women to hospital using an emergency ambulance and sometimes they had accompanied women who were not responding well to management to the hospital where they handed over the report to staff on the next level (Thompson, Ford, Greenow & Roberts, 2011; Hinton, Locock & Knight, 2014; AOM, 2015). The implication of accompaniment of the women to the next level as an activity and according to the theory by midwives will lead to improve maternal health. However, in facilities with shortage of staff, women will remain unattended and patients who will come in need of health care services will suffer while waiting for the midwives to return (Kellogg, 2004).

4.3.2.1.5 Sub-Theme 2.1.5: Existence of Feelings of Disrespect by the Professionals from the Next Level of Care

Participants reported that they felt that the hospital staff was undermining them because they managed to diagnose a woman as having pre-eclampsia. At the hospital the woman was turned back with another diagnosis, then the women came back to the clinic being worse than before. This angered some of the nurses because if the woman was managed as diagnosed by professional midwives, complications of the condition could have been avoided.

Participant A from Tshn:

I felt that, the hospital staff was undermining the clinic staff,

because when I referred that patient, she was having the blood pressure of about 140/90 and two pluses of protein in urine but the doctor from the hospital returned her back with a diagnose of gestational hypertension. Now I had to accompany the patient back to the hospital with imminent eclampsia. I was not happy at all (also showing it by moving her head sideways).

Participant J from Lev:

The participant indicated that the maternal guidelines guided her on the management of the woman. Even quoted to the hospital staff the number of the page that guided her in the management of the patient with imminent eclampsia. The participant indicated that at the hospital the doctor queried her on the management that she offered to the woman because the midwife did not give the women Magnesium sulphate on the buttocks, but she only loaded the drugs through an IV line.

The Doctor from the hospital called and asked me why I delayed to give magnesium on each buttocks, I explained that I was guided by maternal guidelines page 73 that indicated that, if I anticipated delay in the ambulance I must give magnesium and if it will arrive faster, I must not give the client magnesium on the buttocks. The women will receive it at the hospital. He told me that at the hospital, they are using protocols not guidelines that guide them to give it as soon as possible following the loading drugs. He then confirmed that with me after checking the information I have told him from the maternal guideline. I was managing the woman while opening it referring to it.

Participant H from Tsh:

Had to apologise to the doctor after she was called by the doctor who was also querying the participant's management. He asked the participant why she did not insert a drip to the women whom she suspected of having gestational hypertension.

> *At the hospital, the doctor called me and asked why I did not insert a drip on the patient, I told him that it was not necessary because the patient did not have signs of pre-eclampsia and she was not in labour. The doctor said it was wrong, so I apologized.*

Various sources, including The Institute for Safe Medication Practices (2017), indicated that in most health care settings, there were some forms of disrespect amongst health care professionals, which involve disrespect amongst peers, interdisciplinary teams and also patients. Disrespect was in a form of intimidation such as abusive language, some refused to give information and even physical abuse. In a study, which was also carried out amongst nurses and physicians, regarding respect in a work place, disrespect was in a form of yelling to each other, cursing and inappropriate jokes. Researchers discovered that at the end disrespect affects patient care (Johnson, Burke & Gielen 2012; Leape, Shore & Dienstag, 2012; Grissinger, 2017). The implications of feelings of disrespect by the professionals from the next level of care, according to the theory, will lead to mistrust of the hospital staff by primary facility staff. When professional midwives from the PHC facilities think of transferring women to the hospital, they would be hesitant and, as a result, the women will suffer (Kellogg, 2004).

4.3.2.1.6 Sub-Theme 2.1.6: Presenting Symptoms a Reason for Women to Visit the Health Care Facility

From the results, participants indicated that most pregnant women came to the clinic because they experienced symptoms that prompted them to seek medical care. Like any other condition, patients did not just present to the health care facility for no reason. Almost all midwives were given a history or complain by the pregnant women. Some women presented themselves because they experienced some blurred vision.

Participant J from Lev:

Reported that the women presented to the health care facility because of epigastric pain, elevated BP, swelling and drowsiness**.**

> *A woman came presenting with epigastric pain, one on the right side. One can see that she was in real pain. When I checked her blood pressure, it was 190/120.*

Participant C from Tshm:

Concurred when indicating that the women were told to go to the hospital, but did not listen to the advice they were given. Hence, the women put their lives in danger.

> *I came across a high-risk woman with swollen legs and she was told to go to hospital and the women decided not to go and came back to clinic. The woman was drowsy, with blurred vision, and she looked like she was confused.*

Participant B from Tshn:

Reported a primigravida who came to the clinic complaining of abdominal pain, but on examination, the participant discovered that the woman was having pre-

eclampsia.

> *It was a 20-year-old primigravida, 32 weeks pregnant, she was complaining of abdominal pains. When she arrives, she looks fine but her blood pressure was high, 140/90 and she had two pluses of urine with oedema of the lower limbs.*

Another participant indicated that a woman with previous C-section came to the facility with signs of pre-eclampsia. A neighbour brought the woman to the facility.

Participant K from Muts:

> *I remember a case that presented with pre-eclampsia sometimes back, she was previous c/section patient. She started to experience problems at home, a neighbour brought her to the clinic. We took her blood pressure and it was 170/110 and urine with protein two pluses. Her legs were swollen.*

WHO (2010) stipulates the need for women to be taught the signs and symptoms of danger signs in pregnancy so that they can report to health care facilities in time. Women who presented themselves as soon as they discovered that things were not right will lead to initiation of treatment early and result in good maternal outcomes (Kellogg, 2004). Health care facilities must be accessible to women so that if there is a need for referral of women to the next level, it can be done on time so that emergency conditions are managed earlier. For that reason, WHO recommends the creation of maternity waiting homes, especially for high risk women. If this can be done, pregnancy-related complications can be prevented without using sophisticated and expensive technology (Kelly et, al, 2010). Even though women presented with symptoms to the health care facility, results from a study conducted by Stellenberg et

al. (2016) amongst PHC workers indicated something different. It was discovered that there was insufficient knowledge from almost half of the midwives regarding clinical signs and symptoms related to hypertensive disorders in pregnancy, especially from severe pre-eclampsia and some did not have knowledge of pre-eclampsia at all. Therefore, midwives were seen as a hazard to women because they cannot detect hypertension early. Hence, they will not even initiate the correct management. As such, the two researchers recommended continuous training and education to midwives (Stellenberg et al., 2016).

4.3.2.2 Theme 2.2: Management of Women with Gestational Hypertension Pre-Eclampsia and Eclampsia

Most participants indicated that they haven't come across women with gestational hypertension though others have seen the women, managed them and transfer them to the next level. A good relationship was seen between the clinic and the hospital because midwives do communicate with the hospital staff for advice as indicated by the maternity care guidelines (NDoH, 2016). Before transferring women with either pre-eclampsia or gestational hypertension, midwives gave the women treatment, some as start dose. The South African Maternity Care Guidelines indicate that the management of hypertensive disorders in pregnancy depends on the severity of hypertension. Women with mild to moderate pre-eclampsia are to be given hypertensive drugs, in addition to hypertensive drugs in severe to imminent eclampsia, Magnesium sulphate must be added followed by referral to the hospital. With Magnesium sulphate, intramuscular injection of the drugs will depend if transfer will be prompt on not (NDoH, 2016). Other participants adhered to maternal health guideline while others did not adhere to the guideline in their management of women.

Participant L from Tiy:

Indicated management as follows:

I have managed them, I have seen few cases with gestational hypertension, I managed them with Methyldopa 1 gram and referred them to hospital for high-risk clinic, where they continue with their ANC till delivery.

The maternity health care guideline stated that the midwife must contact an experienced doctor for advice on initiation of treatment before initiation then transfer the women to the hospital (NDoH, 2016). So the midwife did not adhere to what the guideline stated. Townsend, O' Brien & Khail (2016) indicated that the management of hypertension in pregnancy is meant to keep the woman and her pregnancy safe until delivery. The afore mentioned researches further mentioned that pregnant women with chronic hypertension must be referred to the hospital as soon as they discovered for management. Their management will include a low dose of Aspirin from the gestational age of 12 weeks because they were at high risk of developing pre-eclampsia. From the theme, the sub-themes emerged as indicated in Table 4.10.

4.3.2.2.1 Sub-Theme 2.2.1: Gestational Hypertension a Rare Condition as Compared to Eclampsia Based on Admitted Cases

Most of the participants have reported that gestational hypertension was rare. If they came across women with high BP after 20 weeks of pregnancy, it may be one out of ten pregnant women. May be this might be caused by chronic hypertension, because few participants even mentioned that most of the women were already known to be hypertensive patients who were on treatment. Some of the factors that might be lowering the diagnosis, include a shortage of BP machine in which for a month or two the facility will operate without the machine. Another factor might be the type of duty schedule list used by nurses, a midwife would be off duty for about 6 days and pregnant women with gestational hypertension be seen by other midwives who are on duty that time. Below are some of the quotations cited by participants in relation to

gestational hypertension being a rare condition.

Participant M from Mash:

> *We had such cases but are not many, may be one out of ten. If I booked the patients and found that her blood pressure is around 140/110 or 100, we book her, then I refer her to the hospital stat, but such cases are few may be one or two but those that I met, most of the time were the women in labour.*

Participant B from Tshn:

> *We don't have a lot of those cases, though I have seen one that developed hypertension during pregnancy and I gave her methyldopa and refer her to the hospital.*

Some participants concurred and indicated that they heard of gestational hypertension from their colleagues though others managed the condition. The participant added the information by indicating that the baby of the women died.

Participant R from Mph:

Indicated her management as follows:

> *I have never managed a patient with gestational hypertension, but I have heard and saw the women once in 2008, one woman with gestational hypertension that was attending ANC in our facility. She was attended by my colleagues during her ANC and her child died.*

Participant K from Muts:

> *We get them but they are few, because many women know*

themselves as known hypertensive patients, they go and book at the hospital, but we meet few cases in which during booking the women's blood pressure will be high and the patient will say I knew that my blood pressure was high.

Amongst midwives in the study, gestational hypertension was confused with essential hypertension. This might be because of the explanation that it was a rarer condition than pre-eclampsia or eclampsia. Unlike the results of the qualitative research study where midwives were able to explain the differences between the two types of hypertension, with quantitative results, some midwives were not sure of the type of hypertension in pregnancy and when it occurs. This was shown in Table 4.5 on the competencies of professional midwives in relation to the implementation of maternal health guidelines, hypertension in pregnancy.

Nearly half (56%) of participants agreed that gestational hypertension occurs before 20 weeks of pregnancy and 58.5% agreed that essential hypertension occurs after 20 weeks of gestation in pregnancy—both were incorrect statements. This was surprising from the researcher's point of view. The results of the study in the table of training received by midwives, it was indicated that an overwhelming number of midwives received training on the management of pregnant women with Hypertensive disorders in pregnancy. Provision of such knowledge should enabled midwives to carry out different functions in their working environment; hence, implementation of maternal health care guidelines was done correctly. For midwives who were exposed to training on management of hypertension in pregnancy as shown in Figure 4.1, more than two-thirds of the participants (71.5%) indicated exposure to such training whereas 28.5% were not exposed.

A was study conducted by Townsend and associates in 2016 in the UK in relation to hypertensive disorders in pregnancy. Researchers discovered that some women, who were diagnosed with gestational hypertension during pregnancy, might have suffered from hypertension long ago before they fell pregnant. The issue of women being diagnosed during pregnancy was because they have never accessed the health care services before. The results of this study indicated that gestational hypertension was not a rare condition than pre-eclampsia. In addition, for an unknown hypertensive pregnant woman, during early antenatal visit, at the age of 16-20 weeks, the vasodilation system in pregnancy can cause uncertainty of BP readings (Townsend et al., 2016).

Another study that is related to the current one, results indicated that the diagnosis of gestational hypertension was rare because of chronic hypertension though pre-eclampsia was also rare before the third trimester. The researchers further indicated that if a woman was diagnosed with preeclampsia in the first or second trimester, molar pregnancy must be excluded (Ahmed, Rezai & Broadway-Stringer, 2016). The implications of failure to recognize and differentiate gestational hypertension and essential hypertension as related to the theory will lead to pregnant women not receiving appropriate care and, hence, result in failure to implement the guideline correctly (Kellogg, 2004). This implies that a woman with gestational hypertension will be treated as a known patient with hypertension and, as a result, midwives will not refer her to the next level and complications might arise. This can also affect the health of maternal and foetal well-being.

4.3.2.2.2 Sub-Theme 2.2.2: Professionals at the Next Level of Care Informed About The Patients in Order to Prepare to Receive Them

The standard of transferring an urgent patient is that, when a midwife has diagnosed a woman who needs an urgent attention, the hospital staff must be warned so that

they prepare timeously for the arrival of the patient (NDoH, 2016). This does not apply to pregnant women only, but to all the patients who are critically ill and in need of urgent attention. From the results, the researcher discovered and heard that participants who transferred the pregnant women to the hospital called the hospital staff in order to report the women who needed urgent attention. The hospital, in turn, prepared for the arrival of the women. Participants indicated that after managing and giving the women pre-referral treatment, together with their colleagues called the hospital so that they prepare for the women. When she arrived at the hospital, the woman was immediately taken to theatre.

Participant Q from Man:

Indicated her experiences as follows:

> *Then we managed to load her with Magnesium Sulphate. I transferred her to hospital, when she arrived at the hospital because I have already called the hospital, they took her to theatre immediately and operated her, and the child survived.*

Participant M from Mash:

Concurred and indicated that she called for an assistant from her colleague who was off duty to come and assist her. While waiting for an assistant, she then contacted the hospital to let them know about the condition of the woman before transfer.

> *I called our sister that stays near the clinic, while she was on the way, I called the hospital and explain to them the condition of the patient. They told me to transfer the women to hospital because such cases are managed at the hospital. I could not transfer the patient to hospital without calling them first in order to explain the condition to them. I then called an ambulance. I*

also inserted a urinary catheter and her urine was diminished.

Participant A from Tshn:

Concurred also by indicating that when they reached the hospital, the hospital staff were prepared to receive the women. Then she left the women in their hands.

> *While on my way to the hospital, the hospital staff was informed about the patient and her condition. When I arrive at the hospital, the staff was waiting for the patient. I left her with the hospital staff.*

Information regarding the matter in relation to informing the hospital staff by midwives are not available under quantitative results. Though from the data collected on managers in relation to support offered to midwives, referral routes were made known to midwives whom they knew when to refer a woman with gestational hypertension, eclampsia and pre-eclampsia. According to WHO, it was indicated that receiving a women at the hospital from the maternal home made things easier because if the hospital was informed about the transfer of the women and her condition, they will be ready for the women. All the necessary preparations will be done in advance, which included all the records required preparation of theatre equipment. It was observed that such type of transfer and preparations will cause the women to come back again for more services in the future (Friesen, White & Byers, 2008; WHO, 2010; Patterson & Wears, 2010). The implication of informing the hospital staff about the women being transferred to the hospital according to the theory will lead in women to receive immediate care by the next level of care. The staff will also be orientated regarding the condition of the women and their preparation goes in accordance to with the women's condition (Kellogg, 2004).

4.3.2.2.3 Sub-Theme 2.2.3: Treatment Used to Treat the Patients Outlined

The treatment of women was already discussed under the main theme 2, theme 2.1 and sub-theme 2.1.1 as stated in the Maternity Care Guidelines, 2016. Almost all participants related the treatment of gestational hypertension and pre-eclampsia in their management. This has shown the researcher that indeed professional midwives were implementing the maternity guideline though some implemented the guideline inadequately. Some participants indicated that they did not load Magnesium sulphate because according to the protocol they were using, they were advised not to give Magnesium sulphate if they don't anticipate delay in the transfer of the patient.

Magnesium sulphate is supposed to be loaded because it prevents eclamptic attacks though it is not given for the treatment of high BP. Therefore, anti-hypertensive drugs must also be given to reduce high BP. Some participants indicated giving women anti-hypertensive drugs in their management though, most of participants did not. All the participants below indicated the drugs given to the women, some depending on the severity of hypertension.

Participant C from Tshm:

> *I have come across a woman with gestational hypertension, she was 26 weeks pregnant, her 1st visit was okay, with normal blood pressure, at 28 weeks, and her blood pressure was elevated. Then I gave her Methyldopa 500mg stat then, transferred her to hospital because her blood pressure was 160/100 mmHg.*

Participant E from Thh:

> *It depends on the systolic and diastolic blood pressure, but*

with systolic blood pressure, if it less than 160 diastolic not above 100, when a women comes for ANC I gave her methyldopa and refer her to hospital, but if it is severe BP 160 or 180/110 mmHg. I came across such a patient, fortunately we were two registered midwives, one was inserting an IV line, I was inserting a urinary catheter, then I loaded all the Magnesium Sulphate, 14 of them, 5 on each buttock then 4 in 200 ml vacolitor then it remained running well.

Participant J from Lev:

I checked her blood pressure three times using different blood pressure machines and it remained the same. I quickly inserted 200 ml of Ringers Lactate on her and injected 4 gram of magnesium sulphate in the drip. I closed the other side of the drip and open 200 ml so that it runs for 20 minutes, then I gave her 5 mg of Magnesium sulphate on each buttock.

Participant K from Muts:

We took her blood pressure and it was 170/110 mmHg, one registered nurse inserted a catheter, another one a drip, one stabilizing her, reassuring her, and calling an ambulance. In her drip we inserted 200 ml of Sodium with 4 grams of Magnesium sulphate.

The participant K from Must:

Continued and reported that they only loaded the magnesium sulphate that was given on the IV line then the ambulance arrived before they can go to another step:

Because the ambulances are faster in our clinic, it came and

the patient was managed with 1st step of magnesium in 200 ml of sodium. We did not reach the second step of magnesium that is given intramuscularly.

From Table 4.6 under the subheading, implementation of maternal guidelines, hypertensive disorders in pregnancy, the use of treatment on the management of pre-eclampsia was also outlined where 27.5% participants agreed that they will continue to give Magnesium Sulphate even when the respiratory rate is less than 16 beats per minute (bpm) whereas 18% of participants disagreed and 9% of participant did not know if they can continue with the treatment. Midwives who indicated that they will continue with Magnesium sulphate when the respiratory rate is less than 16 bpm, showed that they were not competent in the management of a women with pre-eclampsia, continuing with magnesium sulphate will kill a women rather than preventing eclamptic attack.

From Table 4.4, out of 200 participants, 109 indicated that they will continue with the administration of Magnesium sulphate if the patellar reflexes were present whereas 91 participants indicated that they will stop the administration of the medication. The presence of patellar reflexes must guide the midwife to continue administering the drugs. Karel, Bhandari, Bhatt & Dahal (2017) conducted a study on the use of hypertensive drugs during pregnancy and discovered that Aldoment was a the most effective and safest drug to use when a women had gestational hypertension though it was associated with decreased head circumference in the baby. When comparing the minor effects that it had on the baby, those who received the drug, it has caused a delay in the development of the infant which was better than for a woman who had never received it during pregnancy. It was discovered that Magnesium sulphate if administered to a women with pre-eclampsia, reduces the risk of eclampsia and it is safe for both mother and baby, hence, it will reduce maternal deaths (Kattah et al.,

2013; Crowther, Brown, McKinley & Middleton, 2014; Payne, Hutcheon, Ansermino & Hall, 2014). The implications lack of knowledge as related to the theory in relation to when are the drugs supposed to be given will result in poor implementation of the guideline hence poor maternal outcomes. Those with knowledge of the guideline, will be confident in the management of the women hence reduced maternal morbidity and mortality rate (Kellogg, 2004).

4.3.2.2.4 Sub-Theme 2.2.4: Usage and Adherence of Maternity Guidelines Assist in Proper Management of Patients

Participants reported that maternal guidelines was of help to them and it guided them in the management of pregnant women with pre-eclampsia. This made them to feel confident in the management. Other participants referred to the guideline as the best tool in the management of women.

Participant J from Lev:

> *Maternal health care guideline was the best tool in the management of that woman with severe pre-eclampsia; it has shown me the whole management as long as everything is available (resources). It helped me a lot.*

Participant Q from Mak:

Concurred and indicated:

> *When she was jerking, I opened my guideline and manage her according to what the guidelines said. I even called an ambulance for her. The ambulance did not delay because it was stationed near our facility.*

Participant K from Muts:

Indicated that during consultation of the guideline, one midwife was reading while another one implementing the information that was read and the third midwife was reassuring the women. The three midwives remained revising the management using the guideline while the woman was taken to the hospital.

> *Another registered nurse was checking the guideline while another one was implementing it. And another one was communicating with the patient. When the patient left, we remain revising the guideline. Asking each other questions, like have you seen, did we do the correct thing with the patient, we took the guideline and check because we are always doing in-service training because one day one will meet such a case alone.*

Though some participants indicated that they failed to consult the guideline due to pressure of being alone as a professional midwife, so they managed the women according to experience.

Participant M from Mash:

Indicated her experiences as follows:

> *I am used to study the guideline while I am not busy, like I will tell myself that today; I am studying PPH so that when I came across such a condition I know what to do, because it is difficult to consult a guideline when one is having a real patient. Like the patient we are talking about, I did not have time to open it, I just manage the patient, it is not easy when one is alone with a junior nurse and there is no time to open a*

guideline. Meaning that the time for one to can master this condition is when one created a time by herself to study the guideline.

From Table 4.6 on the implementation of maternal guidelines related to management of a woman with hypertensive disorders in pregnancy, it was evident that some midwives knew the importance of using maternal health guidelines that guided them in decision-making. More than half of the participants (65.5%) indicated that they would not leave a woman with pre-eclampsia alone whereas 28% will do so and 6.5% don't know what to do. The maternity care guideline used in South Africa indicated that the midwife must shout for help rather than leaving the women unattended.

Though support offered by managers in relation to allocation of midwives, especially for those who indicated that they failed to implement the guideline properly because they were working alone as a midwife was already outlined in the discussion of the management of the women with PPH. From a study conducted in one of the PHC facilities in South Africa on health care professionals, it was discovered that health care professionals were following protocols and policies when treating patients and, as such, their level of care was rated as good (Visage & Schneider, 2014). Another study was conducted in Malawi on adherence to guidelines on the management of birth asphyxia by midwives, it was identified that there were gaps in the implementation of guidelines where midwives skipped 9 steps out of 21 in the resuscitation of the babies (Chikuse, Chirwa, Maluwa, Malata & Odland, 2012). The implications of midwives who indicated that they would leave a pre-eclamptic woman to call for an ambulance were putting the lives of women in danger. The woman can have an attack at any time. The woman can injure herself or fall from the bed, hence, two lives can be lost. This in turn will increase the incidences of MMR as an outcome.

Those who indicated the implementation of the guidelines and the knowledge of its content will reduce the rate of maternal mortality (Kellogg, 2004).

4.3.2.3 Theme 2.3 Support Experienced During Management of Complicated Maternity Cases

Participants reported lack of support from their fellow colleagues, but this was not done intentionally, the cause was shortage of midwives, especially during calls because one midwife was allocated alone at night with a junior nurse. Again, support through site visits by programme managers was not enough because most participants had seen programme managers in their facilities a long time ago. Participants also reported that they were angry because of the decisions made by hospital staff.

Participant A from Tshn:

Cited her experiences as follows:

> *I was alone with the assistant nurse. I think if another midwife was on duty, we could have assisted each other because it is not good to come across such a patient while you are alone. If you are two, you will be able to help each other with the management. And another thing was that I was not well the way the hospital managed the women, because I referred her and they discharged her hence the women came back to the facility being worse.*

A study conducted in South West Nigeria on the support offered to women who suffered from hypertensive disorders in pregnancy indicated that midwives supported each other during management. Hence, the support promoted compliance and adherence to treatment and resulted in good maternal outcome (Osamor, 2015).

From the theme, four sub-themes emerged as indicated in Table 4.10.

4.3.2.3.1 Sub-Theme 2.3.1: Existence Versus Lack of Support Experienced from Colleagues During Care of Women With Complications

From the results of the study, participants reported lack of support from their colleagues, especially during the night. When taking calls, one midwife was allocated with a junior nurse to manage all emergency conditions that presented at night which included conditions such as pre-eclampsia. Participants added by saying that they were used to manage the women with hypertensive disorders in pregnancy because of the knowledge they gathered from the maternal guideline.

Participant B from Tshn:

> *I was alone as a registered midwife and it was not easy to manage a woman with pre-eclampsia, but because we are now used to this cases, one is always prepared by studying the maternity case guideline, it is now our friend. I have mastered the skill of managing such cases.*

The same participant indicated that even during the day, sometimes a midwife will find herself alone, especially in facilities where two midwives were allocated being two per shift.

> *We work being two professional nurses, the other one has to go and attend a meeting, I was left alone as a registered midwife with a woman who was coming for 1st visit, seeing all patients including minor ailment.*

Participant D from Dav:

Concurred when indicating that that she was the only sister working with a junior nurse doing all the work by herself.

> *Management will be done by one sister alone because I will be telling the junior nurse what to do while most of the things are done by the midwife. Especially if there is a newly qualified registered nurse, she experiences a lot of problems and she will have to call others telephonically so that she knows how to manage such a patient. If there is no phone again is a challenge.*

Other participants indicated that during the day when they came across women with either pre-eclampsia or eclampsia, all the midwives who were on duty came together in the management of the women.

Participant K from Muts:

Indicated her support as follows:

> *We took her blood pressure and it was 170/110, one registered nurse inserted a catheter, another one a drip, one stabilizing her, reassuring her, and calling an ambulance. In her drip we inserted 200 ml of Sodium with 4 grams of Magnesium sulphate.*

Participant L from Tiy:

Concurred and said:

> *The patient was helped by many nurses, she was injected*

magnesium sulphate, Ringers Lactate was put up and 200 ml of Sodium. Paramedics were called and they responded immediately within 30 minutes. It was not easy for her to respond, every 30 minutes even with paramedic, she was repeated with Magnesium.

From Table 4.5 on the challenges faced by professional midwives, the results of the study showed that almost 155 participants indicated that the number of midwives did not correlate with the number of pregnant women seen on a daily basis and, as such, there was lack of support from other midwives, especially during the night, but during the day, support from other midwives were available. Lack of support during the night or sometimes during the day in some facilities might have been influenced by shortage of staff due to inequality in the distribution of health care personnel and failure to hire more staff to replace those who left the services. From Table 4.6 on the support offered by managers, only 16.7% of the participants indicated that two midwives were allocated during the night to assist each other with the implementation of the maternal health guideline, whereas the majority (83.3%) indicated that two midwives were not allocated during the night to render 24-hour services.

A study conducted by Visage and associates in 2014 Tanzania amongst midwives, unit managers and women in two hospitals. The results indicated that midwives were supporting each other during the implementation of maternal health care guidelines. However, support from the medical practitioners was rare. Doctors did not back midwives up in times of need. Though they were available, on call system, when midwives called them in a case of emergency, they were nowhere to be found (Visage et al., 2014; Mpambije, 2017). The implications of lack of support as related to the theory might lead to poor maternal health care services by midwives because of burnout and work overload and, hence, poor maternal outcome (Kellogg, 2004).

4.3.2.3.2 Sub-Theme 2.3.2: Existence Versus Lack of Support from Emergency Services for Transporting Patients to Next Level of Care

Most midwives reported delay in the ambulance when they requested it to come and collect women referred to the hospital. Some indicated that the ambulance was delayed by more than an hour, some 1 hour 30 minutes to 2 hours. The participant below was working in one of the facilities that were 100 kilometres away from the ambulance services also experience the same ordeal. The participant reported causes of lack of support as shortage of the ambulance where one ambulance was catering for all the facilities in that area.

Participant B from Tshn:

Cited her experiences as follows:

> *They said they were having one ambulance which was catering all the facilities in our area, and it has gone out for another patient in a certain clinic far from our facility when I requested it.*

Participant J from Lev:

Concurred and indicated lack of support by ambulance services though her facility was less than 20 kilometers away from the ambulance services.

> *Ambulances are available but the problem is delay, you may call an ambulance and you will get an answer of that the ambulance that has gone to take another patient or it has gone to Polokwane. Sometimes there is one ambulance, a patient has to wait and it took 1hour, 1 hour 30 minutes to 2 hours.*

Other participants reported poor communication where one tried to contact the paramedics telephonically, but failed ending up tracing them through their cell phones. The participant further indicated lack of support where she called the paramedic who was off duty. That paramedic ended up by giving the participant a cell number of one paramedic on duty while time was running out for the women to be transferred to the next level for management.

Participant E from Thh:

> *Sometimes one will call an ambulance and their phone will not be working, hence I use my cell phone to call them also on their cell phones because we have their phones. Sometimes we call 112 and also not available. We have their cell phones because we were working with them down there. Sometimes you call a person who is off duty s/he will give you the cell phone of a person on duty. But most of them it took more than 1 hour or if it was fast it took 40 minutes.*

Another participant who tried to contact ambulance services and failed indicated lack of support from ambulance services where she end up staying with the women up to 3 hours before the ambulance took the women to the hospital.

Participant O from Mak:

> *Sometimes one will call an ambulance and their phone will not be working. We stayed with the patient for a long time and the problem was with emergency services. We stayed with the patient for the period of 2-3 hours and they came to take the patient to hospital.*

Some of the participants reported prompt response by ambulance services in which it

took about 15-30 minutes to transfer the patient to the next level. One participant indicated that even when there was a strike it did not took long.

Participant M from Mash:

> *The ambulance did not take much long, even 30 minutes did not reach though there was strike.*

Participant N from Mash:

> *About 15 minutes, sometimes you will call an ambulance and when you are busy writing a letter the ambulance will have arrived.*

From the results in Table 4.5 on the challenges experienced by professional midwives, it was evident that there was lack of support from the ambulance services because when midwives requested the ambulance, it took a longer period to come and collect the patient. The results showed that 80.4% of the participants indicated delay in arrival, hence, lack of support though few participants 18% from other facilities that indicated that they received support from the ambulance services in time. From the Table 4.7 on the support offered by managers there was lack of support from emergency services. More than half (63.3%) indicated lack of support from emergency services whereas 36.7% indicated that there was support from emergency services. From the researcher's experiences, there was lack of support from emergency services because sometimes one will call for an emergency ambulance, it will arrive hours later. Sometimes a midwife will transport the women to the hospital using her own transport which is not acceptable. Lack of support by emergency services according to the theory as an output will lead to delay in the initiation of treatment hence the women's condition will complicate leading to increase MMR as an outcome (Kellogg, 2004).

The results of the study conducted in Ghana indicated that midwives had a challenge in transferring women to the next level due to lack of transport. These challenges cause midwives to fail to implement maternal health care guidelines successfully hence failure to reach the MDGs (Banchani & Tenkorang, 2014). Results from another study conducted in relation to the state of ambulances in Durban indicated that there was a great disparity in the ambulance services. Ambulances were not utilized appropriately (Newton, Naidoo & Brysiewicz, 2015). Patients who really needed the ambulance services were denied the right to transport services while those who were not that much ill were transported to the hospital. This causes more shortage of ambulance that were not enough ((Silal, Penn-Kekana & Harris, 2012; Visage et al., 2014).

Another study was conducted in the rural areas of Ghana on patients who visited one of the PHC facilities, in relation to lack of support by emergency transport services (Banchani et.al., 2014). From the results of the study, patients were complaining because the condition of emergency transport was not up to standard, not having the necessary resources that an ambulance should have and not comfortable. Sometimes ambulance services were used for other purposes when women needed the ambulance was not available. The results further indicated that shortage of ambulances lead to one woman delivering on the farm (Banchani et.al., 2014).

4.3.2.3.3 Sub-Theme 2.3.3: Anger Emanating from Decisions Opposed by Next Level of Care on Referred Women

Participants reported that whenever they had transferred women with hypertensive disorders in pregnancy to the hospital, their management was questioned. Either the women will be discharged or they were called by doctors. Participants reported that the hospital staff was looking down upon them, the fact that the midwives from the clinic referred the women to the hospital and only to be turned back with another

condition.

Participant A from Tshn:

Indicated her experiences as follows:

> *I felt that, the hospital staff was undermining the clinic staff, because when I referred that patient, they returned her back, hence the patient developed imminent eclampsia.*

Participant F from Tsh:

Concurred and indicated that she transferred the women with elevated BP without signs of pre-eclampsia of signs of labour. The next thing was the doctor who called her asking why she did not insert a drip on the women.

> *At the hospital, the doctor called me and asked why I did not insert a drip on the patient, I told him that it was not necessary because the patient did not have signs of pre-eclampsia and she was not in labour.*

As a researcher, sometimes the doctors undermine the clinic staff, most of the nurses working at the PHC are more experienced and knowledgeable than doctors who are at the hospital. One of the researchers indicated that one of the solutions to resolve anger was to involve the personnel in decision-making regarding treatment and giving them feedback on the referred patient (Askham, Coulter & Parsons, 2008). In relation to anger it was indicated that if one deals with his/her anger, it will improve the person's work performance and job satisfaction (Maroney, 2012). According to Scheffler, Visagie & Scheider (2015), dissatisfaction was one of the causes of anger. The implications of anger as a result of opposed decisions by next level of care on referred women will lead to conflicts between the referring facility and

the health care personnel from the hospital, hence, the women will suffer from the disagreement between the two parties as a result, according to the theory (Kellogg, 2004).

4.3.2.3.4 Sub-Theme 2.3.4: Existence Versus Lack of Support Experienced by Midwives from Maternal Health Care Managers

Most participants reported lack of support by MHCM in most facilities. Most participants indicated that the only support they received most of the time was education and training related to maternal health care issues. Managers were seen in facilities when there was a problem in that facility, e.g., maternal death. Few participants reported that they only see managers when they attend the workshops.

Participant K from Muts:

Indicated lack of support through visits as follows:

> *Hmm, I don't know, support from programme managers in all programmes, we don't see them or is it because of transport, I don't know, they come when a women dies, the whole district will come. We meet them when we attend workshops, if not seeing them, maybe in other clinics, in ours, no.*

Participant L from Tiy:

Concurred and indicated:

> *We meet them when we attend workshops, apart from that, they don't come to check on how we are coping.*

Participant J from Lev:

Indicated that maybe the manager came in her absence.

You mean Mr... that person for support, but I have never seen him maybe he is coming in another group, I have never seen him coming for support, but I have seen him coming when there was a case of maternal death. Last year of unbooked

case.

Other participants reported that the last time they remembered seeing the manager was when there was a problem in the facility.

Participant F from Tsh:

We don't get support, I have seen the manager once when there was a problem in relation to a pregnant woman apart from that, the manager does not come.

Few participants indicated that MHCM do support them through visits, they even showed the evidence of their visit in the visitor's book.

Participant E from Thh:

Most of the time he visits us. You can even confirm from the visitors book. Many times he comes to see us.

From Table 4.7, out of 60 participants, 41 indicated lack of support through visits by MHC managers for the purpose of supervision and monitoring the implementation of the maternal guideline. The most support that MHC managers were offering to midwives was through continuous development and training. Managers were to visit midwives to see if they were implementing and conducting EOST drills as stated so that professional midwives acquired more knowledge through practice, is confident in themselves during the management of women with pre-eclampsia.

The visit will also identify challenges and barriers experienced by midwives on the implementation of maternal guidelines and be attended to as soon as possible. The NDoH has stipulated on the supervisory manual that, managers must draw a monthly supervision programme that stipulates the dates of support visits to each and every health care facility. The programme must be submitted to each facility so that health care professionals be aware of such schedule. The programme will also help the managers so that they offer support during the visit. The manual further indicated daily monitoring and supervision by OMN so that they evaluate the services rendered by health care personnel (NDoH, 2009). It is for that reason that participants felt non-supported by MHCM and OMN. The manual from NDoH prescribes how midwives are to be supported hence the expectation by participants are not fulfilled. Tibandebage and associates revealed that there was lack of support to midwives by managers; managers did not see the value added in a health care service delivery by staff (Tibandebage, Kida, Mackintosh & Ikingura, 2016). Even when the staff indicated a shortage of supplies, managers were not bothered by their requests (Tibandebage, Kida, Mackintosh & Ikingura, 2016; Mpambije, 2017; Hanrahan & Wiliams, 2017).

The implications of lack of support through site visits by managers as an activity according to the theory will lead to failure to identify the challenges experienced by midwives in the provision of maternal health services and, hence, poor implementation of maternal health guidelines as an outcome (Kellogg, 2004). Managers will not be in a position to identify the gaps on the side of midwives in relation to maternal guidelines implementation. They will not be able to evaluate the care rendered and received by women.

4.3.2.4 Theme 2.4: Reflecting the Challenges Experienced by Midwives in Managing Gestational Hypertension, Pre-Eclampsia and Eclampsia

Participants reported that they experienced challenges in relation to implementation of maternal health care guidelines when providing maternal health care services to pregnant women. They have indicated challenges such as shortage of resources, both human in a form of professional midwives and material, e.g., Magnesium sulphate and BP machines. They also experienced delay in the ambulance services when they requested one.

Participant O from Mak:

Indicated her experiences as follows:

> *The patient was fitting already. We took her to labour ward that day, we had a problem, we tried to call EMS and they did not respond. We stayed with the patient for a long time and the problem was with emergency services. We stayed with the patient for the period of 2-3 hours and they came to take the patient to hospital where the patient was further referred to tertiary hospital where she delivered there.*

According to Scheffler et al. (2015) in their studies conducted in Western Cape, health care professionals indicated that they were experiencing challenges in relation to resources that included insufficient staff, shortage of equipment and shortage of transport that had a great impact in the health care services delivery and the patients. The sub-themes that emerged from this theme are indicated in Table 4.10.

4.3.2.4.1 Sub-Theme 2.4.1: Shortage Versus Availability of Drugs in the Health Care Facilities Experienced

Participants reported shortage of Magnesium sulphate though some indicated that they have enough stock. Those who indicated shortage mentioned that they were only provided with 20 vials of Magnesium sulphate, and they have used 14 on the patient, and now they were left with 6 vials which were not enough for the next patient. The participant indicated that in their facility, they had few cases of pre-eclampsia since the beginning of the year.

Participant B from Tshn:

> *I am having a problem now because of shortage of drugs. We had few cases since the beginning of this year. As a facility, we are only having 20 doses of Magnesium Sulphate; I had a case last night in which I have used 14 doses of magnesium as a loading dose. I am worried because I am only having six vials and if another patient comes, I will not be able to help her with the correct doses.*

Participant G from Tsh:

Concurred when indicating shortage of Magnesium sulphate as follows:

> *Drugs especially those used in the management of pre-eclampsia are not enough if you can use them now on the patient, the next patient will not have enough.*

Participant P from Lam:

Reported also shortage of Magnesium sulphate and other drugs such as iron supplements as follows:

> *Sometimes were ran out of stock especially Magnesium Sulphate. We are having twenty vials only; they refuse to give us more than that." Also iron supplements and Pregmal are not available.*

Other participants indicated that they have 20 vials that were available in the emergency trolley, pre-eclamptic box and surplus stock in their drug storeroom.

Participant E from Thh:

Expressed her information as follows:

> *We are having enough stock, because we are having 20 if I have used them, I quickly go to store room to replace them because our clinic is busy, so to avoid shortage, I replace them as soon as possible.*

The results of quantitative research study in relation to shortage versus availability of drugs, especially Magnesium sulphate was different from the qualitative research study. From the results of the study in Table 4.5 on the challenges experienced by midwives on the management of a woman with pre-eclampsia, most participants (74.5%) indicated that they had enough drugs that manage pre-eclampsia whereas 25.5% indicated shortage of the drug. Again Table 4.7 on the support offered by managers on availability of drugs, almost all participants (95%) indicated the availability of drugs that manage pre-eclampsia at the PHC facilities.

Only 5% indicated shortage of the drug, i.e., not all the facilities had enough stock few facilities were running short of the drug. According to Samal & Dehury (2015), there was poor access to drugs used to manage women with pre-eclampsia, e.g., Magnesium sulphate that was not available.

In relation to availability of drugs, a study conducted in the rural health care facility of Nigeria indicated that shortage of drugs was caused by supply chain management where they will delay supply of drugs to the facility, sometimes they deliver drugs that were not ordered and supply poor quality drugs.

There were no measures in place to can hold the responsible personnel so that they account to their actions and that was seen as it will make the problem of poor supply to drugs to continue. Lack of drugs will mean that even if the women come to deliver at the facility, without drugs it will not be of use. This will also contribute to MMR (Mkoka, Goicolea, Kiwara, Mwangu & Hurtig, 2014; Bateman, 2013). A study was conducted on the implementation of principles of PHC on patients who indicated shortage of medicine in the facility where mothers were to buy drugs for their children, but one women failed to do so because she did not have money do to so. Hence, the child did not receive the drugs (Visagie et al., 2014). The implications of shortage of drugs as an output and according to the theory will mean that women will not receive their required doses of drugs, which will lead to failure in the implementation of the guideline correctly, hence, increased maternal morbidity and mortality rate as an outcome (Kellogg, 2004).

4.3.2.4.2 Sub-Theme 2.4.2: Shortage Versus Availability of Equipment in the Health Care Facility Experienced

Some of the participants reported shortage of equipment such as BP machines in which they were unable to detect high BP in advance. The researcher has worked in one of the PHC facilities; she had experienced also shortage of BP machines. For months the facility operated without it. How can a midwife operate without equipment, especially BP machine, it is a crucial equipment that must always be available.

Participant F from Tsh:

Indicated the need for a BP machine as follows:

> *Equipment such as blood pressure machine is of importance and we need them. I think every facility needs it.*

Participant O from Mak:

Concurred and indicated the shortage of equipment in which as a facility as follows:

> *Another thing is shortage of equipment, because in our emergency trolley, we don't have patellar hammer, how I can check the reflexes of a women in order to continue with Magnesium Sulphate.*

Participants J from Lev:

With advance midwifery stipulated, the shortage of BP machines and the need for cardiotocography (CTG) machines in their facilities for the purpose of augmenting pregnant women who were not progressing well in order to monitor the foetal and maternal well-being. The participant indicated shortage as follows:

> *I see that the most important thing that can be purchased in our facility is a CTG machine because if I need to argument the patient, how can I argument her without it, because with the Doppler it moves anytime from the patient so CTG machine can work well. If the women stays being 2 cm without progressing with the fetus health rate being okay, and her pelvis is adequate, no abnormalities in her, I can argument such a patient and she delivers well. I think every facility needs it. We really need that CTG machine. But equipment are still a*

problem, like blood pressure machine. We need mounted BP machine.

Other participants indicated the need for delivery packs because of shortage thereof. One participant indicated that the facility has one set which was complete and the second one they had to improvise. Many facilities do have shortage of equipment that constitute a delivery pack.

Participant L from Tiy:

Like delivery pack, in our facility, we are having one and even that one we have sacrificed to have it because its equipment are incomplete.

From Table 4.5 on challenges experienced by midwives in the implementation of the guideline, the results of the study showed that most participants (63.7%) indicated shortage of equipment of basic essential whereas 36% indicated they had equipment. Table 4.7 on support offered by managers indicated that there was a great shortage of essential basic equipment such as BP machines. This was shown by 33 participants who indicated the dire need of such equipment. Shortage of resources which included staff and equipment resulted in poor implementation of maternal guidelines and was seen as a barrier for midwives to implement the guidelines correctly. Some of the pregnant women were even diagnosed late and treatment for hypertensive disorders was initiated late. Another study was conducted on 440 health care workers in the rural district of South Africa, from the results, workers complained about shortage of both human and material resources in a form of machines that measures the level of BP from women, the participants reported that the results of shortage of those equipment led to poor maternal outcomes (Eygelaar & Stellenberg, 2012).

A study conducted by Darega, Nagasha, Teshale, Toloshi, Yadashi, Shewafere & Mintesinot (2016) revealed that lack or resources resulted in poor quality nursing care, this study was conducted on 43 nurses who worked at Goba, Robe and Bale Zone. It was revealed from the study conducted in Tanzania amongst midwives that there was shortage of resources in a form of supplies such as gloves. This was indicated from public facilities where now the hospital was flooded by patients because of shortage of supplies. It was indicated that the hospital was buying resources from money which was contributed by end users. Because of this shortage, women had to buy resources from pharmacy and if they don't comply, midwives became angry (Tibandebage et al., 2015). Various authors indicated that midwives were complaining regarding shortage of equipment which were impeding midwives to render maternal health care services (Bachani et al., 2014; Scheffler et al., 2015).

The implication of shortage of equipment will result in failure by professional midwives as inputs, to diagnose gestational hypertension, pre-eclampsia or eclampsia in time. There will be delays in initiating treatment to women predisposing both the mother and her newborn to danger, hence, increased MMR as an outcome (Kellogg, 2004). It also put midwives in danger of litigation by the SANC.

4.3.2.4.3 Sub-Theme 2.4.3: Lack of Adherence to Medical Advice by Women Result in Unmanageable Complications

The Maternity Care Guidelines of South Africa (2016) indicated high risk women who must be given continuous advice and history taking every time they come for ANC so that they can prepare themselves in advance (NDoH, 2016). Participants reported that high risk woman with complications were told to go back to the hospital for delivery, but women did not want to deliver at the hospital. Participants reported that the women had presented to the clinic while they were about to experience eclamptic

attacks. When the participant checked the women's records, she discovered that they were high risk patients who had been referred to the hospital and sometimes the women chose not to go.

Participant C from Tshm:

Indicated her experiences as follows:

> *I came across a high-risk woman with swollen legs and she was told to go to hospital and the women decided not to go and came back to the clinic. The woman was drowsy, with blurred vision, and she looked like she was confused. We checked the previous records and found that she had a history high blood pressure, so the woman was transferred to hospital for high-risk clinic. At the hospital they book her for high-risk clinic, the patient sometimes did not honor her follow-up visit so she decided to come to the clinic.*

Participant D from Dav:

Concurred and indicated:

> *Women do not want to go to hospital, they will come back to the hospital hence they were told and in their card is also written that they needs to go to hospital for ANC and delivery, and women will say they don't have money.*

Another participant indicated that it does not matter how the women was advised, women don't follow the instructions given to them.

Participant K from Muts:

> *Many of the women know themselves, they don't take hypertension as a disease, even if one can stresses the importance of doing their follow-up. I remember a case that presented with pre-eclampsia sometimes back, she was previous c/section patient. She started to experience problems at home; a neighbour brought her to the clinic. She was fortunate it was Wednesday, all the nurses were on duty.*

From Table 4.4 on the knowledge of professional midwives regarding available guidelines, the results of the study indicated that midwives were advising women during ANC on the importance of BP checking each and every time a women comes for ANC. Almost all the participants (92%) indicated that they were given advice on matters related to high BP. Apart from that, Table 4.7 on the support offered to midwives by managers, indicates that health education were given to pregnant women daily though some midwives were not complying with the rule. Only 46.7% of managers agreed that education on dashboard indicators were given daily whereas 53.3% disagreed. Apart from that education, midwives do give individual health education in relation to the assessment they have done. The advice and the education given included the danger signs that the women must know, like if the women experiences headache, any swelling, what the women must do in case her BP was deviating from normal. The problem with women is that, if they were discovered as high risk, they will only attend ANC to where they were referred to, from there the nurses will never see that women again. The women will only be seen when she experience complications from her condition.

A study was conducted amongst two groups of diabetic patients and those with hypertensive disorders, those who were illiterate and those who were literate in order

to assess their dietary and treatment adherence. A literate group was the one who was adhering to drugs and diet more than illiterate one (Gundala, Sastry, Manmohan & Geeta, 2016; Desia & Chaudhry, 2013). The implication of lack of adherence by women to health advises as related to the theory will result in more damage to the women's health than expected. Some women will even die because of lack of adherence to health care advice (Kellogg, 2004).

4.3.2.4.4 Sub-Theme 2.4.4: Socioeconomic Status of Women Problematic and Affects Management

From the results of the interview, participants experienced the socioeconomic status of the women in all the three conditions asked, that is, from the management of PPH, pre-eclampsia and HIV in pregnancy. Participants reported that socioeconomic status of the women was problematic in the implementation of maternal guidelines. Other participants indicated that the women asked to leave the facility for a while to go to church while she was in labour and being progressed.

Participant O from Mak:

Stated her experiences as follows:

> *Again during the progress of labour, she requested to go to the spiritual healer outside to see the prophet.*

Participant N from Mash:

Concurred by indicating that some women refused their HIV results said that they were bewitched.

> *She believes that she got HIV because she is being witched. I asked her that if it is witchcraft, what isn't that she was doing about it.*

Another participant reported that it was difficult to refer the women who was HIV-positive to home-based carers for support because women believed in witchcraft.

Participant O from Mak:

> *Though it is difficult to attach the women with home based carers', patients here belief in witchcraft.*

Some women claimed that they did not have money to go for follow-up in the hospital, hence, putting the lives of their unborn babies and that of themselves in danger. The women expected the poor midwife to give them money every time when they want to go for follow-up which was not fair and this, in turn, resulted in poor maternal outcome because the women will not go for follow-up. The researcher has also experienced this type of women while she was still working at PHC.

Participant D from Dav:

Indicated her experiences as follows:

> *What I have seen as a challenge is that people does not want to go to hospital, she will come back to the hospital hence she was told and in her card is also written that she needs to go to hospital for ANC and deliveries the patient will say she does not have money. There is nothing as a nurse that I can say in such cases but to give them advises like if she experience signs such as headache, swelling, everything which is not good in her body or even if the child is not kicking to come back to clinic immediately. Our people are having a tendency, if you have given them money to go to hospital, one will be expected to give them money all the time and this is a problem.*

A study was conducted on the socioeconomic factors that determine the utilization of health care services in Nigeria. Researchers discovered that those who had money were able to access health care services more than those without money. The researchers recommended that implementation strategies and policies be developed that will improve the women's status so that they would be able to access health care facilities (David-Wayas, Ugbor, Martha & Nwanosike, 2017).

Another study was conducted by Buckles (2017) regarding the socioeconomic status of women in Notre Dame; it was discovered that improving the socioeconomic status of women will improve the health of their children—A healthy mother, a heathy child. The implication of socioeconomic status of women as inputs will lead to lack of proper management by the next level of care as the women failed to go to the hospital for follow-up visit because of lack of money. Some of the women's conditions will complicate due to mixing traditional medicine with Western medicine. Because some women believed in their pastors, they will also complicate because of failure to adhere to medical advice given by midwives, hence, increasing the rate of MMR (Kellogg, 2004).

In conclusion, the guidelines stipulated that if midwives diagnosed a woman with gestational hypertension, to seek advice from the medical practitioner who will establish if immediate treatment and referral to the hospital is required. The management of the women with hypertensive disorders will depend on the severity of the condition. The researcher discovered that most midwives were not adhering to the maternity care guidelines because some were prescribing drugs to women suffering from gestational hypertension without consulting the doctor for advice first. Again, midwives were faced with barriers such as shortage of resources which included human and material resources, hence, leading to poor implementation of the maternal health care guidelines.

4.3.3 Main Theme 3: Experiences of Midwives in Relation to the Implementation of Maternal Health Guidelines for HIV Management in Pregnancy

The National Consolidated Guidelines on PMTCT (2015) indicated that all women who are diagnosed with HIV needs to be taken care of during antenatal, labour, delivery and postnatal care in order to decrease the viral load and boost their immune system (NDoH, 2015). Participants reported their experiences in the management of women diagnosed with HIV and also the challenges they came across in the management of the women.

Participant B from Tshn:

Indicated her experiences and challenges as follows:

> *We work being to professional nurses, the other one has to go and attend a meeting, I was left alone as a registered midwife with a woman who was coming for 1st visit, seeing all patients including minor ailment, I had a challenge of workload. A lay counsellor tested a woman who came for 1st visit, the woman was found to be HIV-positive. I had to do post-test counselling again and called the lay counsellor to help me because this patient was taking a lot of other patients time but at the end, I was able to prescribe and issue drugs for her including counselling her on feeding options and after taking all the necessary bloods.*

For the health care system to improve health care service delivery, more health care personnel need to be appointed for each speciality to focus on—in that way, the MMR will be reduced. Table 4.11 shows the experiences of midwives in the management of HIV-positive pregnant women. From the main theme, themes and

sub-themes emerged as indicated in Table 4.11.

4.3.3.1 Theme 3.1: Experiences of Midwives During Provision of Care to Pregnant HIV-Positive Women

The National Consolidated Guidelines (2015) indicated that HIV-positive women must be subjected to routine booking investigations, including blood tests for Hb, Rh and syphilis. The National Consolidated Guidelines (2015) indicated that the HIV-positive women must be done routine booking investigations which included conducting blood tests for Hb, Rh and syphilis. Again it indicated screening for TB in order to identify women who are eligible for Isoniazid preventative therapy (NDoH, 2015). From the results, the researcher discovered that there was shortage of staff in PHC facilities which resulted with poor implementation of maternal health guidelines. Participants reported that they were expected to conduct multiple procedures on pregnant woman who came for first visit ANC which lead to long queues and delay of other patients to be seen.

Table 4.11: Experiences of midwives in managing HIV-positive pregnant women

Themes	Sub-Themes
3.1 Experiences of midwives during provision of care to HIV-positive pregnant women	3.1.1 Difficulty experienced on multiple levels of provision of care to pregnant HIV-positive women
	3.1.2 Several management procedures employed that lead to delayed care provision to other women
	3.1.3 Increased workload when carrying for pregnant women who are HIV-positive experienced
3.2 Management of pregnant HIV-positive women as per guidelines	3.2.1 Treatment guidelines easy to implement to women adhering to ARTs
	3.2.2 Provision of continuous counselling provided to pregnant HIV-positive women
3.3 Challenges experienced by midwives carrying for pregnant HIV-positive women	3.3.1 Patients' complains are related to length of stay before consultation in health care facility
	3.3.2 Lack of adherence to ARTs lead to difficulty in managing pregnant HIV-positive women
	3.3.3 Shortage versus availability of consulting rooms

These procedures together with shortage of staff increased the burden of workload on midwives. Participants suggested that if they can go back to the way they used to work, which was allocation of days for certain services maybe it could lead to improved care.

Participant R from Mph:

> *Hey … I think that long time ago, we use to have the services on different days, like that on Wednesday be taken as ANC day, if we can go back to that style, I think it will be better. But the government says, if a woman comes today and her gravidex is positive, she must start ANC today, with a lot of procedures to be carried on from her and not considering the staff that is on duty. If we can go back to the old system of allocating days to the programmes, it will be easy. Even if we are practicing ideal clinic, with the services allocated days and taking into consideration the staff on duty, I think it will be better.*

According to Baloyi (2010) and Laleva & Georgieva (2017), midwives experienced overload of work due to several procedures that were employed on women who were diagnosed with HIV, hence, the waiting period of other patients were prolonged. Also, there was insufficient staff to render all the services required by patients which included women diagnosed with HIV. From this theme, 3 sub-themes emerged as indicated in Table 4.11.

4.3.3.1.1 Sub-Theme 3.1.1: Difficulty Experienced on Multiple Levels of Provision of Care to HIV-Positive Women

Most participants reported the difficulties they came across in the management of

women who were diagnosed HIV-positive on their first antenatal visits. Women who tested HIV for the first time were difficult to handle or manage. Several participants indicated that some of the women refused referral to home-based carers as their treatment buddy because women believed in witchcraft. Other participants indicated difficulty in managing known HIV-positive women, the women defaulted treatment for a long time and with this current pregnancy, she refused treatment. Participants reported that they spend more time counselling women and that increased the waiting period of other patients in the facility.

Participant B from Tshn:

Stated her experiences as follows:

> *That was something else; the case that I dealt with was a difficult one. It was a P4G6, of 36 years of age, and was a known HIV who defaulted treatment for a long time, her last child died a year ago at the age of 2 years. It was difficult to management her. It took me hours counselling her and by that time, because we work being two Registered Nurses, the queue was moving slowly, but I am glad I convinced her and at last she took the ART drugs. And she thanked me latter of my persistence.*

Participant F from Tsh:

Concurred by indicating:

> *The one I came across, it was her 1st visit, the most painful part was that, she lived her life well, it was a lady who grow-up in the church, get married to the brother in the same church. She got married and also got HIV virus. She came for her 1st*

visit and after being tested, her results were reactive. It was a difficult patient, she cried a lot after the results, and it was difficult.

Participant N from Mash:

Who also experienced a difficult woman indicated:

I had a difficult pregnant woman, she was not tested by me, but she went to ZCC church where they told her that she was bewitched. This is her third marriage; she had two children in her first marriage and two again in her 2nd marriage. This is her 5th pregnancy and her 3rd marriage. She believes that she got HIV because she is being witched. I asked her that if it is witchcraft, what isn't that she was doing about it. She told me that she cannot take recommendations from the church because she is still pregnant. Her CD4 cell count was 25. I asked her about her 1st marriage because I suspected that it is long she was infected. I also asked if she did an HIV test with the current husband, she says she did and the results were negative. Now she is surprised to find herself being positive and that's why she believes she was bewitched. Believes are there, I cannot refuse her believes but I only advise her to bring her husband also for testing. Because they might have tested while they are still at window period and she is also coming from another relationship.

Another participant indicated that if the woman had known her status even if she was being tested again, she won't be difficult.

Participant K from Muts:

> *The women who knows her status, because she fall pregnancy knowing her status, she does not take much time, but a newly diagnosed women, the waiting period will be long. Because I cannot tell her to go while she is still crying, I need to counsel her more until she goes through all stages until we reach the conclusion. A woman who found herself HIV-positive at that time. She had denial, not me, she is angered. One must have the counselling skills because that same day you must give her treatment, take blood, most of them when you gave them drugs the same day they will not take the drugs the same time, some take the drugs after 2 weeks, when they are now in their normal senses.*

Table 4.6 on competencies of health care professionals in the implementation of maternal guideline, HIV in pregnancy, indicates that midwives were offering HIV counselling and testing to women who were coming to attend ANC for the first time. The results indicated that 74.5% of participants agreed that they will test the women as scheduled by the guideline though 26% will not follow the schedule. Again Table 4.4, assessed the midwife knowledge on the guideline they will apply on the para 3 gravida 4 woman who was tested HIV-positive for the first time in her life, more than half, 70.5% indicated that they will implement National Guideline on the PMTCT.

The researcher did not enquire about the reaction of the women after they had received their HIV-positive results. It was normal that midwives will encounter some difficulty in the management of such women because all along their results were negative. From Table 4.8, the results of training received by professional midwives, almost all the participants (92%) received voluntary HIV counselling and testing

(VCT)/HIV Counselling and Testing (HCT) or Provider-Initiated HIV Testing and Counselling (PITC), whereas 8.0% did not receive the training. Professional midwives are able to display counselling skills which included adherence of women to ARVs. Table 4.8 also shows that 91.5% of participants received training on PMTCT, i.e., even though the midwives will experience difficult women, they would be in a position to counsel the women to accept their status though it won't happen overnight.

Various authors and the Centers for Disease Control and Prevention (CDC) indicated the following in relation to patients who were diagnosed for HIV for the first time: health care professionals must expect that the patient will be distressed and difficult to handle when s/he is informed for the first time of positive results. Researchers indicated that the patients need to adjust to new changes in their lives, how they are now going to cope with the virus, how to tell their families and how to cope with fear of stigma. The authors further indicated that the patients will need help on how to adapt to all the aforementioned changes. Sometimes the women can be affected psychologically and, hence, will need referral to a health psychologist (Warner, Klausner, Rietmeijer et al., 2008; Koss, Koss, Dunne & Warner, 2009; CDC, 2012; Lin, Whitlock & O'Connor, 2014; CDC, 2017).

The implication of the difficulties experienced, according to the theory and as an output, could lead to treatment failure because a woman who does not believe she is HIV-positive and will not take her drugs. Hence, the virus will continue to replicate and her immune system will continue to be suppressed which will predispose her to infections such as TB and, hence, increase the MMR as an outcome (Kellogg, 2004).

4.3.3.1.2 Sub-Theme 3.1.2: Several Management Procedures Employed That Lead to Delayed Care Provision to Other Women

In addition to information indicated on theme 3.1, stated from the guideline, midwives screen women for STIs, take baseline blood tests, counsel them on adherence to drugs and initiate ART the same day the women was diagnosed, unless if there are contraindications (NDoH, 2015). All participants reported that there were a lot of procedures to be undertaken for pregnant women, in which the women remained inside the cubicle for a long period while other patients waited for her outside. A women who is coming for ANC for the first time alone with the negative HIV results also spent a lot of time with the midwife—what more about an HIV-positive results? Participants indicated that they had to attend the ANC of the woman, took all the necessary blood for ANC, then baseline blood, adhere the woman for ARVs and also assess her TB status which takes about 1 hour 30 minutes to 2 hours.

Participant C from Tshm:

> *I must take baseline bloods, do ART adherence, and then give woman her drugs. Every positive patient is screened for Tuberculosis so that she be given Isoniazid preventive therapy.*

Participant Q from Man:

Concurred when indicating:

> *I tested her now and find her to be HIV-positive, I assess her and if she is not pale, I initiate her on FDC. I then took baseline blood, which is creatinine, Alt and other blood for ANC. Then results will come back, I also took her viral load and check if it is not above 1000, because if it is above and she booked late, she will not breastfeed her child, but if she booked earlier, then*

she is safe because i will check her again and the possibility of being low is high.

Some of the participants with the same view of various procedures indicated their experiences as follows:

Participant D from Dav:

A booking patient who is also positive will take a lot of time when inside because I am supposed to book her, counsel her, test her, counsel her about drugs, take blood, give her medication, which is a lot of work and took a lot of time like 45 minutes, this is not the same like when she is doing follow up.

Participant L from Tiy:

Shared the same version as above indicated her views as follows:

I took vital signs like any other patients, temperature, height, open ANC card, take ANC blood, Hb, RPR and then counselling and testing for HIV, if positive, I staged here so that I see if she qualifies for cotrimoxazole or not. Then initiate her FDC drugs because all positive pregnant women who are infected are initiated irrespective of their CD4 count. I also screened for Tuberculosis so as to give her ionized drugs if she is not having TB symptoms.

The same information was obtained in a quantitative research study on several procedures employed to first visit antenatal women. Table 4.6 shows that 84.5% of participants indicated the collection of blood to be taken on the first visit and Table 4.4 where most of the participants (89.5%) indicated testing of the women for HIV

followed by initiation of ART. Still, managers were supporting midwives by offering continuous updates of the National Prevention of Mother to Child Transmission Guidelines where several workshops were attended in relation to HIV and AIDS. Table 4.7 shows that 71.7% of participants indicated that continuous education was given on the updated guideline whereas 28.3% indicated that no update given. Continuous education will result in new knowledge acquired by midwives and, hence, proper implementation of the guideline.

The results of the study conducted by Banchani & Tenkorang (2014) on the challenges faced by midwives on the implementation of maternal health care guideline in Ghana on health care providers indicated that there was increased workload caused by shortage of staff and many procedures to be performed on women in rolling out PMTCT that predispose midwives to infections. From the study conducted in Zimbabwe in 2015, it was reported that challenges faced by health care providers and failure to implement the guidelines were caused by many programmes to be carried out when rendering health services (Mathole, Labonte, Sanders et al., 2015). Health care providers continued and reported that the programmes needed to be implemented simultaneously, hence, causing poor performance (Ngxongo & Sibiya, 2013).

Implications of several procedures implemented by midwives according to the theory and as an activity will lead to supressed viral load if done correctly and the women will be knowledgeable about their condition, hence, giving birth to a baby free of the virus as an outcome (Kellogg, 2004). If there is a shortage of staff, several procedures will cause burnout syndrome and work overload, and not all procedures will be performed correctly, hence, poor implementation of maternal health guidelines.

4.3.3.1.3 Sub-Theme 3.1.3: Increased Workload Experienced When Caring for Pregnant Women Who Are HIV-Positive

The information indicated on sub-theme 3.1.2 results in increased workload as stated from the National Consolidated Guidelines on PMTCT, 2015. Some professional midwives reported that with the new system that is being implemented through PHC re-engineering and IDEAL clinic realization, there were a lot of records that needed to be completed for one woman which consumed a lot of time. Some midwives indicated that it took them about one-and-half to two (2) hours to manage the women and complete their records.

Participant R from Mph:

Cited her experiences as follows:

> *It takes one hour 30 minutes if one is really completing all the records. And taking all the bloods and completing all the forms. There is also a book, and now with ideal clinic, one must complete two books, a new file and a maternity case register book and it takes long to complete them.*

Participant N from Mash:

Concurred when indicating that she won't hurry her management because the participant needed to give the women all the information for better results.

> *If I can met a pregnant women, tested her, it takes me an hour to finish with her, I must open a file for her in which at the end it will take two hours for me to help her and other patients are waiting. I cannot hurry the patient because I must make sure that I gave her all the appropriate care and information related to her status and make her to understand. In relation to my*

work, I cannot complain.

Participant Q from Man:

Indicated that she informs the patients about the delay in time so that even if the patients complained, they knew the reason of the delay.

> *We explain to them if there will be delay, but the problem nowadays is the new file, the time in which one spend completing the file, booking the patient and filling her maternity case register is long in which I tend to spend a long time with one patient.*

The above matters were supported by midwives who indicated that they experienced a heavy workload when rendering maternal health care services, especially with the women who was tested for HIV during the first ANC visit. Almost all the participants (87.5%0 as shown in Table 4.5 on challenges faced by midwives, indicated the issue of experiencing a workload burden. This was again influenced by shortage of staff, thus, some of the participants 32% even reported needle-prick injuries while rendering health care services, most of the time, needle-prick was due to workload burden and pressure of being alone as a midwife for a long period as indicated in a study conducted in the Tshwane Health Care District amongst health care professionals (Sehume, 2016). Though the department has hired data capturers and have a contract for lay counsellors, more staff is still needed that will deal with HIV only. A study conducted on midwives in Tanzania in 2015, indicated that stress was reported amongst midwives caused by work overload that affected the nurse-patient relationship. Midwives interviewed indicated that shortage of staff and work overload caused poor implementation of maternal health guidelines and, in turn, poor maternal outcomes.

From the same study, unit managers were interviewed and reported that the few staff allocated has to work in two wards which resulted in midwives behaving rudely to the patients because midwives were also human beings, yet their profession requires them to be polite and patient to all (Tibandebage et al., 2015). A study conducted in the Western Cape on health care workers indicated that participants were complaining because they were overloaded by work, and participants lacked the skills to carry out the work allocated (Scheffler et al., 2015). The implication of increased workload according to the theory and as an activity will result in staff injuries, especially if there is a shortage of staff. The staff who were pricked by the needles used on the patients were at a high risk of contracting communicable diseases such as HIV as an outcome (Kellogg, 2004).

4.3.3.2 Theme 3.2: Management of HIV-Positive Pregnant Women as Per Guidelines

The management of women diagnosed with HIV include taking of baseline blood and counselling on adherence to ART. Midwives also have to screen women for opportunistic infections which include genital infections so that they can be treated. If a woman was found with the signs and symptoms of TB, sputum is collected to detect TB and, if not, INH is initiated (NDoH, 2016).

Participant C from Tshm:

Indicated her management as follows:

> *I did everything to the women who tested HIV-positive which included collection of ANC blood for Hb, Rh & Syphilis as well as baseline blood for HIV. I screened for TB so that I can issue INH. But it becomes easy if the woman was suspecting herself, but the woman was negative previously, it was difficult for her*

to accept her status now when she was pregnant. With the shortage of staff, the women blocked the line because I continued to counsel her until we reached an agreement with each other. That's where I issued ART drugs and gave her follow up dates.

The researcher discovered from the results that participants were following the National Guideline on the Management of HIV in Pregnancy when managing women diagnosed with HIV such as collection of baseline blood and issuing of ARVs the same day. Participants were faced with challenges such as shortage of staff. From the theme, two sub-themes emerged as indicated in Table 4.11.

4.3.3.2.1 Sub-Theme 3.2.1: Treatment Guidelines Easy to Implement to Women Adhering to ART

Some participants did not experience problems in the implementation of National Guidelines on the PMTCT, they counselled pregnant women and, in turn, women agreed to be tested without difficulty. Some participants indicated that women did not have problems in accepting their results and also in taking treatments, but this was reported by participants who were referring to women who knew their status and not to those who were diagnosed that time. With continuous counselling and adherence, women took their treatment with ease, hence, it was straightforward for midwives to implement the guideline. According to the researcher's past experience, women who were diagnosed long time ago have accepted their status and can talk openly about it, so much so that some of them were employed by the government to become mother mentors.

Participant K from Muts:

Hmm … the women that I found being HIV-positive, the

women who knows her status, will not give you a problem because she falls pregnant being aware of her status than a women who found herself HIV-positive at that time. The women who fall pregnancy knowing her status does not take much time, but a newly diagnosed women, the waiting period will be long.

Participant C from Tshm:

Concurred when indicating that:

It becomes simple to implement the guideline, if one has started by attending her ANC booking first, at long last do PMTCT, though completion of ANC booklet becomes difficult with the patient not accepting her condition.

Participant D from Dav:

It's not that much difficult because I know that if I am attending to this woman is the same with the one who is negative but the different is that the HIV-positive one will have a lot of investigations like blood that is supposed to be taken the same day. And the treatment is given the same day that she must take home and as a nurse I am having a duty to teach her how to take the drugs and the reason of taking the drugs (preventing the spread of the disease to the child). As a nurse I must see to it that she understand such things. And a patient to understand that the drugs are not there to cure them but to control the virus and to prevent the spread to the child.

Another participant indicated that women did not have a problem in relation to HIV

testing and taking of drugs. Hence, this made it easy for the participant to implement the guideline easily.

Participant O from Mak:

> *Nowadays people understand the programme. Previously yes, but nowadays no. Even if you start counselling the patient about HIV and they are 10, all of them will be tested. No one will decline, and when one needs to initiate the drugs, they accept all of them.*

The CDC indicated that it was easy for health care providers to implement the guideline because most patients who were on ARVs supressed viral load because they were adhering to treatment well. Continuous counselling by health care personnel were viewed as important to retain patients on ART. The researchers identified the factor that can influence success or failure of patients' adherence to ART; the relationship between the health care providers and the patient was seen to be important, the patient's socioeconomic status, the patient's health condition and the types of drugs that the patient is taking influence the success or failure of adherence (Cohen, Chen, McCauley et al., 2011; CDC, 2012; Thompson, Mugavero, Amico et al., 2012). The implications of treatment guidelines implementation by midwives to women who were adhering to ART according to theory and as an output will improve maternal health status and, hence, promote a healthy community (Kellogg, 2004).

4.3.3.2.2 Sub-Theme 3.2.2: Provision of Continuous Counselling Provided to HIV-Positive Women

The National Consolidated Guidelines on PMTCT (2015) indicated continuous counselling of women who were recently diagnosed with HIV with the earliest follow-

up visit of 7 days after the initial diagnosis (NDoH, 2015). Most participants reported the issue of continuous counselling to women diagnosed with HIV. Some indicated the importance of follow-up visits where they indicated the need to check if the woman has accepted her status, if she was taking her treatment well and any side effects the women might be experiencing.

Continuous counselling help women to adjust and accept their status and to clarify aspects that they did not understood previously. It also helped in giving the woman more information about the lifestyle changes she must make. Some participants indicated that the women accepted their status, but there was a difficult aspect that they have learnt from the women, that is, disclosure; some of the women don't disclose their status and they would give birth without letting their spouses know their status.

Participant K from Muts:

Indicated her experiences as follows:

> *That is why after being seen, the women must be given a return day that is soon, so as to assess her if she is still at the same denial state, because the language that the person speaks talks. Through experience, I can see that she has accepted her status or not. But most of them when they came back after a week, you will see that they have accepted their status, but the problem is disclosure, for them to disclose their status to their husband, is a problem, a women will give birth without disclosing her status to her husband. I ask the women and help her with strategies on how to disclose her status.*

Participant J from Lev:

Concurred and indicated:

> *When the woman comes back for follow-up, and I ask her about her experiences in relation to treatment and side effects, some will say they did not experience any, though some will tell you that I had mild diarrhoea. I reassured them that it will pass my child but heee… it is difficult especially for a first time diagnosed patient.*

The same participant indicated again one of the reasons for follow-up is to check if there were abnormalities in the blood results. The participant continued and said that by doing so, she was reviewing if the drugs given to the women were still efficacious or not.

Participant J from Lev:

> *The patient is supposed to come back within 7 days for the results, to check especially creatinine. It can be down from 30-35 it does not allow me to give drugs, he women qualifies to get the three drugs, but from 40 though it will still be low it allows me to give drugs.*

Another participant indicated that apart from continuing counselling, she did home visits to check on how the women were adjusting. The participant advised the women to bring their husbands for couple counselling because the women were afraid to disclose their status to their husbands.

Participant F from Tsh:

> *I continue to counsel her until she came across in*

understanding her results, I even did her follow up through home visit to check how she was coping, it was very difficult for her, we advise her to bring her husband to clinic during her ANC follow-up visit, so that we will do couple counselling of both of them. It was done like that and indeed the husband was also reactive.

Table 4.6 on the competences of professional midwives subheading; implementation of maternal health guidelines, HIV in pregnancy; indicated continuous counselling of women who were tested and their results were negative, the women were given a return date for testing after 3 months until the cessation of breastfeeding though it was changed now to be after 6 weeks. This was done so that midwives could monitor the status of the women and to be sure that the women's results remained negative until they weaned their babies off breast milk.

Various authors indicated that continuous counselling of women who had been diagnosed with HIV will help to assess if the women accepted their conditions and how the women coped with the condition, it also helps to check on how the patients were taking treatment. The emotional status of women was also assessed to determine if a need for referral for further counselling is warranted. Women were taught strategies to reduce the risk of HIV transmission to reduce MMR.

During counselling, women were also taught strategies on how they can disclose their status to their family members, including their husbands (Cohen, Chen & McCauley, 2011; Metsch, Feaster & Gooden, 2013; Aberg, Gallant & Ghanem, 2013; CDC, 2017). The implications of continuous counselling of HIV-positive women, according to the theory and as an activity, were to monitor if the women have accepted their status, to give the women more information and to improve their

adherence to ART. Also, women with negative results, still require education to promote safer sex which would improve maternal status because the women will be free from the virus (Kellogg, 2004)

4.3.3.3 Theme 3.3: Challenges Experienced by Midwives Caring for HIV-Positive Women

From the results of the study, the researcher discovered that midwives faced challenges related to the implementation of National PMTCT Guideline. Most participants reported long waiting periods of other patients since pregnant HIV-positive patients necessitate a lot of procedures that need to be performed on them. It was also difficult to present HIV-positive results to patients.

Participant K from Muts:

Indicated her experiences as follows:

> *The waiting period is long, sometimes it takes 1 hour especially for the one who tested positive, I have to counsel the women for adherence of drugs, issue her drugs, take all the necessary bloods, such as creatinine, Alt, Viral load. The viral load is very important because when the woman delivers, her viral load must be low. If the viral load of a woman is 1000, the child is not given Nevirapine only, but AZT to be added.*

Various studies were conducted regarding the long queues in the PHC facilities caused by shortage of staff. This led to long waiting times of patients, hence, patients were dissatisfied (Baloyi, 2010; Daniels, 2015; Moses, 2017). From the theme, the following three sub-themes emerged as indicated in Table 4.11.

4.3.3.3.1 Sub-Theme 3.3.1: Patient Complaints Are Related to Length of Stay Before Consultation in Health Care Facility

Most participants reported that patients complained about the long times midwives took to finish rendering maternal health care services to pregnant women. Because participants were aware of the patient complaints and the longer period it took to implement the guideline, some designed a strategy to apologize to patients before they can complain. Even with the new strategy of rendering health care services through division of services by consulting rooms such as combining reproductive and child health care services, and having a cubicle for chronic health care services and minor ailments, this was seen as ineffective because of shortage of staff. The strategy was only effective where three PN were allocated—if they were two or one midwife, long waiting periods will be anticipated and, hence, patients will complain.

Participant P from Lam:

> *Some patients do complain but I do explain to them regarding the situation because I must help this woman in totality. Patients do complain, but I communicate with them.*

Participant M from Mash:

Concurred when indicating that:

> *Patients do complain, last time were we three with the professional nurse who is doing community services, but she does not understand that much, so I was orientating and teaching her. If we had a pregnant ANC woman they do complain and we are used to that.*

Another participant indicated the time he took when rendering maternal health care services to both women. HIV-positive women took longer to care for than their HIV-

negative counterparts. The participant reported that he had to go out and apologize for the delay to other patients who were waiting outside.

Participant L from Tiy:

Indicated his views as follows:

> *It takes a lot of time, because a negative pregnant women takes up to 45 minutes meaning that the one who is positive will take 45 minutes and plus. Can you see others waiting outside, it is not the same with a negative results. With a positive one you need to counsel her, which needs time until you are satisfied that the women understand and accept her status. It is not easy, if you are working alone that day seeing pregnant women and minor ailments, I have to get out and apologize to patients waiting outside because patients outside can have other thoughts on what is happening inside. It is better if other midwives like three are on duty rather than being alone.*

Table 4.5 shows that more than half (60%) of participants indicated that they sometimes received complaints related to long waiting periods by patients, though 40% indicated that they haven't received any complaints. Facilities that were short-staffed correlated with complaints and those with adequate staff did not have such problems. Long waiting periods was caused by the many procedures that needed to be performed on HIV-positive women on the first ANC booking though the normal bookings also took time.

Studies conducted on patients in rural areas of South Africa revealed that patients complained of long waiting times caused by shortage of staff. Patients were given

days because health care services were scheduled according to days. So, if the patient just go to the facility and was not given a return date, s/he will wait for a longer period and some of the patients would go back home without treatment (Visagie et al., 2014; Daniels, 2015; Moses, 2017; Saburi, 2017).

Managers must support midwives with client satisfaction survey forms in order to check whether patients were satisfied with the care they had received, but unfortunately those forms were not currently available in the facilities. The only client satisfaction survey that is being done is carried out each and every quarter, which is not enough. The results of the study in Table 4.7 on the support offered by managers under the subheading; support in relation to stationery, has shown that more than half (73.3%) indicated that client satisfaction surveys were not completed by mothers after delivery because they were not available. With failure to conduct client satisfaction surveys, there will be no improvement in maternal health care services.

Various authors conducted client satisfaction surveys to evaluate the activities they have conducted and health care services offered. However, gaps exist in the implementation of the client satisfaction survey between the clinics and the hospitals. The survey was mostly done in private facilities than in government institutions. Implementation of client satisfaction surveys was seen as the instrument that improves health care services and the attitudes of health care workers because they identified deficit in the care offered which should be corrected (Naiker, Hooper & Baduraliya, 2009; Dobbie, Hiscock, Leonardi-Bee, 2017).

Implication of long waiting periods according to the theory and as an output will result in some of the patients going home without the required services that needed to be rendered on them; some will never come back to such a facility. With failure to conduct a client satisfaction survey as an activity, there will be no improvement in

maternal health care services (Kellogg, 2004).

4.3.3.3.2 Sub-Theme 3.3.2: Lack of Adherence to ART Leads to Difficulty in Managing HIV-Positive Women

The National Consolidated Guidelines on PMTCT, 2015, indicate the issue of encouraging women to disclose their status to their partners for support and to promote adherence to drugs (NDoH, 2015). The majority of participants reported that most women failed to disclose their status to their husbands. As such most women did not adhere to ART. The researcher observed that if women accepted their status and took their drugs as prescribed, they do recover and live happily and one cannot tell if the women is infected with the virus because the drugs do fight the virus, hence, their immune system is boosted. By contrast, women who defaulted treatment, suffer general health deterioration and they end up dying. Participants reported that some women because of their religion, believed that they were bewitched that's why their pastors warned them about their condition, so they were in denial of their results, hence, ART.

Participant R from Mph:

> *Haaa … I have experience a lot, because i have specialized with HIV. I have come across another woman where I worked previously. The patient was attended by another nurse, after being tested positive, the women refused ARV treatment and said she is a member of a Zion Christian church, she will go to church. Moreover, already her pastor has seen her condition. And it is not a true condition even her child will not be affected by the virus.*

Participants reported that family members also had an effect on the women to decide

whether to take the drugs or not; some discourage them and instead of taking Western medicine, they decide to take traditional medicine, hence, giving the virus the chance to replicate. The participant reported that the women who stopped ARVs came back to the clinic and reported their reasons to stop treatment.

Participant F from Tsh:

Indicated her experiences as follows:

> *After delivery, at home the in laws advise the women to leave ART drugs and use traditional medicines, she did so for one week, then she came back to the facility and she was fortunate I was there. She narrates her story, and we had to do home visit again. We found the women, husband and mother in law at home. We did re-counselling of all as a family and explaining the importance of taking drugs. From there, she started to take her drugs again with no problems.*

Participant K from Muts:

Expressed her experiences as follows:

> *They have a problem on how to take the drugs, where to store them, whether inside a bag of maize meals so it's a challenge because we stress that ARVS must be taken at the same time every day without skipping them, but their problem is shortage that why this lead to treatment interruption but people do differ, other accepted their condition the same day, others don't.*

The study conducted in South Africa in 2010, amongst patients who were on ART, indicated that patients were no longer doing follow-ups when they were given return

dates for treatment. This was caused by lack of money for transport, stigma associated with being HIV-positive, problems within the health care facility and poor adherence to time to take another dose while at home. As a result, the researcher recommended revision in policies that will reduce transport costs as well as the burden of time so that treatment can be continued as well as revision on referral and transfer logistics (Miller, Ketlhapile & Rosen, 2010).

Another study conducted in relation to attitudes and behaviours of maternal health care providers towards clients, indicated that barriers that prevented clients to come for follow-up were due to rudeness of midwives, physical abuse, lack of privacy, poor communication and ignoring patients were, among the causes of poor utilization of health care service system. Although this behaviour was influenced by nurses' overload, patients' attitudes and feelings of authority by health care workers played a role in patients defaulting the treatment (Mahnava, Durrant & Luchters, 2015).

In their conclusion, they have recommended the need for strengthening the workforce through staff development and counselling skills so that maternal health care services are improved in order to secure the safety of staff and women (Mahnava, et al., 2015). The implications of lack of adherence to ART as related to the theory and as an output will lead to increased viral load, hence, the immune system of the women will be lowered. The women will suffer from conditions such as TB resulting in maternal death (Kellogg, 2004).

4.3.3.3.3 Sub-Theme 3.3.3: Shortage Versus Availability of Consulting Rooms

Some participants reported and complained about infrastructure where there was shortage of consulting rooms in their facilities. Those PHC facilities that had staff, like three in each shift, but their consulting rooms were two. Participants indicated that they were to create three streams, but where to put the third stream was not clarified.

The ideal clinic realization is a good strategy that was developed in order to reduce waiting period and to better the services in the Limpopo Province, but it needs to address certain issues before it can be implemented effectively. Issues of old infrastructure, shortage of nurses and equipment need to be attended to.

Participant O from Mak:

Encapsulated the issue of infrastructure as follows:

> *Infrastructure, our infrastructure is small, all in all we are six professional nurses, most of the time four professional nurses are on duty and cubicles are small as we are having three streams.*

The same participant continued stressing the issue of small structure as follows:

> *If we had enough cubicles, a single qualified nurse will be continuing seeing other patients but this is not the case. Infrastructure is the problem, if something can be done to increase our infrastructure so that we have enough space to work on. Our infrastructure is small, all in all we are six professional nurses, most of the time four professional nurses are on duty and cubicles are small as we are having three streams.*

Participant L from Tiy:

Concurred when indicating that:

> *Improved infrastructure because the one we are having does not accommodate all the staff in our facility, there are a lot of services and diseases, were having lay counsellors, HIV*

mentors, our infrastructure cannot accommodate all those services.

Participant D from Dav:

Also concurred when indicating that if the issue of infrastructure can be resolved, health care services would be improved.

Infrastructure is the problem, if something can be done to increase our infrastructure so that we have enough space to work on. Also be provided with enough staff, it will make our life and those of patient easy. Meaning that if every section is opened and the staff is enough though if one has gone on leave or workshop in each stream there is two registered nurses, it will be better.

Banchani & Tenkorang (2014) on the challenges faced by midwives in the implementation of maternal health care guideline in Ghana on health care providers indicated that there was shortage of consulting rooms which led to delay in the provision of maternal health care services to women. Shortage of consulting rooms in PHC services was found to be a barrier in the provision of health care services to patients, hence, increased waiting times (Baloyi, 2010; Cameron, Gerber, Mbatha et al., 2012, Pearce, Hall, Phillips & Dwan, 2012). The implication of shortage of consulting rooms will lead to delay in rendering health care services to patients, hence, patients will complain of long waiting periods. According to the theory, patients will lose trust in the health care service system—as such, they will seek alternative ways to healing like consulting traditional healers, hence, other patents' conditions will complicate as a result (Kellogg, 2004)..

In conclusion of main theme 3, all pregnant women are to be offered HIV counselling

and testing on their first ANC visits and, if negative, continuous counselling must be offered every time the women comes for ANC. Women who tested positive for HIV must be counselled for initiation of ART the same day. Baseline blood and ANC investigations must be carried out the same day. Pregnant HIV women need to be assessed for signs and symptoms of TB in order to initiate the women to INH prophylaxis. However, midwives were experiencing barriers such as shortage of staff, shortage of consulting rooms, work overload and long waiting periods by patients which made implementation of the PMTCT guidelines difficult. Table 4.8 indicates information on a skills audit which was conducted by the researcher in order to check the training received by professional midwives that will enhance the implementation of maternal health guidelines. Most of the information in the table was not integrated with the discussions above, only few were considered, therefore, the information in Figure 4.1 is discussed below.

4.3.4 Training Received by Midwives in Order to Enhance the Implementation of Maternal Health Guidelines

The results in Table 4.8 demonstrated that an overwhelming number of midwives received information on various training programmes provided by the DoH. Provision of knowledge should enabled midwives to carry out different functions in their working environment. Instead, other midwives failed to implementation of maternal health care guidelines with the trainings provided. The least number of training programmes were on immunization of pregnant women using Tetanus Toxoid, couple counselling and initiation of pregnant women who was HIV-positive on INH preventive therapy. From 200 participants, 32% had attended training on immunization, especially on Tetanus Toxoid for pregnant women whereas 68% did not receive such training. Immunization of pregnant women is complex as the last dose is given 2 years later after the last pregnancy. The researcher observed with concern that follow-up regarding Tetanus Toxoid was not done at PHC facilities.

However, maintenance of the status has to be done by giving it as scheduled.

From 200 participants, 53.5% indicated to have received training on isonized prophylaxis initiation whereas 46.5% did not. At least 70.5% of PN know the management of Pueperial sepsis whereas 29.5% did not. Out of 200 participants, 72.5% had received training on the management of STIs whereas 27.5% did not. Although most midwives were trained, those who did not receive the training cannot implement the guideline successfully because they lacked knowledge. Therefore, implementation of maternal health care guidelines will be poor.

Mathole (2005), recommended the need for continuous development of staff though in-service training on the facility. Mentorship of the neophytes who graduated recently and refresher courses as a requirement to retain health care personnel. This has to be done as a way of maintaining adherence to maternal health care guidelines by midwives. Participants reported in the study that lack of knowledge will contribute to failure to comply in the guideline implementation. Therefore, there was a need for specific training that will guide them on the assessment and interpretation of data collected from the patients during consultation.

It was indicated by participants that there was a need to change the way training was conducted. More practicals and hands-on training must be done (Mathole, 2005). It was indicated that health care providers had a right to promote health. They can only do this if they were afforded training which included education on the rights of the patient. This was seen as the responsibility that must be taken by the DoH. The training must also include demonstration of skills for clinical practice and code of conduct so that they can respond in times of need, hence, meeting the standards of health care service delivery (Ali, 2014).

Because PHC facilities are the mouthpieces of health information to the public, the

public was seen to be avoiding PHC services as the services were unacceptable. This was caused by lack of information from health care providers and poor standards of care offered to pregnant women (Ali, 2014). A social medium such as Twitter was found to be more helpful as a means of learning and can also be used by midwives to keep themselves up to date with new information. Hence, information gained will enhance the provision of good maternal health care services (Moorley & Chinn, 2015).

The implications of training on midwives who did not receive training on certain skills, placed midwives at risk of failure to offer services to women, like those who we not trained in the PITC workshops and PMCTC—it might happen that such midwives remain alone in the facility. They would not be able to offer ART to pregnant women, implying that most women will be turned back and given another date where those trained are available. Those who received training on ESMOE were in a better position to manage any obstetric emergency, including PPH and pre-eclampsia because they possessed the skills to do so. Midwives who did not receive training were not safe, even their implementation of maternal guidelines will be poor, hence, poor maternal outcomes, according to the theory (Kellogg, 2004).

4.4 Contextualizing the Results Into a Conceptual Framework

The *Basic Logic Model Theory of Change* was adapted as a frame of reference for this study. The *Basic Logic Model Theory of Change* is defined as a descriptive model which starts with a programme and consists of components which clearly depict the inputs, activities and outputs needed to reach the outcomes (Kellogg, 2004). The *Basic Logic Model Theory of Change* approach is taken as a learning and management tool that is used throughout for planning, implementation and evaluation of the programme. If the evaluation and *Basic Logic Model Theory of Change* is used, the institution will have effective programmes, offer greater learning

opportunities, better documentation of outcomes and sharing of knowledge about what works and why (Kellogg, 2004). In this study, evaluation was done in the form of an assessment, where the researcher assessed the knowledge and skills of the professional midwives in the application of maternal health care guidelines. The components of the adapted *Basic Logic Model Theory of Change* were explained as inputs/resources, activities, outputs, outcome and impact. The results of the applicability of the model were shown in Figure 4.1.

Inputs are resources that are needed in order to accomplish an activity (Kellogg, 2004). In this study, inputs are listed in Figure 4.1. Examples are midwives, women, equipment and infrastructure that the researcher discovered from the results of the study that were used in the implementation of maternal health guidelines during the provision of maternal health care services.

Activities are actions which must be taken to reach the outputs (Kellogg, 2004). In this study, some of the activities that were needed to reach the output were: implementation of maternal health guidelines by midwives when managing women with PPH, hypertensive disorders and HIV in pregnancy, support offered by managers in a form of training, resources and site visit.

Outputs are the results that are expected after the performance of an activity (Kellogg, 2004). In this study, the researcher discovered that some of the midwives had information that enabled them to implement the guidelines successfully while others lacked information and knowledge, hence, implemented the guidelines poorly. With the managers, the results of the study indicated that there was lack of support during the implementation of the guidelines by midwives. Continuous education and updates on maternal guidelines were mostly done on PMTCT guidelines which leads to poor implementation of the maternity care guidelines to women. Two midwives

were not allocated at the same time in most clinics during the night in some of the facilities. Few facilities were visited by the programme manager, hence, they failed to monitor and supervise the implementation of maternal health guidelines.

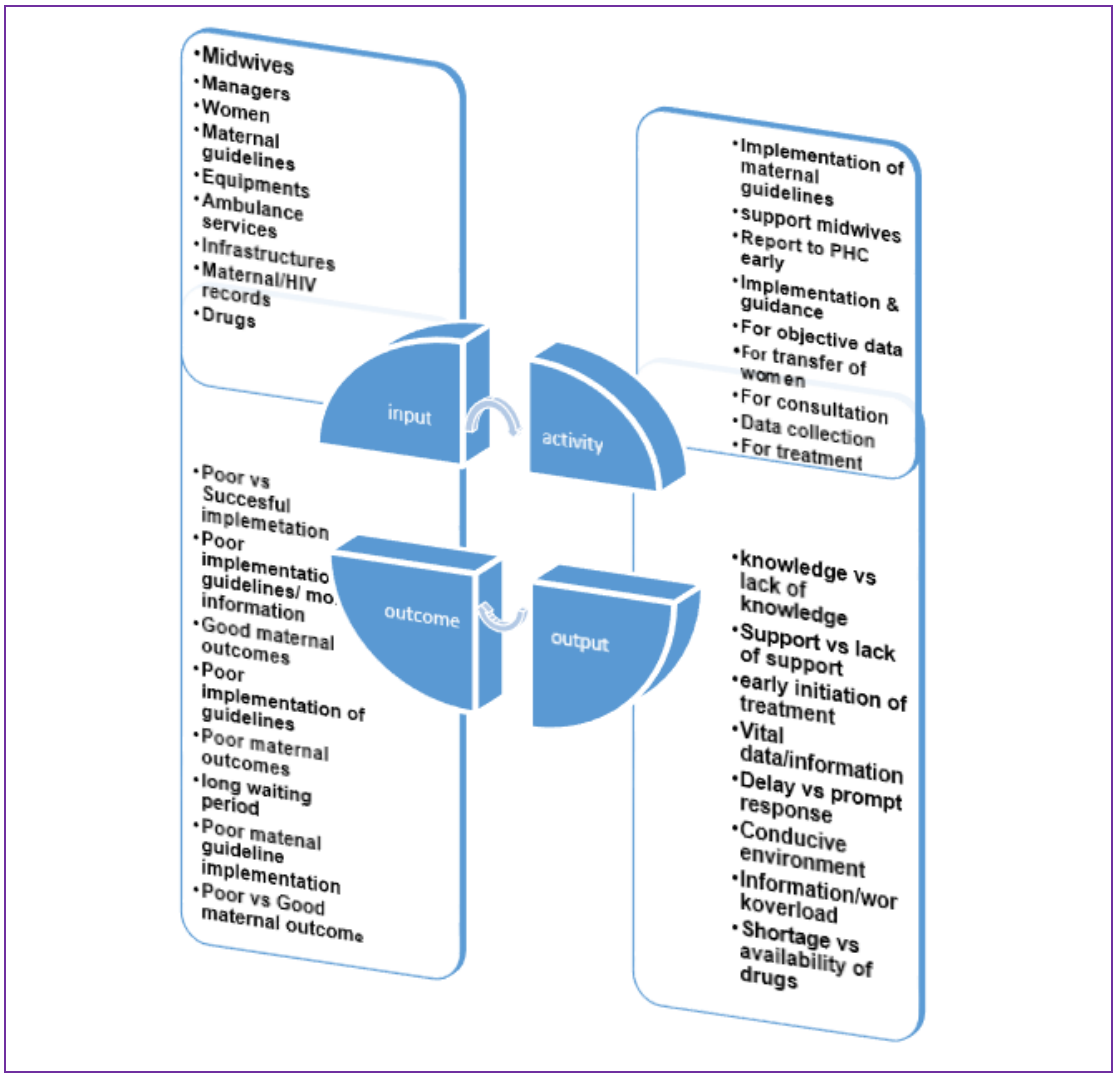


Figure 4.1: Application of *Basic Logic Model Theory of Change*

Outcomes are specific changes in programme participants' behaviour, knowledge, skills, status and level of functioning. There are short-term outcomes that must be achieved within 1-3 years. Long-term outcomes are achieved within a 4-6 year timeframe (Kellogg, 2004). In this study, some midwives had knowledge and skills in relation to maternal health guidelines, hence, the results of both good and poor maternal outcomes were discovered. Some of the outcomes will be evaluated after

the implementation of the strategy.

Impacts are greater changes that are expected after all the activities were accomplished. Impacts will be evaluated after midwives had implemented the developed strategy by the researcher. Figure 4.2 indicates the applicability of the logic model formulated from the results of the study.

4.5 Summary

This chapter presented the results of the study where tables were used to present quantitative results which included the knowledge and competencies of midwives on the implementation of maternal guidelines focussing on PPH, hypertension in pregnancy and HIV in pregnancy, training and support offered by managers during the implementation of maternal guidelines by midwives and the challenges they faced during the implementation of the guidelines were also presented. Three main themes with themes and sub-themes emerged from the qualitative data from the main question that explored the experiences and challenges faced by midwives during the implementation of maternal guidelines focusing on the three preventable conditions. The discussions of the two methods were done jointly and *Basic Logic Model Theory of Change* was applied during the discussions. The next chapter presents the development of the strategy to facilitate the implementation of maternal health guidelines by midwives.

CHAPTER 5

Development of the Strategy to Facilitate the Implementation of Maternal Health Guidelines by Midwives

5.1 Introduction

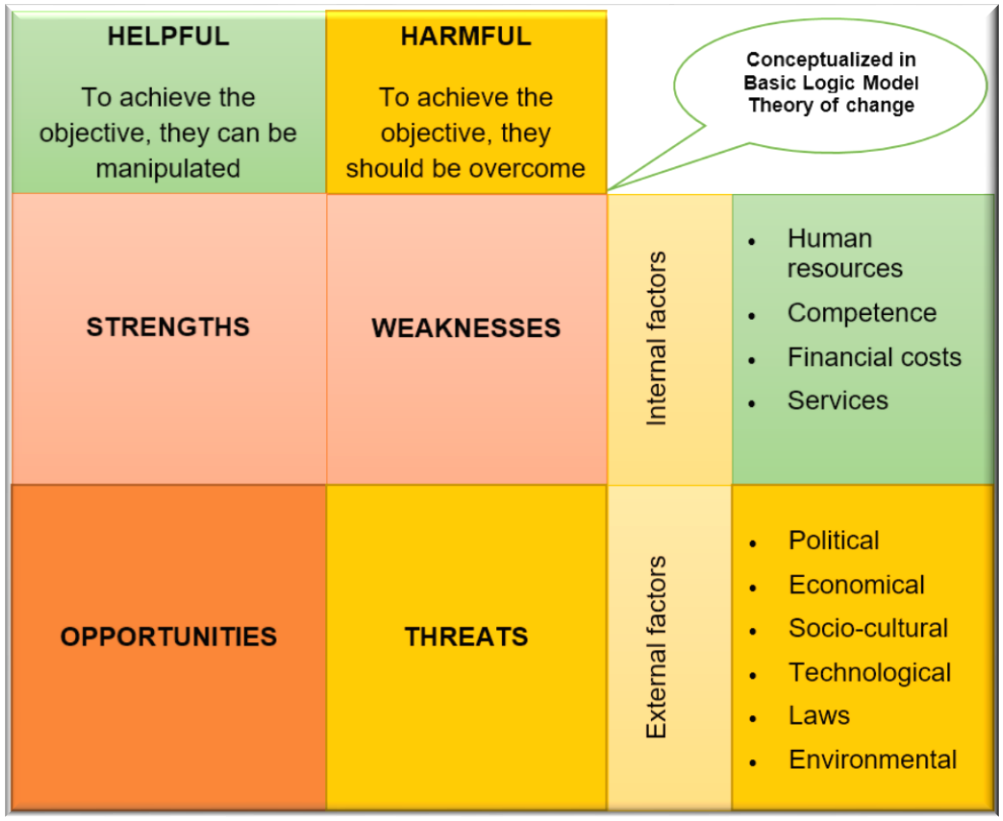
Chapter 4 of this study dealt with data analysis, presentation, interpretation and discussions of both qualitative and quantitative findings. Contextualization of findings to conceptualize the framework was done. From the objectives of the study, the researcher focussed on assessing the midwives knowledge and skills in relation to the implementation of maternal health guidelines during the provision of maternal health care services. Moreover, the researcher assessed the support offered by managers to midwives in the implementation of maternal health guidelines and lastly explored the experiences of professional midwives in the implementation of maternal health guidelines.

Three main themes with themes and subthemes emerged from qualitative data analysis. Tables from quantitative results were created. The researcher focused on the implementation of maternal health guidelines taking in to consideration the three preventable conditions which were: PPH, hypertensive disorders in pregnancy and HIV in pregnancy. From the results of both research strands, a strategy was developed using the Strength, Weakness, Opportunities and Threats (SWOT) analysis.

5.2 Approach Used to Develop the Strategy

This chapter focuses on the development of the strategy that will be used to facilitate the implementation of maternal health care guidelines by midwives during the provision of maternal health care services in Limpopo Province. For the purpose of strategy development, SWOT analysis was used to identify the strengths, weaknesses, opportunities, threats that were influencing the implementation of maternal health guidelines by midwives as presented in Table 5.1.

Table 5.1: SWOT analysis



SWOT analysis is defined as a structured process of analysis that identifies the strengths, weaknesses, opportunities, threats and evaluating them (Bezuidenhout, 2014). According to Bunn & Conlin (2013), strengths and opportunities are resources that can be utilized to overcome weakness and threats, apart from seeing them as sufficient.

5.3 Factors Involved in SWOT Analysis

These are internal and external factors within the SWOT analysis. Internal and external factors within the SWOT need attention because they can influence maternal health care services positively or negatively (Bunn & Conlin 2013).

5.3.1 Internal Factors

Internal factors are factors that are found within maternal health care services, which help the institution to either achieve or fail in achieving its objectives. These factors can influence the way the services are rendered positively or negatively (Bezuidenhout, 2014). They include strength and weakness that the facility has. Internal factors can be manipulated in order to achieve the objectives of the study. Strength is seen as the characteristic that gives an organization advantages over other entities; weaknesses are seen as characteristics that put an organization into a disadvantage (Bezuidenhout, 2014).

Internal factors include human resources, competencies, financial costs and services. Human resources are personnel needed to carry out certain duties or a job (Booyens & Bezuidenhout, 2013). Maternal health care managers (MHCM) and operational managers (OMN) who offer support to midwives during the implementation of maternal health guidelines were available. Midwives and those with advance midwifery as a specialty were also available in order to implement maternal health guidelines during the provision of maternal health care services to pregnant women.

Competence is defined as the capabilities and potentials which include the knowledge and skills that an individual has in order to perform his/her duties or job (Booyens et al., 2013). If managers support midwives through resources and education, implementation of maternal guidelines will be a success. To enhance the

competencies of midwives, OMN must arrange for in-house in-services training in the form of perinatal meetings. OMN must invite an experts in the field of maternal health services so that experts can give midwives more information pertaining to the management of women experiencing either PPH or hypertensive disorders in pregnancy. Again, if MHCM can give rotational update almost to all midwives in time when there are new developments related to maternal health guidelines and capacitate them. This will help midwives to be ready for any complications that might arise. This will lead to provision of quality maternal health care services to women.

Financial costs have to do with issues pertaining to adding value to a product or service; it has to do with the availability of funds and equipment and their maintenance for day-to-day functions (Booyens et al., 2013). Financial costs have to do with the availability of resources and maintaining them. Resources such as equipment, supplies of materials, ambulance services and others must be available so that midwives render or implement maternal health care guidelines with ease. Services are defined as an essential health care which was proven scientifically and socially acceptable by the society through the use of technology so that it is accessible to all people in the country (DoH, 2015). These are the services rendered by midwives to women either during pregnancy through ANC, during delivery and postnatal services.

5.3.1.1 Internal Factors: Strengths and Weaknesses

Strength and weaknesses as internal factors are discussed in this section in relation to the results of the study. Both factors include human, competence, financial costs and services that emerged from the results of the study. Figure 5.1 illustrates the strengths and weakness identified by the researcher and the application of the *Basic Logic Model Theory of Change*. Figure 5.2 indicates the inputs, activities, outputs and outcomes identified from strength and weaknesses.

5.3.1.1 Human Resources

Human resources are inputs as indicated in Figure 5.1 of strength and weakness identified by the researcher in order to perform activities in the PHC services to reach a desirable outcome. The results of the study showed that each and every PHC facility has professional midwives appointed permanently in that facility. Depending on the facility and the availability of midwives, two to three midwives were allocated per shift.

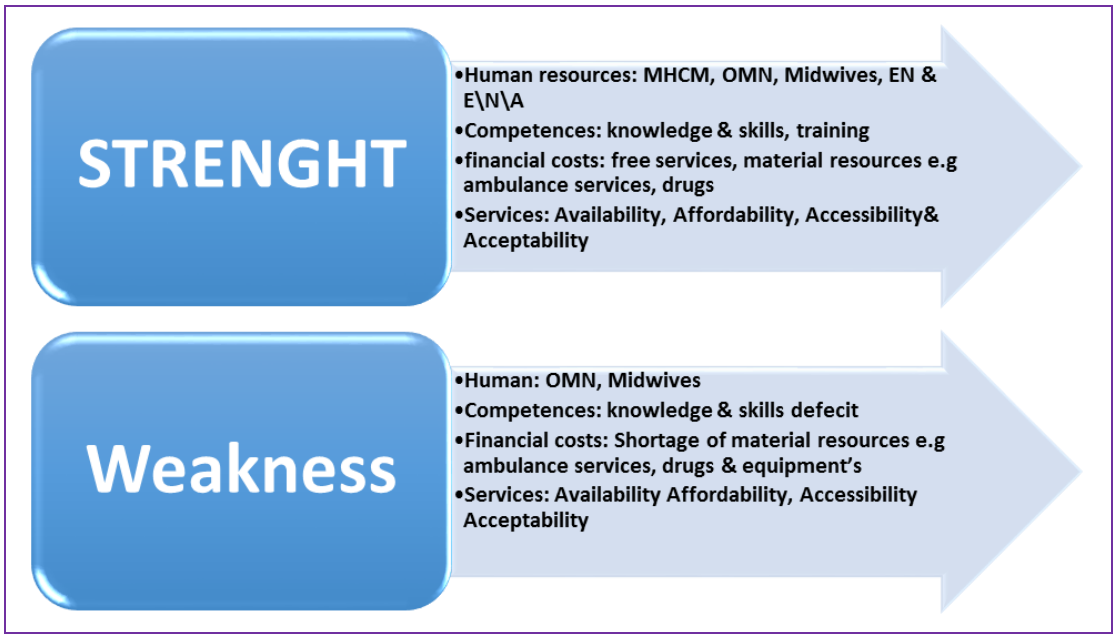


Figure 5.1: Internal factors: strength and weakness of maternal health guidelines implementation

Even though midwives as inputs were available, there was a great shortage of midwives in PHC facilities in which most of the midwives indicated that one registered midwife was allocate with a junior nurse, especially during the night which made implementation of the guideline poor, resulting in poor maternal outcomes. Even during the day, there were facilities where one nurse was on duty alone as a midwife while the colleague has gone to attend a workshop or a meeting, hence, the midwife on duty was overloaded by work. Some facilities were seeing 40-45 pregnant women coming for ANC per month and on top of that helping about 25 to 28 women

who were in labour. In a community health care centre, per day two midwives were seeing 22 women who came for ANC services and 40 to 50 women for delivery per month.

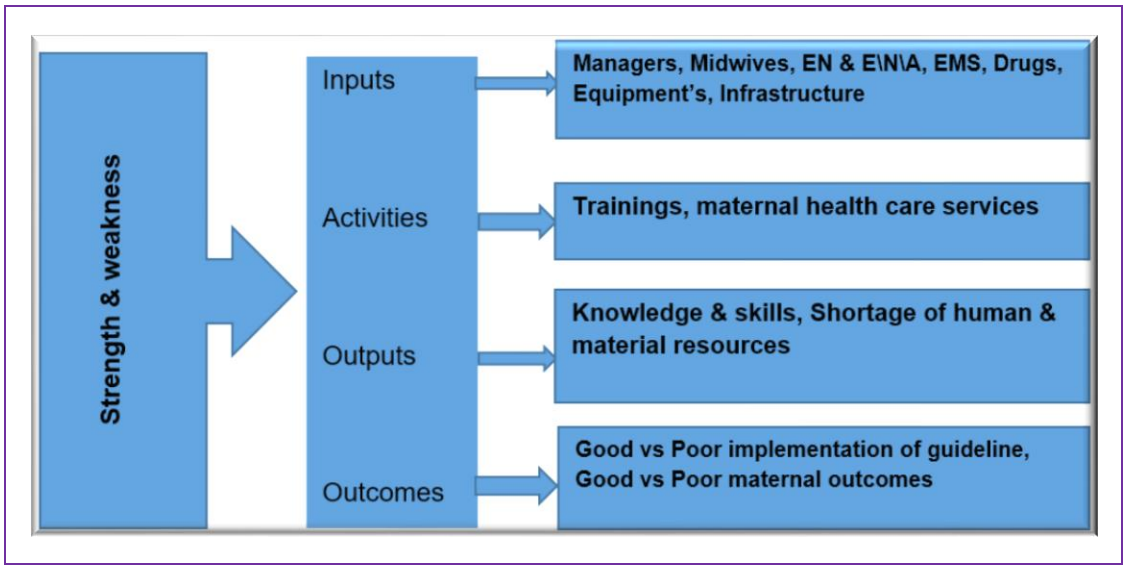


Figure 5.2: Strength and weakness: inputs, activities, outputs & outcomes

Few PHC facilities had an advance midwife though most did not, hence s/he was needed because of the extensive skills and knowledge needed in the management of complicated maternal cases and for good maternal outcomes. PHC facilities had junior nurses who assisted midwives during the provision of maternal health care services. Within the two districts where data were collected, MHCM were available who were supporting midwives in the provision of maternal health care services. Each and every facility was having an operational manager (OMN) though 85% of the OMN were seconded to act in a higher position with few managers appointed on the post which led to difficulty in supervising midwives, hence, poor implementation of the guidelines as an output. These were the inputs identified in this study in order to accomplish the objectives of the study as indicated by Kellogg (2004).

5.3.1.2 Competencies

Competencies are outputs in the form of the knowledge and skills identified from the midwives and managers by the researcher. From the three preventable conditions; PPH, hypertension in pregnancy and HIV in pregnancy, the results of the study showed that some of the midwives were knowledgeable although others had a knowledge deficit. Though being knowledgeable about the management of women regarding the three conditions, midwives indicated difficulty in the management of women with PPH and hypertensive disorders in pregnancy leading to frustration and confusion. The difficulty was mostly influenced by shortage of staff where one midwife was allocated alone with a junior nurse.

Frustrations were caused by knowledge deficit, inadequate midwives and failure to anticipate that PPH might occur because of women who failed to disclose their previous history of PPH. Some of the midwives were able to identify and know the causes of PPH, hence, they were able to follow and adhere to what the guideline stated which resulted in good maternal outcomes, whereas others failed to adhere to the guideline, especially in the management of PPH and pre-eclampsia.

Some midwives were able to refer women with PPH and pre-eclampsia to the hospital, hence, management of these women was initiated immediately as a result the lives of women were saved. The skills, knowledge and the competencies possessed by midwives were seen as an output of the activities performed by managers through training of midwives (Kellogg, 2004). Midwives managed to support each other during the management, especially of PPH, pre-eclampsia and eclampsia though, in most facilities, assistant and enrolled nurses were the ones who assisted the midwife during the management and the implementation of the guideline.

OPM were supporting midwives though they failed to supervise, monitor and conduct clinical audits of maternal records as their activities on the implementation of maternal health guidelines because most of the times they were out attending meetings when midwives provided maternal health care services. Failure to monitor, supervise midwives and perform clinical audits led to poor implementation of the guidelines in some areas as an outcome (Kellogg, 2004). MHCM offered support mostly to accessible facilities whereas remote facilities were not supported through site visits. Midwives indicated that the manager came to support them only if there was a crisis—if not, they don't visit them. Poor support also contributed to poor implementation of maternal guidelines in some areas.

5.3.1.3 Financial Cost

With regard to the financial cost as strength/ weakness, the researcher discovered that inputs, activities and outcomes were applied in this context in order to reach an outcome (Kellogg, 2004). From the results of the study, the researcher observed that managers distributed guidelines to each and every facility so that midwives would be able to utilize them during the provision of maternal health care services. This indicated that value for money was considered through effective implementation of maternal guidelines. It will lead to reduction of referrals of women to the next level of care and, hence, improved maternal health care service delivery.

The weakness discovered was that maternal guidelines were not available in all consulting rooms. Therefore, it was difficult to implement then in emergency cases. The researcher discovered that some of the equipment was available though they were insufficient and sometimes not available at all, as indicated by managers. OMN and midwives cited shortage of basic equipment such as BP machines, some shortages of patellar hammers and delivery packs that were needed in order to provide maternal health care services.

Availability of basic essential equipment helped midwives in the detection of conditions such as gestational hypertension and even pre-eclampsia, hence, midwives were able to initiate treatment in time and were able to refer the women to the next level in timeously. Regarding women who needed transfer using an ambulance, only few were fortunate because almost all the participants both midwives and managers indicated that the ambulance turnaround times were not within norms. There was delay by an ambulance when called to transfer women to the next level, hence, this will lead to more complications and more resources will be needed to manage complicated women. Most of the participants indicated that drugs were available and, thus, implementation of maternal guidelines was successful through the skills displayed by some of the midwives.

Few facilities reported shortage of drugs that prevent eclampsia, i.e., Magnesium sulphate. Though some midwives indicated that they had the drug, others indicated that the drug was insufficient as they were only provided with 20 vials. Several training programmes were conducted by managers in order to capacitate midwives with knowledge so that they can function efficiently and effectively. Training and updates did not cover all aspects, some of the midwives received information late which led to poor implementation of the guidelines and, hence, value of money was not assured.

5.3.1.4 Services

This has to do with the availability, affordability, accessibility and acceptability of the service at PHC levels.

5.3.1.4.1 Availability

According to Kellogg's *Basic Logic Model Theory of Change*, availability of services involves the inputs, activities that were needed in order to achieve the goals of the

institution and the outcomes (Kellogg, 2004). From the results of the study, the researcher discovered that most midwives in PHC facilities were offering 24-hour maternal health care services, though after normal working hours most of the facilities were operating using a call system. In few facilities, maternal health care services were not always available. The services were only available during the day. Community health care centres were operating 24 hours, but not on a call system. Professional midwives were always available in order to provide the services to women, including for those suffering from PPH and hypertension in pregnancy. In some of the facilities, maternal health care services were hampered by shortage of midwives whereby women who needed the services were transferred to the next level because the midwife was allocated alone and, hence, experienced increased workload as a result. Some women were returned back home because of shortage of staff, hence, they were given other dates to come back for the service.

HIV counselling services were provided to all pregnant women who came for ANC. All the facilities were offering adherence counselling on ART to women who tested HIV-positive. Midwives offered continuous counselling to women who tested HIV-negative each and every six weeks until the cessation of breastfeeding. Ambulance services were also available though there were delays in transporting women to the hospital. Only few facilities reported prompt response of ambulance services for women to be transferred to the next level. Most of the participants indicated that uterotonic drugs used in the prevention of PPH were available.

In some of the facilities, equipment such as BP machines were insufficient, hence, midwives used the little they had to detect hypertension in pregnancy and initiated treatment as a result. Still, these were inputs needed to perform an activity in order to reach the objectives of the institution. Therefore, unavailability of such resources had a negative impact in the institution because most pregnant women were transferred

to the next level because of shortage of equipment. Some women were diagnosed with hypertension late which complicated the situation by adding strain on the finances.

5.3.1.4.2 Affordability and Accessibility

Actions that were performed within an affordability framework were seen as the activities performed by midwives/managers as inputs that resulted in an outcome, according to Kellogg (2004). Maternal health care services are rendered for free in all public hospitals and in PHC facilities by midwives as inputs. Though the services were free, some of the PHC facilities were situated far from the community which included the hospitals that were far from the referring facility though other women were living within a 5 kilometers radius of the health care services. Pregnant women who lived far away from the hospitals and PHC facilities had poor access to the services, hence, poor utilization of the services which led to poor implementation of maternal health guidelines.

Midwives reported a distance of around 100 kilometers to access the hospital services. Some of the patients used transport where they had to pay to access the services, and those who did not have money reported to the health care facility with complications. Some of the women were able to go for follow-up at the hospital using their own transport. Midwives reported that some of the women were supposed to go to the hospital for follow-up, but did not go because of lack of money, meaning that they could not afford the service and, hence, they put their lives and that of the foetus in danger.

Some women were even accompanied by midwives when experiencing complications using their own transport when ambulance services were not accessible. Some midwives indicated that the service was not accessible to women

because of shortage of staff. Shortage of ambulance services also caused services not to be accessible to the next level of care. Facilities that were operating only during the day were not accessible to women who needed maternal health care services during the night.

5.3.1.4.3 Acceptability

Acceptability of the service involves inputs, activities and outcomes as indicated by Kellogg's Basic Model Theory of Change. Maternal health care services were accepted and utilized by the community represented by pregnant women though, from the results of the study, some midwives indicated that few women were still accessing health care services from the traditional healers. Some women diagnosed with HIV defaulted treatment and used herbal medicines from traditional healers, hence, their viral load remained high, posing the risk of infections to themselves and their unborn babies. To show that services were accepted, most women were delivering their babies in PHC facilities. Some women even left the PHC facility while being progressed in labour to go and visit their pastors for commandments which had an aftermath of PPH after delivery.

Although other women were reluctant to go to the hospital if referred, they wanted to be helped by midwives at the PHC setting. Midwives also indicated that acceptability of the service was observed when relatives accompanied pregnant women when in labour and were allowed to stay in the PHC facility until the women delivered and after delivery until the mother and child were discharged. Some midwives reported that though pregnant women presented themselves during labour at the PHC facilities, some were not co-operative during labour where they were pushing with each and every contraction which resulted in PPH after delivery. Acceptance of the service will result in proper and successful implementation of maternal guidelines by midwives as inputs, hence, good maternal outcomes as indicated by Kellogg (2004).

5.3.2 External Factors

External factors are forces outside the provision of maternal health care services and include opportunities and threats that affect the service which is being provided in the facility (Bezuidenhout, 2014). Opportunities are characteristics that can be used to the advantage of the organization and are helpful in the implementation of maternal health guidelines However, threats are aspects that can affect the organization negatively and are harmful in the implementation of maternal health guidelines (Bezuidenhout, 2014). External factors included political, economic, socio-cultural, environmental and laws.

Political factors are the authority and the powers provided by the constitution of the country or government policies (Booyens et al., 2013). The government created the posts for MHCM and OMN in order to monitor and evaluate the effectiveness of maternal health care services rendered by midwives.

Economic factors have an effect and influences the health care services. They entail finances where, if a person is poor, it will determine the quality and quantity of the services offered (Booyens et al., 2013). Maternal health care services are free to all public health care institutions so that all the citizens of the country can utilize the services.

Socio-economic factors are the factors that influence the health of a person through his/her life style, attitude, education and effects of culture. Maternal health care services encourage relatives of the women to participant in the care given to the women by allowing relatives to accompany and stay with the pregnant women during the process of labour and postnatally at the PHC facilities.

Technology has to do with the indications of advances in medicine with the provision

of newly designed equipment (Bezuidenhout, 2014). Technology plays an important role in maternal health care services where a woman can be attached to machines such as CTG in order to monitor the maternal as well as the well-being of the baby.

Laws are the regulations which are relevant to the conditions of the services, such as patient care (Bezuidenhout, 2014). Regulations from SANC enforce laws on all nurses in the country in which midwives must abide by when executing their duties. Environmental factors are factors that affect the organization, e.g., changes in the climate (Bush, 2016). Environmental factors such as the state and condition of infrastructure plays a role in the implementation of maternal health care services.

5.3.2.1 External Factors: Opportunities and Threats

A PESTLE* helps to identify how factors such as the opportunities and threats will influence and affect the activities and the performance of midwives in the implementation of maternal health care guidelines. It is often used with the last two letters of SWOT analysis so that a person get a clear understanding of the situation related to both internal and external factors (Bush, 2016).

Figure 5.3 shows opportunities and threats. Opportunities and threats as external factors, inputs, activities, output and outcomes are summarized in Figure 5.4. The results of the study indicated that political factors also involve the inputs, activities, outputs, and outcomes as indicated also by the *Basic Logic Model Theory of Change* from Figure 5.4.

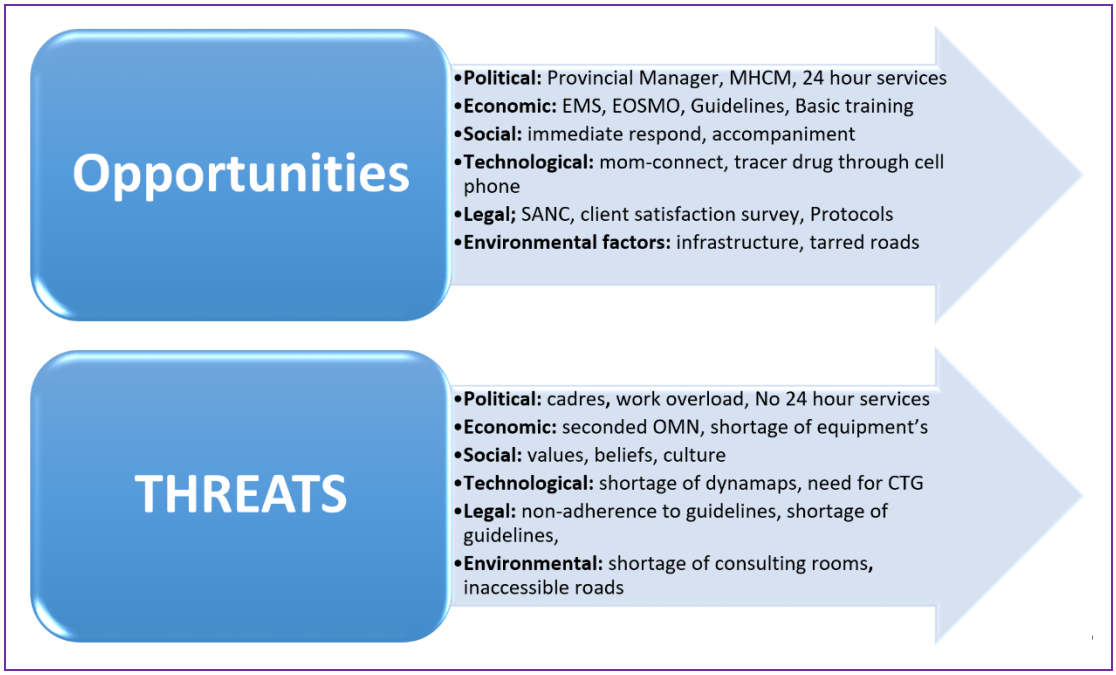


Figure 5.3: External factors: opportunities and threats in maternal health guidelines implementation

***PESTLE** is a mnemonic which in its expanded form denotes P for Political, E for Economic, S for Social, T for Technological, L for Legal and E for Environmental Factors that give a bird's eye view of the whole environment from many different angles that one wants to check and keep a track of while contemplating on a certain idea/plan; http://pestleanalysis.com/what-is-pestle-analysis/)

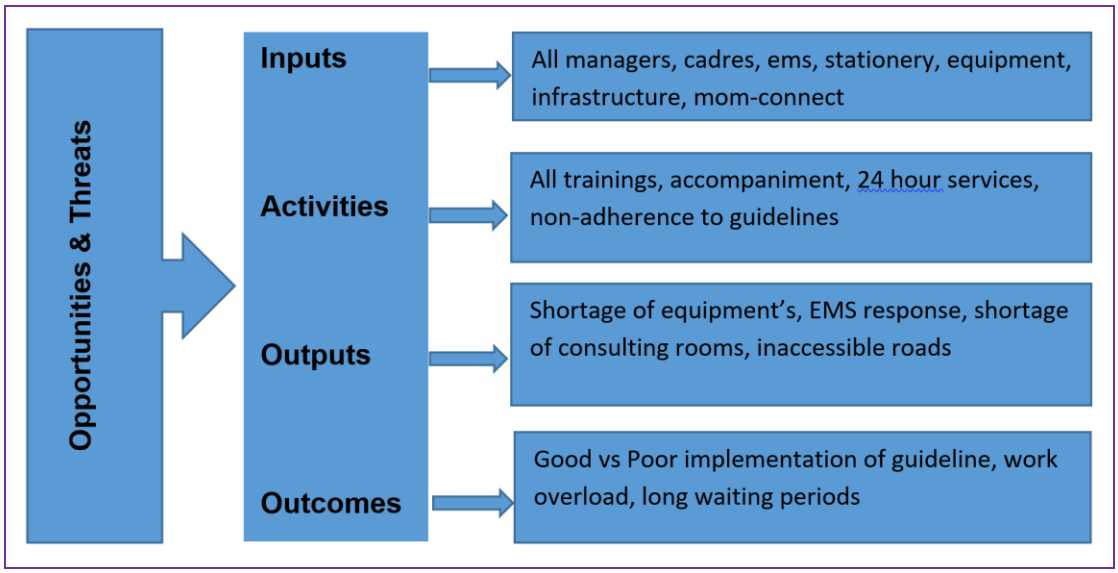


Figure 5.4: Opportunities and threats: inputs, activities, output and outcomes

Politics exert both a negative and positive impact on the health care system which also influences or affects maternal health care service delivery. The National government has declared rendering of 24-hour services in all PHC facilities which is being implemented by midwives. Though the government has declared 24-hour services, some facilities were not complying to that policy, and, hence, they were rendering 12-hour services. As a result, maternal health care services were inaccessible, hence, the community suffered if they needed after-hour care services.

People with no relevant experience and qualifications were placed in higher positions because of politics. Some of the employees who occupy higher positions were deployed from their political positions and placed to supervise the health care services without the required knowledge and skills for such positions. This is affecting the health care service delivery negatively and, hence, increases MMR because of the decisions made which are affecting those at grassroots level. There are ministerial priorities that included the waiting times which must be reduced by nurses at the PHC level.

Due to increased workload when midwives were rendering HIV services caused by many registers needed to be completed for women diagnosed with HIV, midwives reported that patients complained about long waiting periods. From the provincial office, a manager who oversees maternal health care programme throughout the province was appointed. The provincial manager monitors the progress and the implementation of maternal health care guidelines of each and every district. The manager communicates with the district managers and also with OMN through HIV/AIDS/STI/TB (HAST) meetings that are conducted each and every quarter.

Though the provincial manager met with OMN per quarter, it was mostly indicated for HAST only—what about other maternal health conditions, they were not taken into

consideration. Hence, the rate of maternal mortality rises. MHCM were there though midwives and OMN indicated that supervision by managers in most facilities was largely lacking. There are many programmes that are brought in by the department, hence, OMN were failing to implement the information gained because they were always out attending one meeting or another. This had a negative impact on maternal health care service delivery because of poor supervision. Too many programmes made it difficult for OMN to supervise and monitor midwives in the implementation of maternal health guidelines.

Some facilities were having maternal health care coordinators who are midwives within the facility who monitor every aspect related to maternal health in order to improve maternal health care service delivery as a strategy to reduce MMR. Even though coordinators are there, MMR remain high because the majority of coordinators only possess basic midwifery as a qualification and lacked expertise in the field. These were inputs that were needed by the institution to perform the activities so that the goal of the institution is reached (Kellogg, 2004).

5.3.2.2 Economic Factors

Economic factors are also inputs that can result in a negative or positive outcome, depending on the availability and use. The economic state of South Africa presently places the health care service delivery, including maternal health, in jeopardy because of recession as it was downgraded. Hence, the country is faced with financial challenges. The Treasurer was not allocated enough funds that can be used in the health care system. This information coupled with the DoH Limpopo Province that received qualified audits few years back is affecting the health care system negatively. Most facilities are presently supervised by OMN that were seconded to act in a higher position for many years with fewer OMN who are in a post.

The department is failing to hire qualified personnel as OMN for the post. Consequently, they are also failing to motivate those who were seconded to act through incentives. This is affecting the health care service delivery negatively as OMN were always out of their facilities and they cannot supervise and monitor midwives when implementing maternal health guidelines. Again, the results of the study indicated that the same economic factor has resulted in shortage of staff, including midwives. Midwives were supposed to be allocated being two or more during the night, but this is impossible and, hence, negatively affects the implementation of maternal health guidelines leading to poor maternal outcomes.

Some of the midwives indicated shortage of equipment such as BP machines, patellar hammers, delivery packs and many more. How can a midwife manage women with pre-eclampsia without a patellar hammer? The result will be poor implementation of the guideline which almost certainly will lead to poor maternal outcome. Shortage of delivery packs will also increase the rate of infections and thus poor implementation of the guideline, especially if two women were to deliver at the same time with one delivery pack.

The DoH has entered in to a contract with the ambulance service providers in which most of the facilities indicated that it was not bearing any fruits. Most midwives experienced delay by the ambulance providers to transfer the women to the hospital. This resulted in a delay in initiation of treatment by the next level and also poor maternal outcomes. There were many instances where the community was complaining about ambulance delays and shortage where lives were lost.

Maternal factors also contributed to poor implementation of the guideline because some women did not honour their follow-up visits when given dates by the hospital due to lack of money. This had a negative impact because most of the women came

to the PHC facilities with complications that ended up with a transfer to the hospital. More money was thus needed to care for such women admitted for a quite number of days. The training system was also affected. Though previously, most midwives were trained which included basic midwifery by the government. From 2010, the number of health care personnel that were to be trained has reduced. Few health care professionals were trained to become professional midwives; hence, this increased the shortage of midwives that resulted in work overload for those in the service.

The National PMTCT and Maternity Care Guidelines used in South Africa were made available so that midwives could refer to them during the provision of maternal health care services. Some of the managers and few midwives indicated that updates and continuous training regarding maternal health care guidelines were done though limited to few nurses. Those who were trained sometimes disseminated the report to other midwives late. The researcher identified that more training sessions were conducted on the National PMTCT and few if any on Maternity Care Guidelines used in South Africa, hence the rate of women dying from PPH was high followed by hypertensive disorders in pregnancy.

Most midwives were offered an opportunity to attend perinatal meetings monthly and ESMOE training were conducted and attended by some of the midwives in order to improve their competences in the implementation of maternal health care guidelines. Regardless of ESMOE training, the implementation of maternal guidelines is still poor caused by shortage of resources which were needed for midwives to practise EOST drills. Hence, they were frustrated and found it difficult to manage women with either PPH or eclampsia. Resources as identified from economic factors were inputs needed to perform an activity in order to reach the output, hence, if available would lead to a desirable outcome (Kellogg, 2004).

5.3.2.3 Social Factors

Social factors involve inputs, activities and outcomes as indicated by Kellogg (2004) and Figure 5.3. Most of the midwives indicated that some women reported to the PHC facilities in time. Immediately the women experienced something unusual regarding her health and her pregnancy, they reported to the facility for management. Values, beliefs and culture of some women had a negative impact on the health care service delivery. Most women believed in Western medicine though others believed in traditional healers.

Some of the pregnant women after being diagnosed with HIV believed that they were bewitched. Some women even defaulted ART after sometime they had been on treatment and used traditional medicines. Some women refused ART because of what they were told by their pastors and followed their pastor's commandments. Hence, by doing so, they gave the virus a chance to replicate, hence, putting their lives in danger and making it difficult for midwives to implement maternal guidelines effectively. Some of the midwives indicated that when the women came to the facility, they were accompanied by relatives or neighbours who encouraged the women to seek medical health care services.

Relatives were allowed to stay with the women when in labour and after delivery so that they could offer moral support to women. Because of culture, some midwives indicated that women did not disclose their previous history of PPH with the last pregnancies, hence, midwives managed abrupt PPH without being prepared which led to frustrations and difficulties in their management. Moreover, most midwives discovered that some women failed to disclose their HIV status to their husbands and they had to hide their ART. Some pregnant women did not take their drugs at all which led to failure of adherence to ART and, hence, compromising their health leading to poor maternal outcomes.

5.3.2.4 Technological Factors

Technological factors that the researcher identified had to do with inputs in the form of machines that the health care system requires in order to make the implementation of guidelines effective for midwives and pregnant women. Few facilities indicated that they had dynamaps that monitors the women's vital signs which included BP checking's whereas most facilities were still using manual BP machines. Though junior nurses were the ones who monitored the patients' BP, sometimes they can get tired and record incorrect readings leading to mismanagement of the women by midwives.

Other participants indicated the use of Mom-Connect where pregnant women were registered and connected through their cell phones. This programme allowed mothers and provided them with information related to their gestational age until delivery. The programme continues even after delivery providing mothers with health information regarding her baby and according to the baby's milestones. If the programme was utilized correctly by all PHC facilities and followed by women, it will be a great strategy in reducing MMR. Facilities were provided with cell phones so that they are connected with the National level in order to report the states and availability of drugs, including ART weekly and even monthly so that a facility with insufficient stock is assisted.

Unfortunately, not all drugs that had to do with maternal health care services were included because the tracer had to report drugs on ART and TB. Some of the advanced midwives indicated the need to have a CTG machine that will monitor the contractions as well as the foetal heart rate, hence, making implementation of maternal guidelines easy. Another advanced midwife indicated the need of sonar, if possible, so that it can be applied as a useful tool to estimate the gestational age, position of the foetus, hence, making implementation of guidelines easy for midwives.

Most of the facilities do not have billboards that will always remind midwives and women on matters pertaining to maternal health, hence, making adherence of maternal health guidelines a success. Improved technological factors as inputs will enable midwives to render maternal health care services effectively and efficiently in order to improve maternal health outcome (Kellogg, 2004).

5.3.2.5 Legal/Law Factors

The Saving Mother's Report of 2011-2013 indicated that the provincial and district managers came together and recommended that (more than one) midwives assist each other in the provision of maternal health care services. In confirmation of the recommendation by the Saving Mother's Report, some midwives indicated that they were assisted by their colleagues as midwives in the management of pregnant women. This was possible, especially during the day and mostly on a specific day like Wednesday where all the midwives were on duty.

Assistance from colleagues made implementation of the guideline to be successful and improved the maternal outcome. However, midwives who were assisted by enrolled nursing assistants found it difficult, hence, they were also frustrated during the implementation of the guidelines when managing women with PPH or eclampsia. Consequently, adherence to the guideline was impossible, resulting in poor maternal outcomes. This was influenced by shortage of midwives mostly during the night where one midwife was allocated alone making it difficult for the midwife to implement maternal guidelines alone. The use of maternal health care guidelines and protocols by midwives were also indicated by some of the midwives when rendering maternal health care services especially those assisted by colleagues and those with speciality in the field. Each and every facility was provided with maternal health care guidelines and maternal health protocols were pasted on the walls, especially in the delivery room, but OMN indicated that there was shortage of maternity care

guidelines because only one guideline was distributed to each PHC facility, hence, IDEAL clinic realization recommended each and every consulting room to have a guideline.

The South African nursing Council as a regulating body expected midwives to comply with its regulations during management and care of the women. If a midwife was found to be guilty of mismanagement of the women, the midwife can be struck off the roll and be faced with lawsuits. One of the strategies to reduce maternal morbidity and mortality rate in Limpopo Province were to give daily health education to pregnant women regarding dashboard indicators which included advising pregnant women to attend ANC before 20 weeks of pregnancy though some districts had their own policy and indicated booking before 14 weeks.

The minister of health stated that as soon as the women tested positive for gravidex, she must start ANC immediately. Few midwives disagreed with that information. This was done so that any maternal condition be diagnosed and treated early in order to reduce MMR. Few managers indicated that they were conducting client satisfaction surveys during discharge of the women in order to improve PHC services. Managers indicated the cause of not conducting the survey on discharge of the women because questionnaires were not available and not in use. Few OMN indicated that they conducted clinical audits on maternal health records though others were not conducting it because most of the time they were out of their facilities attending meetings. Operational mangers at the PHC facilities were conducting monthly reviews at various PHC facilities using supervisory tools in order to assess the care rendered by midwives in order to improve maternal health care services. Legal factors identified that had an influence in this study were inputs needed to adhere to or render maternal health care services, according to Kellogg (2004).

5.3.2.6 Environmental Factors

Environmental factors consist of inputs identified by the researcher, which influenced the implementation of maternal guidelines by midwives as indicated in Figure 5.3 on opportunities and threats in maternal health guidelines implementation. There is an ideal clinic realization programme that is being implemented at PHC facilities in order to better health care services of our people, which included maternal health care. For the programme to be implemented successfully, it needs the availability of infrastructure as an input whereas most of the infrastructure used at PHC do not qualify for the programme because the facilities were dysfunctional and outdated in that they don't fit with today's burden of diseases. Hence, implementation of maternal guidelines in this institution is not done appropriately because of shortage of consulting rooms.

Some of the midwives indicated having enough consulting rooms, where three streams were created in each PHC facility, including a maternal health care service stream in order to reduce waiting periods. However, shortage of staff was a barrier to the successful implementation of the guidelines though the streams were created. Most of the PHC facilities are accessible, as they are near the community. Some of the PHC facilities were situated near tarred roads where the ambulance services easily accessed the health care facilities; hence, if needed to transport the women during emergencies it arrived quicker comparing to facilities with poor roads. Facilities that were far from the community were inaccessible by the community and ambulances.

Infrastructure, tarred roads were inputs needed in order to accomplish the activities (Kellogg, 2004). All the PESTLE were seen by the researcher as related to Kellogg's (2004) *Basic Logic Model Theory of Change* as inputs needed to perform an activity, hence, the output and outcomes as a result.

5.4 Swot Analysis Matrix

From the results of the study, a SWOT analysis matrix was developed. The matrix was identified from the strength, weaknesses, opportunities, and threats from the results that indicated the nature regarding the implementation of maternal health guidelines by midwives and managers. Table 5.2 summarizes the SWOT analysis matrix identified from the above discussion.

5.5 Development of the Strategy and Orientation

Information discussed under SWOT indicated the strengths, weakness, opportunities and threats in the provision of maternal health care services in Limpopo Province. The researcher used the information from the SWOT matrix to develop the strategy. In order to improve the implementation of maternal health guidelines by midwives, the action plan of the **B**uild, **O**vercome, **E**xplore and **M**inimize (BOEM) strategy was used as outlined in Pearce (2010). The strategy to facilitate the implementation of maternal health guidelines by midwives was developed by building on strengths, overcoming the weakness and challenges, exploring on opportunities and by minimizing threats.

5.5 SWOT and BOEM Strategy

Figure 5.5 and Table 5.3 present SWOT and BOEM action plan that were used to develop the strategy.

Table 5.2: SWOT analysis matrix

	STRENGTHS	WEAKNESSES
INTERNAL FACTORS	**Human resources** • Availability of programme managers • Availability of OMN	**Human resources** • Insufficient midwives and advanced midwives • Seconded OMN to higher post
	Competences • Knowledge about management of three conditions • Adherence to maternal guidelines • Ability to refer women to the next level	**Competences** • Knowledge deficit about management of three conditions • Poor adherence to maternal guidelines • Difficulty and frustration in the management of PPH & HPT in pregnancy • Insufficient support from colleagues during management • Insufficient supervision and monitoring of maternal guidelines by OMN
	Financial costs • Availability of equipment • Availability of drugs • In-service training on maternal health guidelines	**Financial costs** • Shortage of equipment • Delayed response by ambulance services • Insufficient drugs • Updates on guidelines not covering all midwives

Continued/…

Table 5.2: SWOT analysis matrix (continued)

	STRENGTHS	WEAKNESSES
INTERNAL FACTORS	**Services** **Availability** • All facilities providing 12 hour with some doing 24 hour maternal health care services available • HIV counselling services available **Affordability** • Maternal health care services free • Able to use own transport to PHC facilities • Accompaniment of women by midwives using women's transport to hospital **Accessibility** • PHC facilities located within 5 kilometres radius **Acceptability** • Services utilized by the community	**Services** **Availability** • Unavailability of 24 hours services to most PHC facilities **Affordability** • Failure to access services & follow-up because of lack of money **Accessibility** • Long distance travelled by pregnant women to access PHC services **Acceptability** • Some pregnant women still utilizing traditional healers and relies on their pastors for treatment

Continued/…

Table 5.2: SWOT analysis matrix (continued)

	OPPORTUNITIES	THREATS
EXTERNAL FACTORS	**Political** • Availability of Provincial & District MHCM • Many programmes to be implemented	**Political** • Deployed caders as managers with no expertise • Increased workload resulting in long waiting periods by patients who needed treatment • Insufficient supervision by District MHCM through support visit
	Economical • Existence of contractual agreement between the Department and ambulance service providers • Availability of PMTCT and maternity care guidelines • ESMOE training	**Economical** • Value of money not considered due to delay in ambulance services • Maternity care guidelines not available in all consulting rooms • Reduction and delay in basic midwifery training • Lack of co-operation by women
	Social • Present early to PHC services by women • Believe in western medicine • Accompaniment of women by relatives	**Social** • Disrespect of PHC nurses by colleagues at the hospital • Other pregnant women believe in traditional healers, church and witchcraft • Hiding history of PPH by women
	Technological • Mom-connect programme • Cellphones connected to National level that checks • Availability of essential drugs such as ART.	**Technological** • Need for CTG & sonar machines and dynamaps • Need for billboards

Table 5.2: SWOT analysis matrix (continued)

EXTERNAL FACTORS	OPPORTUNITIES	THREATS
	Legal/Law • Allocation of two vs one midwives • SANC regulations • Monthly reviews performed by OMN	**Legal/Law** • Failure to conduct client satisfaction survey • Failure to conduct clinical audits
	Environmental • Some PHC facilities had more consulting rooms • Other facilities near tarred roads hence utilized by pregnant women easily	**Environmental** • Shortage of consulting rooms • Poor roads that were not accessible by ambulances

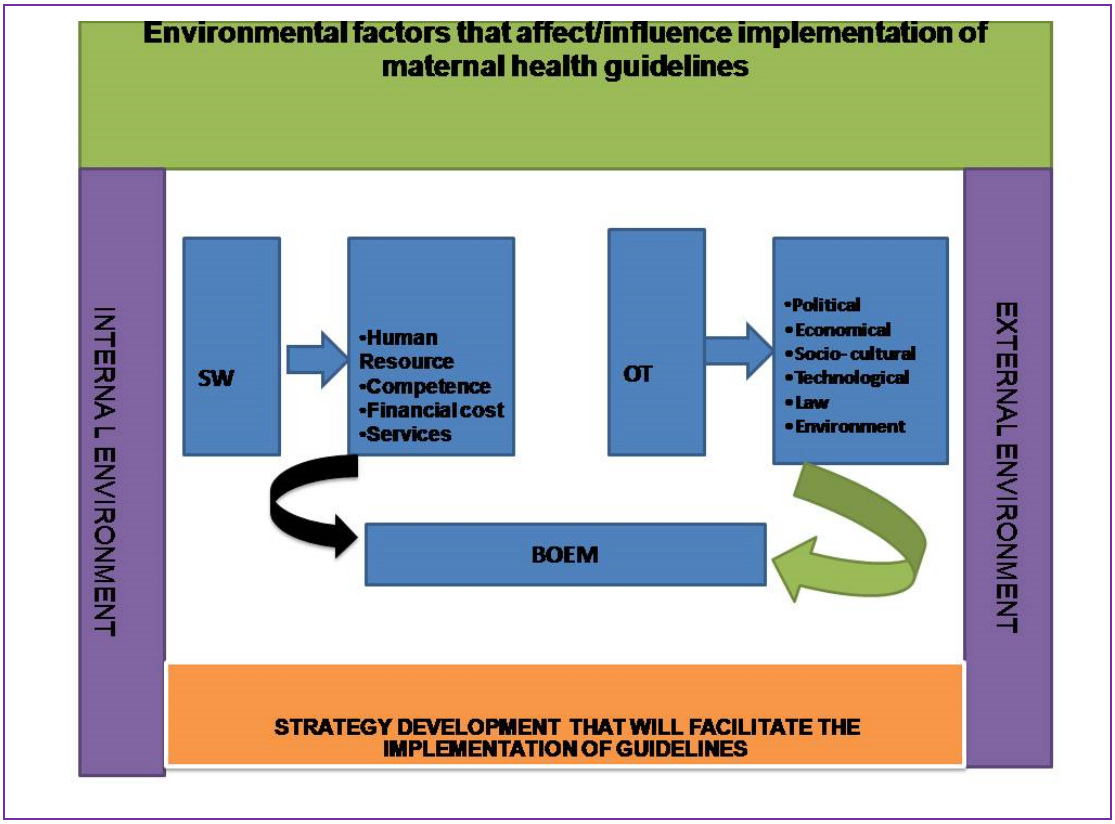


Figure 5.5: Use of SWOT to develop BOEM

5.6 Conclusion

This chapter dealt with the strategy development where SWOT analysis was used to identify internal factors such as strengths and weaknesses that might influence the implementation of maternal health guidelines by midwives. Likewise, PESTLE analysis was used in identifying external factors that were affecting the implementation of maternal health guidelines through opportunities and threats. The basic model theory of change was integrated in discussing the results in the strategy. The action plan was formulated by building on the strengths, overcome weakness, explored opportunities and minimizing the threats, referred to as BOEM, in order to develop the strategy that will facilitate the implementation of maternal health guidelines by midwives. The next chapter presents the validation of the developed strategy.

Table 5.3: Developed strategy through BOEM from SWOT

Building on strengths	
Strength	**Actions**
Availability of MHCM managers	• Work with MHCM for the purpose of developing a scheduled site visit, to be made available to each facility and to do support visits to PHC facilities so as to monitor the implementation of maternal health guidelines by midwives.
Availability of OMN	• Advocate for the integration of programmes so that managers have time to supervise and monitor midwives when implementing maternal guidelines.
Knowledge about management of three conditions	• Arrange with experts in the field to offer continuous professional development and in-service training in order to keep midwives and advanced midwives up to date especially on maternity care guidelines conditions such as PPH that are preventable. • The training must cover all the midwives not few in order to ensure that updated information is known by all midwives in time and to avoid shifting of responsibilities to those who attended the training
Adherence to maternal guidelines	• Work with the District MHCM to do the following; ✓ To arrange for symposium and for midwives to attend yearly midwifery conferences ✓ To arrange for yearly award giving ceremony for midwives who are adhering to guidelines as a form of positive reinforcement.
Ability to refer women to the next level	• Encourage midwives to keep up the good work and to continue identifying women who needed urgent referrals so that women receive treatment early.
Availability of equipment	• Motivate the asset manager to do the following; ✓ Budget and put money aside each and every year for purchasing and maintaining equipment in order to ensure the availability of equipment. ✓ To manage equipment through inventory in order to ensure the availability of equipment to all the facilities.
Availability of drugs	• Plan with OMN and midwives on how they can monitor the availability of drugs daily including Magnesium Sulphate. • Facilitate for the designing of a standardized register that will be used by all PHC facilities to record the drugs.
HIV counselling services	• Motivate for increase in the number of human resources for the successfully implementation of the services and to make sure that

available hence work overload	HIV testing kits are always available. • Motivate for consolidation of registers in order to reduce the number of registers that are completed in a pregnant woman diagnosed with HIV
Able to use own transport to PHC facilities	• Continuous education must be given to the community and pregnant women by midwives to arrange for their own transport that will be used to transport the women when in labour. • Home based careers may be utilized also to give women information regarding arranging their own transport. • Women must be taught strategies on how they can save money from the onset of their pregnancy that is during their first ANC in case they will be a need to transfer women to the hospital
Accompaniment of women by midwives to hospital	• For midwives to be able to accompany women successfully, managers to support them with enough staff so that services at the PHC facilities must continue even when one has accompanied the women
Services utilized by the community and located within 5 kilometres radius	• Encourage the PHC staff to display positive attitudes towards the community so that they be encouraged to use the PHC facilities all the time. • Work with OMN for the installation of reviewed board of service standards that reflect hours of operations and services to be rendered and the board to be at the entrance of the facility. • Though services are nearer to other community members, maternal health care services to be always available 24 hours per day in order to be utilized by the community hence reduction of maternal morbidity and mortality rate.
Weakness	**Overcoming weaknesses**
Insufficient midwives and advanced midwives	• Motivate the Provincial DoH to do the following; ✓ Increase the uptake of midwives for basic and post basic (advance midwifery) training for midwives to reduce shortage of staff. ✓ Revive the basic training in midwifery to enrolled nurses so that the human resources are increased. ✓ To extend the training on matters pertaining to midwifery to home based careers that may help in identifying women at risk and offer appropriate education to women.
Seconded OMN to higher post	• Advocate for the filling of vacant post and in the meantime, those seconded to be on higher post to be given incentives so that they are encouraged to supervise and monitor the implementation of maternal health guidelines by midwives.
knowledge deficit & poor adherence to maternal	• Advocate for the allocation of one advance midwife to each and every PHC facility that will ensure the training needs of midwives

health guidelines when managing women with PPH & HPT in pregnancy	and needs of the patients before referral to the hospital. • Assists and encourage OMN to conduct in house in-service training and perinatal meetings within the facility and to invite experts during the training who will give more information to midwives. • Arrange for continuous professional development of midwives in order to capacitate them with knowledge for them to adhere to guidelines successfully • Encourage midwives to update themselves on matters pertaining to maternal health care services through personal development by studying the maternity care guidelines when the facility is not busy.
Insufficient support from colleagues during management	• Clubbing of PHC facilities together so that two midwives support each other even during the night • Hiring of more midwives that will assists each other during management
Difficulty and frustrations in the management of PPH & HPT in pregnancy due to lack of Support from colleagues during management	• Advocate for the allocation of two midwives all the time in order to assist each other during the provision of maternal health care services. • Motivate the NDoH to purchase teaching model/manikin and equipment needed by midwives and is distributed to each facility for midwives to practice EOST. • Encourage OMN to do strict monitoring of EOST drills for midwives to practice complicated conditions hence be competent.
Shortage of equipment	• Motivate the asset manager to do the following; ✓ To involve midwives during the purchase of equipment so that they brought in inputs for new equipment and they must be trained on the proper use and care of equipment ✓ To benchmark with other provinces in order to identify new technological use of equipment. ✓ To increase the number of equipment ordered so that surplus stock is distributed to PHC facilities and to include equipment that constitute a delivery pack, patellar hammer that will be used to monitor the women's response on Magnesium Sulphate.
Delayed response by ambulance services caused by shortage of ambulance services	• Motivate the Provincial DoH to; ✓ Purchase more ambulances in order to increase the ambulance responses when called by midwives and If possible, designated ambulances must be purchased for maternal health care services only ✓ To hire drivers that will maintain, care and transport women to the hospital. ✓ To supply each and every local area with an ambulance in order to avoid delay and shortage. ✓ Encourage for roads maintenance all the time especially in more rural areas and to construct tarred roads for easy access by

	ambulance.
Insufficient of drugs	• Advocate for facilities that are far from the hospital to have more stock of magnesium sulphate if possible 40 vails and to have a system in place to control and avoid drug wastage
24 hour maternal health care services not available to some PHC facilities	• Advocate for the District Executive Managers to; ✓ Increase the security in each and every facility so that midwives are safe all the times. ✓ Provide midwives with resources needed in order to implement maternal health guidelines successfully ✓ Support midwives psychologically and encourage them to work even during difficult times. • Motivate for districts to build maternity hospital with a maternity home where high-risk women can await for their deliveries nearer with advanced technologies and human resources with expertise in maternal health matters.
Long distance to PHC facilities, other women will need transport hence failure to access PHC services	• Work with the Provincial DoH Limpopo and the District Executive Managers to purchase park homes that may be used as health care facilities in areas where there is poor access to health care services. • Again to hire staff that will render health care services including maternal health to that area not to move staff from other facilities
Other pregnant women use traditional healers and church	• Midwives and home based careers to work together in the education of women regarding the dangers of using traditional medicines as they interact with the drugs used in lowering viral load in HIV patients. • Capacitate traditional healers on the scientific medicines that works so that they can advise women to use their medicines as prescribed • Teach traditional healers on safer methods when cutting human tissues in order to avoid the spread of infectious diseases. • Advise OMN to include one traditional healer to form part of the clinic committee members who will disseminate health information to other traditional healers.
Failure by women to do follow-up to hospital because of lack of money	• Educate women on the importance of follow-up visits so that women can take the visit into considerations and safe money for such visits. • Work with home based careers, clinic committee members and to visit the chief's kraal during their meetings in order to inform the community regarding the important's of follow-up visits by pregnant women in order to reduce maternal morbidity rate. • Advocate for establishment of maternal obstetric units in each hospital with maternity waiting areas for high risk pregnant women
Explore other opportunities	

Opportunities	Actions
Reduction of waiting times	• Support OMN with resources so that it be possible for PN/midwives to implement the IDEAL clinic realization programme hence reduction of waiting times • Advocate for consolidation of registers used to record patient's information in order to avoid duplication of information hence reduction of patients waiting periods. • Encourage nurses to use an appointment strategy in order to book patients for their appointments. • Educate the community on the importance of adhering to dates and time given in order to facilitate the booking system • Teach home based careers to encourage patients to adhere also to their dates and times when going door to door during their services.
Availability of provincial & District MHCM	• Advocate for continued support offered by Provincial Health Care Managers to district managers and to focus on other aspects of maternal health care services not only HAST • Strengthen the support system offered by MHCM to PHC facilities in order to reduce MMR.
Existence of contractual agreement between the DoH and ambulance service providers	• Motivate the District Executive managers to revisit the contractual agreement with the ambulance services providers in order to review the terms of agreement and to facilitate prompt response when requested by midwives.
Personnel trained on basic midwifery to be offered EOSMO training	• Plan workshops and in-service training that must cover all midwives related to ESMOE and other information related to maternal health guidelines. • Support and encouragement must be offered to midwives by MHCM and OMN on the implementation of EOST drills in their facilities. • Evaluate the effectiveness and the changes brought in by EOST drills in the implementation of maternal health guidelines.
Availability of PMTCT, maternity care guidelines and protocols	• Advice midwives to develop a positive attitude towards the guidelines and take it as a tool that helps them in the management of the women. • Advocate for all the PHC guidelines to be packaged electronically and made available to each midwife. • Encourage midwives to utilize the electronically packaged guidelines through their cell phones or facility computers when managing all patients.
Women present early to	• Continuous encouragement must be given through daily health education to women by midwives so that they continue to seek

PHC services and believe in scientific medicine	medical interventions earlier in order to reduce maternal morbidity and mortality rate. • Educate home based careers and they must work together by identifying women at risk of doing so and educate women on the dangers of mixing scientifically proven medicines and traditional medicines.
Accompaniment of women by relatives to PHC facilities	• Arrange for meetings with traditional leaders, clinic committee members and home based careers to influence the community on accompanying pregnant women to the PHC facilities when in labour in order to support women in case of complications so that midwives are able to implement the maternal guidelines with easy.
Availability of dynamaps	• Encourage nurses to use and keep Dynamaps safely in order to sustain its efficiency and for easy provision of maternal health care services by midwives. • Motivate the District Executive Managers to work together with OMN in identifying equipment of good quality in a form of Dynamaps, purchase them and distribute to all PHC facilities in order to reduce human error.
Mom-connect programme	• Support facility coordinators and midwives to continue to register women on Mom-Connect in order for women to be kept up to date throughout their pregnancies. • Advice women to read the massages and record the information received via SMS in a book so that they don't forget the information. • Conduct door to door services with home based careers and facility coordinators to register women and to check the effectiveness of the programme. • Facilitate for the incorporation of cell phone remainders in the Mom-Connect programme in order to remind women of their follow-up ANC visits with the NDoH.
Cellphones connected to National Level that checks availability of essential drugs such as ART.	• Nomination the responsible person who will check the availability of ART drugs in the facility. • At that National level, there must be a responsible person who will make a follow up in facilities where there is shortage of drugs. • Motivate for inclusion of drugs that prevent eclampsia, Magnesium Sulphate and uterotonics on the reporting system.
SANC regulations	• Encourage midwives to conform to the rules and regulations and as such, maternal health care services are offered with caution by midwives in order to avoid removal from the roll and law suits from court.
Monthly reviews conducted by OMN	• Work with OMN to draw up an action plan on the gaps identified during monthly reviews and implement those actions in order to improve health care services.
Availability of consulting rooms	• Advice facilities with enough consulting rooms to continue to implement the IDEAL clinic realization by practicing three streams in order to improve maternal health care services and to reduce waiting periods.

	• Motivate the Provincial DoH to hire enough health care personnel who will render health care services in those consulting rooms.
Accessible tarred & gravelled roads to PHC facilities	• Encourage the department of roads and transport to maintain roads so that it be easy for ambulances and other cars to access the roads without delay in order to facilitate the transfer of women to the hospital.
Threats	**Mitigation of threats**
Deployed caders as managers with no expertise	• Motivation to be submitted to the National and Provincial DoH to hire personnel with qualifications, experience and expertise related to nursing field in order supervise and provide quality maternal health care services hence reduction of MMR.
Shortage of consulting rooms	• Advocate for purchasing of park homes that will be utilized as consulting rooms in facilities with shortage of consulting rooms to reduce waiting times.
Disrespect by colleagues on the next level	• Submit the report to the District Executive Managers and the Chief Executive Managers of the hospitals regarding the disrespect by personnel on the next level so that managers; ✓ Arrange for quarterly value clarification/workers for a change meeting where both hospital and PHC staff must come together and state their challenges in order to promote a trusting relationship between the hospital and the PHC staff.
Lack of co-operation by women	• Establish a good patient and nurse relationship so that the women will be able to listen to the health advises given by the midwife during labour. • Encourage midwives to be the change agent; they must change the attitude of the women and their own attitude so that both accept each other and work together in order to reduce the risk of poor co-operation.
Hiding history of PPH by women	• Teach women about the importance of giving full history during ANC so that they be able to plan for the delivery of the women hence reducing maternal morbidity and mortality rate.
Lack of integration with other structures on matters pertaining to maternal health care guidelines	• Train Home based careers on matters pertaining to pregnant women that include taking of blood pressure and urinalysis so that they refer the women early if they discovered any deviation from normal ranges hence initiating management of the women by midwives in time. • Again home based careers must receive and to have superficial knowledge of maternal health care guidelines and to have an understanding on how to care for a pregnant women. • Organize training in a form of workshops for Life Orientation teachers so that they have superficial understanding of the maternal health care guidelines in order to deal with pregnant students.

	• Encourage midwives to extend giving of health information on matters pertaining to maternal health care services during women societies and at their churches.
Need for billboards	• Motivation for the availability of billboards that will inform the community and midwives on issues pertaining to maternal health
Failure to conduct client satisfaction survey	• Work with the District Executive Managers to ensure the availability of standardized client satisfaction survey in each and every PHC facilities in order to improve the health of our nation • Support midwives to ensure that each and every woman completes this survey on discharge in order to improve maternal health care services. • Assess the efficiency of the survey and discuss the comments given by women with the staff once per month so that corrective measures are done.
Failure to conduct clinical audits	• Encourage operational manger to work with the second in-charge and agree on a date fortnightly where they review maternity case records both on women who delivered and those still to deliver in order to evaluate care rendered by midwives to women. • Advice operational manger and second in-charge to draw a strategy on how to deal with gaps identified in order to improve the knowledge and skills of midwives.

CHAPTER 6

Validation of the Developed Strategy

6.1 Introduction

The previous chapter concentrated on strategy development where the results were used to develop the strategy that will be used by midwives to facilitate implementation maternal guidelines during the provision of maternal health care service. This chapter focuses on the validation of the developed strategy and its applicability in the maternal health facilities. Recommendations were made based on the findings of the study and the developed strategy where actions were formulated by building on strength, overcoming weaknesses, exploring opportunities and mitigation of threats, i.e., BOEM.

6.2 Validation of the Developed Strategy

Validation is defined as the scientific process where the developed strategy is checked for its accuracy (Chinn & Kramer, 2015). In this study, validation was done in order to check the applicability of the developed strategy and if it will bridge identified gaps from the findings of the study. Validation of the developed strategy was done by consulting MHCM, selected OMN and professional midwives from Vhembe and Mopani districts. The researcher sent copies of the developed strategy one week before so that respondents can familiarize themselves with the content. The researcher designed the questionnaire where respondents were supposed to select the appropriate tick symbol to indicate their inputs on the actions pertaining to the developed strategy. There was a space where respondents had to write their suggestions that might enrich the developed strategy.

6.3 Methodology

Chinn & Jacobs (1987) defined validation as the method used to check the credibility of empirical knowledge with regard to the scientific model of a discipline; it relates to the validity of the developed strategy. Validation was done through the use of the quantitative research design method. This method was chosen because of its nature of generalization and because a huge amount of data can be collected in a short period of time. The researcher used a non-experimental research design method, where a survey was carried out to determine if identified gaps could be closed using the developed strategy.

6.3.1 Population

In this study, the population was all PN trained in Midwifery Nursing Science working at PHC facilities, MHCM and OMN from Vhembe and Mopani districts rendering maternal health care services.

6.3.2 Sampling of Facilities

The two districts, Vhembe and Mopani that were sampled in the main study were also used for the purpose of validation. These districts were purposively sampled using a non-probability sampling method because they participated in the main study. Sixteen (16) PHC facilities in Makhado, 16 PHC in Thulammela, 22 in Greater Giyani and 10 in Ba-Phalaborwa municipalities were included in the study, as the researcher was more knowledgeable about the study at hand.

6.3.3 Sampling of Respondents

Two (2) MHCM and 16 OMN were purposively sampled from the 2 districts. Then from each municipality, 8 PN were selected systematically. From the total number of PHC facilities selected, 1 PN with midwifery was sampled from each and every

second PHC facility making a total of 32 PN. The total population sampled were 50.

6.4 Data Collection

The researcher made appointments with the managers and PN and the date of the meeting was arranged with them. Before the set date of the meeting, the researcher provided each and every respondent with the developed strategy a week before so that they could study and familiarize themselves with. The researcher consulted Two MHCM, OMN and midwives from Vhembe District followed OMN and midwives of Mopani District. Two groups were formulated in each district and each consisted of 8 operational managers and 16 PN. MHCM had to attend to all the groups. The researcher was with the research assistant to facilitate the meeting.

The researcher and the assistant introduced themselves to the respondents who were given the opportunity to introduce themselves. The researcher indicated the purpose of validation of the strategy with the respondents as a means of assessing its applicability and efficiency to midwifery practice. The researcher presented a brief background of the research that was conducted, findings of the study and the developed strategy. After presentation, clarity questions were welcomed.

After presentation, the researcher distributed self-administered questionnaires (Annexure I) for respondents to complete that evaluated and validated the strategy. The questionnaires were constructed in English and respondents had to select the appropriate tick if they agreed or disagreed with the interventions indicated by the researcher. At the end of each intervention, there was space for them to give their comments and inputs. Concluding remarks on the meeting was done by the researcher and the managers of each district as the workshop was coming to the end.

6.5 Data Analysis

During analysis, the researcher included suggestions that were brought in by respondents. Descriptive statistics was used to describe and summarize data collected in this study.

6.5.1 Presentation of the Results

The researcher presented results using Tables 6.1 and 6.2. Respondents agreed that the strategy was congruent with their clinical areas or field of work and that it will facilitate the implementation of maternal health guidelines, hence promote reduction of MMR.

6.5.1.1 Biographical Data of the Participants

Table 6.1 indicates the biographical data of respondents. A total of 22 respondents were selected to participate in the validation of the developed strategy. All respondents (100%) were Africans meaning that they were familiar with the culture of the community they were serving. Though all ages from the results were represented, the highest age group (40.9%) were between the ages of 50-59 which denoted that they were also familiar with the culture of the DoH and were helpful in the development of the strategy. Again, the highest number of respondents selected was PN (72.7%).

This number was chosen because respondents were the implementers of the maternal health guidelines and their views regarding the applicability of the developed strategy were important. Almost all respondents (86.3%) had more than 5 years of experience which also helped in the development of the strategy because of the knowledge and skills they possessed in the field of maternal health care services. The majority of respondents (82%) had a basic diploma/degree in nursing whereas those with advance midwifery as a speciality were few (9.0%). This indicated the dire

need for training of midwives to develop into advance midwives.

Table 6.1: Biographical data of participants

RACE GROUP	Frequency	Percentage
African	22	100
AGE (YEARS)		
20-29	1	4.5
30-39	2	9.0
40-49	7	32
50-59	9	40.9
60 and above	3	13.6
Total	**22**	**100**
NATIONALITY		
South African	22	100
OCCUPATION		
Professional nurse	16	72.7
Maternal health manager	2	9.0
Operational manager	4	18.1
Total	**22**	**100**

YEARS IN CURRENT POSITION

Years	Frequency		Percent		Total frequency	Total%
	Midwives	Managers	Midwives	Managers		
1-3 years	1		6.25		1	4.7
4-5 years	1	1	6.25	16.7	2	9.0
> 5 years	14	5	87.5	83.3	19	86.3
Total	**16**	**6**	**100**	**100**	**22**	**100**

HIGHEST LEVEL OF EDUCATION

Education	Frequency		Percent		Total frequency	Total%
	PN	OMN/ MHCM	PN	OMN/ MHCM		
Basic diploma/degree	14	4	87.5	66.7	18	82
Advance midwifery	2	0	12.5	0	2	9.0
Master's degree	0	2	0	33.3	2	9.0
Total	**16**	**6**	**100**	**100**	**22**	**100**

PN: Professional nurse; OMN: Operational manager; MHCM: Maternal health care manager

6.6 Discussion of the Validation Results

Discussion of the results was based on the strength, weaknesses, opportunities and threats.

6.6.1 Strengths and Weaknesses

The following discussions were based on the strength and weaknesses.

6.6.1.1 Strengths

From the validation results, 22 respondents participated in this study. Nearly all the participants agreed with the strategy that was developed in order to build on strengths and overcoming of weaknesses. All respondents (100%) indicated that the developed strategy of continuous development, updates and in-service training that must include all PN would enhance the knowledge and adherence to maternal health guidelines by midwives.

This strategy was supported by authors who indicated the need for monitoring updates and training offered to PN regularly in order to capacitate them (Bick, Rose, Weavers et al., 2011; Heslehurst, Russell, McCormack et al., 2013; Dawson, Brodie, Copeland et al., 2014). Almost all respondents (95.4%) agreed that if programmes can be integrated, OMN will have time to supervise and monitor the implementation of maternal guidelines by midwives. Support site visits by MHCM will enhance the implementation of maternal guidelines; all respondents (100%) also indicated this.

Provision of standardized drug registers and increasing the number of Magnesium sulphate distributed to all PHC facilities will enhance the availability of drugs—this strategy was again supported by 86.3% of respondents. Samal (2015) supported the issue of monitoring drugs to ensure drug availability all the time by managers. Almost all respondents (95.4%) agreed with the strategy of collaboration with PN, home-

based carers and clinic committee members in educating pregnant women regarding the importance of honouring their follow-up visits in order to reduce maternal morbidity and mortality rate.

Table 6.2: Results of validation

Building on strength and overcoming weaknesses		
Question	**Frequency**	**Percentage**
Will the developed strategy enhance the availability of human resources	22	100%
Will the developed strategy enhance the knowledge, training and adherence of midwives to maternal guidelines	22	100%
Will the developed strategy overcome difficulties and frustration during the management of PPH & HPT in pregnancy by midwives	22	100%
Will the developed strategy enhance the Support from colleagues during management of the women	21	95.4%
Will the developed strategy enhance support by MHCM and OMN	22	100%
Will the developed strategy enhance Prompt response by ambulance services	21	95.4%
Will the developed strategy ensure the availability of drugs	19	86.3%
Will the developed strategy ensure the availability of equipment	22	100%
Will the developed strategy enhance 24 hour maternal health care services	22	100%
Will the developed strategy enhance the availability of HIV counselling services	22	100%

Will the developed strategy enhance free maternal health care services	22	100%
Will the developed strategy enhance accompaniment of women by midwives to hospital	22	100%
Will the developed strategy overcome the weakness of failure by pregnant women to do follow-up to hospital	21	95.4%
Will the developed strategy overcome the weakness of PHC facilities that are far from the community	22	100%
Will the developed strategy enhance utilization of PHC service by the community	20	90.9%
Explore other opportunities and Minimize identified threats		
Will the developed strategy reduces patients long waiting times	20	90.9%
Will the developed strategy reduces the appointment of deployed cadres as managers	22	100%
Will the developed strategy ensures the availability of OMN in the facility	19	86.3%
Will the developed strategy ensures the integration of many programmes to be implemented	21	95.4%
Will the developed strategy encourages that, personnel trained on basic midwifery to be offered EOSMO training	22	100%
Will the developed strategy reduces the poor communication between colleagues at PHC/Hospital	20	90.9%

Will the developed strategy enhance women to present early to PHC services and believe in scientific medicine	21	95.4%
Will the developed strategy enhance the accompaniment of pregnant women by relatives to PHC facilities	22	100%
Will the developed strategy ensures that the cell phone remainders for follow-up of pregnant women is incorporated in to Mom-Connect programme	21	95.4%
Will the developed strategy ensures the connection of cell phones that incorporate magnesium sulphate and uterotonic drugs	21	95.4%
Will the developed strategy enhance the allocation of two midwives even during the night	21	95.4%
Will the developed strategy ensures the availability of consulting rooms	22	100%
Will the developed strategy improves the accessibility of roads by ambulance	22	100%
Will the developed strategy encourages women to co-operationduring delivery	22	100%
Will the developed strategy encourages women to disclose their previous history of PPH during history taking	22	100%
Will the developed strategy discourages women to believe in traditional healers and witchcrafts by women	18	81.8%
Will the developed strategy improves integration with other structures on matters pertaining to maternal health care guidelines	22	100%
Will the developed strategy motivated the DoH of the need for CTG machines	18	81.8%

Will the developed strategy on conducting of client satisfaction survey better maternal health services	21	95.4%
Will the developed strategy encourages OMN to conduct clinical audits	21	95.4%
Will the developed strategy ensures the availability of maternal health care guidelines	22	100%

The issue of corroboration with other stakeholders in educating women was also indicated by various authors (Matsuoka, Aiga, Rasmey et al., 2010; Essendi, Mills & Fotso, 2011; WHO, 2011). All respondents (100%) agreed that if midwives were involved in the purchasing of equipment, and available equipment were maintained properly, this will increase the availability of equipment.

6.6.1.2 Weaknesses

All respondents (100%) agreed on the strategy that will enhance the availability of midwives through training of general nurses and enrolled nurses as midwives. Again, respondents supported the notion of capacitating midwives by increasing the number to be trained on advance midwifery so that each facility can have at least one advance midwife who will supervise and teach other midwives in order to reduce MMR. The information on scaling-up the training of midwives was supported as a matter of urgency (WHO, 2011; Dawson, Brodie, Copeland et al., 2014).

Some respondents (95.4%) agreed with the strategy on hiring and allocating of more than one midwife to support each other when rendering and implementing maternal health guidelines, especially during the night. Allocation of more than one midwife all the time in order to provide maternal health care services was one of the recommendations made by the Savings Mother Report of 2011/2013 which is not yet implemented in some PHC facilities (DoH, 2014). Respondents suggested clustering of PHC facilities so that 2 midwives can support each other even during the night rather than hiring more midwives.

The strategy for clustering of PHC facilities in order to offer better obstetric health was also supported by other researchers (Abimbola, Okoli, Olubajo et al., 2012). A study conducted in Nigeria regarding clustering of PHC facilities, suggested that 4 midwives were allocated to render 24 hour maternal health care services. Appointed

midwives were those who were unemployed, retired and newly qualified who were subjected to 6-month training on maternal health care matters to ensure their readiness (Abimbola, Okoli, Olubajo et al., 2012).

Though all respondents, 100% agreed on the strategy to increase the number of ambulances that will be designated for maternal use only, respondents suggested the need to train emergency personnel on maternal health care issues. This will improve prompt response by ambulances when requested and, hence, bring about improvement of maternal health care services.

All respondents (100%) agreed that purchasing teaching models/manikin and equipment will facilitate midwives to practise EOST drills in order to overcome the difficulties and frustrations indicated by respondents from the main study. Main, Goffman, Scavone et al. (2015) indicated the strategy of practicing technical skills in order to prepare for emergency situations for the purpose of equipping midwives to enhance maternal outcomes.

Conducting of EOST drills was one of the recommendations made by the Savings Mother Report of 2011/2013 which still needs to be implemented (DoH, 2014). To augment the utilization of maternal health care services, 90.9% of respondents agreed that building of a maternity hospital with maternity waiting area will improve utilization by pregnant women and, hence, those coming from poverty-stricken families, high-risk conditions and areas far from health care services can wait for their deliveries there.

A suggestion was also made regarding the issues of building a maternity hospital where respondents indicated that each hospital could have a maternity obstetric unit with a waiting area for high-risk women. The researcher welcomed the suggestion, but as a long-term plan, building a maternity hospital can be a better option as it will

only focus on maternal health issues with expertise and high-tech equipment.

6.6.2 Opportunities and Threats

The following discussions were based on the Opportunities and Threats

6.6.2.1 Opportunities

From the results of validation, respondents agreed that the developed strategy will explore opportunities and mitigate identified threats. Respondents agreed that consolidation of registers and use of appointment times by patients will reduce long waiting periods and work overload, hence, improving the provision of HIV services for pregnant women. This was indicated by 100% of the respondents.

The strategy of appointment times was also seen to be effective as indicated by other researchers (Cao, Wan, Tu, Shang et al., 2011). All respondents (100%) agreed with the strategy of incorporating cell phones reminders in the Mom-Connect programme in order to remind pregnant women of their follow-up visits.

No data were found to support the developed actions of this strategy. Some respondents (95.4%) agreed with the strategy of including drugs that prevent eclampsia such as Magnesium sulphate and uterotonics are to be incorporated in a cell phone reporting system to ensure the availability of drugs. No data reported on the developed actions of this strategy. Almost all respondents (95.4%) agreed on the develop strategy of newly qualified PN that must bring along their maternity care guidelines from their training institutions in order to ensure the availability of maternal health guidelines and for each midwife to have their own copy.

Instead, suggestions were made that were incorporated in the developed strategy of packaging and uploading all guidelines used by PHC health care workers electronically. The electronic version of all guidelines can be loaded onto the devices

of health care professionals for them to be easily accessible and they can be made available on the computers of each PHC facility. No reported data were found regarding the action of this strategy.

6.6.2.2 Threats

Almost all respondents (95.4%) agreed on hiring of 2 OMN to facilitate the daily running of the PHC facilities in busy areas, and for monitoring and supervision to take place because, most of the time, OMN were out of their facilities. The action of hiring OMN also included a huge number of PHC facilities that are being supervised by seconded managers without stipend. For the actions that were indicated on the developed strategy regarding deployed caders who were appointed to higher positions without appropriate experience, all respondents (100%) agreed that personnel with suitable experience and qualifications are the ones to be hired as managers.

Abimbola et al. (2012) indicated the strategy of hiring qualified health care personnel with experience and the issue of paying them a stipend. Though few respondents (8.2%) indicated that the strategy on working with traditional healers tended to be a difficult one, other respondents (81.8%) agreed that through education and working closer with traditional healers could change their ways of treating pregnant women and mothers. This will promote adherence to scientifically tested medicines by pregnant women. Again, the same respondents (8.2%) were against the idea of conducting superficial training for life orientation teachers where it was indicated that teachers could do not much in reducing MMR.

Regarding the availability of a standardized client satisfaction survey that will facilitate the improvement of maternal health care services, 95.4% agreed with the strategy whereas 4.6% did not. Hutchinson, Mal Do & Sohail (2011) also

recommended the need for conducting client satisfaction surveys as a way of improving maternal health care services. Likewise, the issue of conducting clinical audits on maternal records to improve maternal health care services, the same 95.4% of respondents agreed with the actions on the developed strategy. Clinical audits were seen as important because gaps in provision of health care services were identified and, as such, remedial action needs to be taken (Yorsten & Wormald, 2010; Esposito, 2014). All the suggestions made by respondents during the workshop and on completion of questionnaires were incorporated on the developed strategy as they added value on the strategy. Some of the MHCM indicated that recommendations were made by the Savings Mothers Report which have not yet been attended to, and if they could be incorporated in this strategy, it will be better.

Some of the comments made from the recommendations were to strengthen the health care system by capacitating and developing midwives so that they may offer maternal health care services that are of high standard. MHCM also raised the issue of not being involved when the Saving Mothers Report recommendations are made because they felt that their inputs can make a difference in the implementation of maternal guidelines and may be beneficial to pregnant women and the health care system as a whole.

6.7 Applicability and Suitability of the Developed Strategy

All respondents indicated that the developed strategy was suitable and applicable for midwifery practice though there were suggestions made that will also enhance the developed strategy. Respondents indicated that the strategy, which was developed, was a good strategy. It can improve the implementation of the maternal guidelines, but the DoH has to play its role for the strategy to be effective. With the question whether the strategy can be easily implemented, respondents indicated that if resources were available, the strategy could be easily implemented.

Strengthening of available resources as inputs (material and human) as PN through continuous education as an activity and hiring of more midwives and OMN will facilitate the implementation of guidelines by midwives. Moreover, provision of training as an activity will result in knowledgeable PN as an output, hence, rendering of maternal health care services through the use of maternal guidelines and, as a result, good maternal outcomes as related to the *Basic Logic Model Theory of Change* (Kellogg, 2004).

6.8 Summary

Validation of the strategy was conducted with 22 respondents who participated in the main study through a one-day workshop. Respondents agreed with the developed strategy and indicated that it was appropriate for midwifery practice. The researcher allowed respondents to make suggestions related to the developed strategy and suggestions were taken into account. The next chapter presents the conclusions, limitations, recommendations and summary of the study.

CHAPTER 7

Conclusions, Limitations, Recommendations and Summary

7.1 Introduction

The previous chapter presented and discussed the validation of the developed strategy. Validated data were collected from professional midwives, OMN and MHCM working at Vhembe and Mopani district PHC facilities. No gaps were identified from the developed strategy. Rather, suggestions were made on the developed strategy and they were included in the strategy and discussion thereof. This chapter presents the conclusion, limitations, recommendations and summary of the study.

7.2 Purpose of the Study

The purpose of this study was to develop a strategy that will facilitate the implementation of maternal health guidelines in Limpopo Province, South Africa**.**

7.3 Conclusions

7.3.1 Conclusions Related to Objectives of the Study

The objectives of this study were divided into three phases and were as follows:

7.3.1.1 Phase 1: Convergent Parallel Collection of Qualitative And Quantitative Research Objectives

- The researcher assessed the knowledge and skills of PN regarding available maternal health care guidelines and their implementation.

- Further assessment was done on the support offered by MHCM and OMN to PN

on the implementation of maternal health care guidelines.

- The researcher explored the experiences and challenges faced by PN when implementing related maternal guidelines.

The results of the three objectives were indicated in Chapter 4, but discussions were done jointly guided by the qualitative research findings, including the support offered by managers. Three main themes with themes and subthemes emerged from qualitative research strands that guided the discussions of the two research strands. The *Basic Logic Model Theory of Change* as indicated by Kellogg (2004) was contextualized during the discussions.

7.3.1.2 Main Theme 1: The Experiences of Professional Nurses When Managing Women with PPH

Some of the midwives experienced difficulty during the management of women with PPH. The difficulty was influenced by a knowledge deficit in some of the midwives, shortage of staff, especially during the night, abrupt PPH from women who withheld their history of previous PPH leading to frustrations and confusion during management. In addition, frustrations were influenced by delayed ambulance services when midwives needed to transfer women to hospital, hence, it resulted in delay in initiating treatment by the next level, causing poor maternal outcomes. Furthermore, some of the midwives as inputs failed to adhere to maternal guidelines during management leading to poor maternal outcomes.

7.3.1.3 Main Theme 2: The Experiences of Professional Nurses When Managing Women with Gestational Hypertension, Pre-Eclampsia and Eclampsia

Some of the midwives, especially advance midwives, found it easy to manage women with pre-eclampsia or eclampsia, though others experienced some difficulties in their management. The researcher discovered that midwives were displeased with

the hospital staff because they questioned the management made by midwives. Midwives experienced the challenges of shortage of Magnesium sulphate and equipment such as BP machines. This had a negative effect on the implementation of the guidelines. By analogy to the results of PPH, knowledge deficit as an output and poor adherence to the maternal guidelines as an outcome were also discovered.

7.3.1.4 Main Theme 3: The Experiences of Professional Nurses When Managing Women Diagnosed as HIV-Positive at Their First ANC Visit

Midwives complained of work overload due to the many procedures that had to be performed on the pregnant women coming for their first ANC visit. If the women were found to be HIV-positive, there were a lot of registers to be completed which added to the work overload, hence, other patients complained of long waiting periods. Work overload was again felt by midwives who experienced shortage of staff. Those in PHC facilities who had staff had the problem of shortage of consulting rooms. Some of the pregnant women failed to disclose their status to their husbands, leading to poor adherence to ART. The results of the study led to phase 2 of the study which was strategy development.

7.3.2 Conclusions Based on the Developed Strategy: Phase 2

The researcher developed the strategy that will facilitate the implementation of maternal health guidelines by midwives in order to reduce MMR. The strategy was developed using Pearce's (2015) SWOT analysis. From the results of the study, the researcher identified the strengths and weaknesses that were within the PHC facilities and that had an influence in the implementation of the guidelines. Likewise, opportunities and threats from outside the facilities were identified. After SWOT analysis, the BOEM strategy was developed which referred to building on strengths, overcoming weaknesses, exploring opportunities and minimizing threats as identified

from the results that had a negative or positive impact on the implementation of maternal health guidelines as indicated in Chapter 5 of this study. This led to phase three of the study, which was strategy validation.

7.3.3 Conclusion Based on Strategy Validation: Phase 3

Validation of the strategy was done with 22 respondents of which 16 were PN, 4 OMN and 2 MHCM. The researcher and all respondents agreed that continuous development through workshops and in-service training will strengthen the workforce which were midwives.

Thus, increasing the number of midwives to be trained on basic midwifery and reviving training of enrolled nurses to become midwives will increase the availability of midwives in PHC facilities. Capacitating midwives through advance midwifery training, attending of midwifery conferences and symposium will as well enhance the knowledge of midwives.

Training of home-based carers and involvement of other stakeholders such as life orientation school teachers on matters pertaining to maternal health will also help in identification of women who need urgent attention early, hence, referring pregnant women to PHC facilities and initiation of treatment as a way to reduce MMR.

Purchasing of resources such as ambulances that will be designated for maternal health only will also aid in transporting women early. Building of maternity hospitals with maternity waiting areas will reduce the number of maternal deaths because high-risk women will be admitted before experiencing complications and it will increase utilization of the services.

7.4 Limitations of the Study

The study only included selected PN with midwifery from PHC facilities, OMN and MHCM. Professional nurses working at the hospitals were excluded and other districts such as Waterberg, Capricorn and Sekhukhune districts were also omitted. OMN were unavailable most of the time when the researcher wanted to collect data. Most of the time they were out of the facilities attending meetings and, as such, the researcher had to visit the facilities several times.

7.5 Recommendations

7.5.1 Recommendations for Midwifery Practice by the NDoH

- **Purchase** teaching models/manikins and equipment needed by midwives and be distributed to each facilities for midwives to practice EOST drills.

- **Build** maternity hospitals with a maternity home in each province followed by each district where high-risk women can wait for their deliveries nearer with advanced technologies and to hire human resources with expertise in maternal health matters.

- **Design** a standardized register that will be used by all PHC facilities to record the availability and usage of drugs.

- **Consolidate** registers in order to reduce the number of registers that are completed in a pregnant woman diagnosed with HIV.

- **All PHC guidelines**, including maternal health guidelines to be packaged electronically and made available to each midwife through available clinic computers and midwives gadgets/devices.

- **Incorporate** cell phone reminders in a Mom-Connect programme in order to remind women of their follow-up ANC visits.

The Provincial DoH must do the following:

- **Increase** the uptake and training of midwives for basic midwifery and midwives for advance midwifery training. Revive the basic training in midwifery to enrolled nurses so that the human resources are increased, and extend the training on matters pertaining to midwifery to home-based carers.

- **Advertise** posts and hire more OMN and midwives to facilities where there are shortages of midwives so that 2 midwives could be allocated during the night.

- **Advertise** posts and hire more OMN to facilities supervised by seconded OMN and again those seconded to be on higher posts to be given incentives.

- **Purchase** more ambulances designated for maternal health care services only.

- **Purchase** park homes that may be used as health care facilities in areas where there is poor access to health care services and hire staff that will work there.

The District Office and Maternal Health Care Managers must do the following:

- **Offer** continuous development and in-service training on the maternity care guidelines in order to keep midwives and advanced midwives up to date. The training must cover all the midwives, not just a few.

- **Develop** scheduled site visits, to be made available to each facility so as to monitor the implementation of maternal health guidelines by midwives.

- **Provide** midwives with resources such as BP machines, equipment that constitutes a delivery pack needed in order to implement maternal health guidelines successfully.

- **Allocate** 2 midwives all the time in order to assist each other during the provision of maternal health care services.

- **Integrate** services so that OMN have time to supervise and monitor the implementation of the guidelines by midwives. This should be the task of all District Programme Managers.

- **Supply** facilities that are far from the hospital to have more stock of Magnesium sulphate if possible 40 vails.

- **Increase** the security in each and every PHC facility and to attend to challenges faced by midwives.

- **Supply** PHC facilities with standardized questionnaires for women to rate the services they have received after care.

Operational Managers must:

- **Monitor** strictly EOST drills for midwives to practice complicated conditions for them to become competent.

- **Encourage** midwives to follow maternal health guidelines during the provision of maternal health services.

- **Conduct** in-house in-service training regarding threatening preventable conditions in order to facilitate adherence to maternal health guidelines.

- **Communicate** with community leaders and traditional healers through Imbizos in order to provide them with health information so that they reduce their

traditional ways of rendering their services without protection and educate the dangers of mixing traditional medicines with Western medicines.

- **Conduct** clinical audits on maternal records in order to review the services rendered by midwives.

Midwives at the hospital and at PHC facilities must:

- **Collaborate** with home-based carers in the education of women on the dangers of using medicines from traditional healers as they interact with the treatment used in lowering viral load in HIV patients.

- **Educate** women on the importance of follow-up visits so that women can take the visit into consideration and save money for such visits.

- **Update** themselves on matters pertaining to maternal health care services through personal development.

- **Follow** the guidelines during management of the women in order to reduce the maternal morbidity and mortality rate.

- **Teach** women the importance of giving accurate, correct information during history taking.

7.5.2 Recommendations Based on the Developed Strategy

The results of this study together with the developed strategy will be submitted to the DoH at National level, provincial level and at the district level. The researcher recommended that all the stakeholders involved in maternal health care services starting from the National level MHCM, the Provincial DoH MHCM, the District Office MHCM and DEM, OMN and midwives at PHC facilities familiarize themselves with the developed strategy. In order to build on strength and overcome weaknesses, the National, Provincial and District DoH must provide resources for midwives and, in

turn, midwives must utilize the resources during the implementation of maternal guidelines. Midwives must be capacitated through in-service training, workshops by the department and they must avail themselves of such training. OMN must be supplied with material resources in order to conduct client satisfaction survey. OMN must relate with other stakeholders in the community such as traditional healers, home-based carees in order to give them information related to maternal health, hence, reducing MMR.

7.5.3 Recommendations for Further Research

The researcher conducted this study in order to assess the implementation of maternal health guidelines by midwives and to develop the strategy that will facilitate implementation of maternal guidelines. The focus of this study was on the three preventable causes of maternal deaths, the knowledge and skills of midwives, experiences of midwives and support offered by managers. Further research needs to be conducted on the utilization of PHC facilities by pregnant women. The researcher identified during the study that there was a need for further research regarding the causes of maternal deaths related to pregnant women themselves. Challenges experienced by managers regarding supervision and monitoring of health care professionals also need to be explored further.

7.6 Summary

The researcher identified that some midwives as inputs had a knowledge deficit regarding the management of women who experienced PPH, pre-eclampsia and eclampsia. Some had difficulty in adhering to maternal health guidelines during their management. This was influenced by staff shortages where one midwife managed pregnant women alone. Women did not disclose their previous history of PPH, hence, midwives failed to anticipate that PPH might occur leading to poor management of the women. When in need of referring the women to the next level,

most midwives experienced lack of support from ambulance services that responded hours after being called leading to late initiation of treatment by the next level as an outcome. Continuous professional development, adequate resources and attending to other challenges experienced by midwives can play a vital role in the implementation of maternal health guidelines by midwives to reduce MMR as the third goal of SDGs by 2030.

REFERENCES

Aberg, J.A., Gallant, J.E., Ghanem, K.G., Emmanuel, P., Zingman, B.S. & Horberg, M.A., 2013. Primary care guidelines for the management of persons infected with HIV, update by the HIV Medicine Association of the Infectious Diseases Society of America. *Clinical Infectious Diseases*, 58(1), pp.e1-e34.

Abimbola, S., Okoli, U., Olubajo, O., Abdullahi, M.J. & Pate, M.A., 2012. The midwives service scheme in Nigeria. *PLoS Medicine*, 9(5), p.e1001211.

Aflaifel, N., 2015. Postpartum haemorrhage: new insights from published trials and the development of novel management options (Doctoral dissertation, University of Liverpool).

Ahmed, A., Rezai, H. & Broadway-Stringer, S., 2016. Evidence-based revised view of the pathophysiology of preeclampsia. In: Hypertension: from basic research to clinical practice (pp. 355-374). Springer, Cham.

Akinsola, H. A., 2005. Research methods in medical and nursing Practice. Ogun State: Nigeria.

Ali, A.D., 2014. Knowledge of and challenges experienced by health workers managing maternity patients in primary health care (PHC) clinics of Yobe State, Nigeria (Doctoral dissertation).

Al-Ateeq, M.A. & Al-Rusaiess, A.A., 2015. Health education during antenatal care: the need for more. *International Journal of Women's Health*, 7, p.239.

Association of Ontario Midwives, 2015. Midwifery Client Experiences of postpartum haemorrhage.

Ayadi, A, M., Robinson, N., Geller, S. & Miller, S., 2012. Advances in treatment of postpartum haemorrhage. *Expert Rev Obstetrics Gynecology*, pp525-537.

Baloyi, L, F., 2010. Problems in primary health care delivery-Unisa Institutional Repository.uir.unisa.ac.za.

Banchani, E. & Tenkorang, E.Y., 2014. Implementation challenges of maternal health care in Ghana: the case of health care providers in the Tamale Metropolis. *BMC Health Services Research*, 14(1), p.7.

Bateman, C., 2013. Drug stock-outs: Inept supply-chain management and corruption. *SAMJ: South African Medical Journal*, 103(9), pp.600-602.

Bezuidenhout, M., 2014. Dimensions of Health care Management, third edition, Juta, Cape Town, South Africa.

Bhandari, S., Bhatt, S.K. & Dahal, S., 2017. Anti-hypertensive drugs used during pregnancy. *Journal of Biomedical and Pharmaceutical Research*, 6(2).

Black, M.H., Zhou, H., Sacks, D.A., Dublin, S., Lawrence, J.M., Harrison, T.N. & Reynolds, K., 2016. Hypertensive disorders first identified in pregnancy increase risk for incident prehypertension and hypertension in the year after delivery. *Journal of Hypertension*, 34(4), pp.728-735.

Booyens, S, W. & Bezuidenhout, M., Dimensions of Health care Management, third edition, Juta, Cape Town, South Africa.

Boyce, F., 2015. State of Emergency Medical Services in the Eastern Cape, treatment action campaign, Section 27, South Africa.

Bonadio, I, C., Scheck C, A., Pires, L, G., Osava, R, V., Da Silva, F, M., De Oliveria, S, A., M. & Riesho, M, L., 2011. Transferring mothers from a free-standing birth center to a reference hospital. *Rev Esc Enfarm USP*, 45(6):1301-8.

Braddick, L., Tuckey, V., Abbas, Z., Lissauer, D., Ismail, K., Manaseki-Holland, S., Ditai, J. & Stokes, T., 2016. A mixed-methods study of barriers and facilitators to the implementation of postpartum haemorrhage guidelines in Uganda. *International Journal of Gynecology & Obstetrics*, 132(1), pp.89-93.

Brink, H.I., 2007. Fundamentals of research methodology for health care professionals, [3rd edition] South Africa.

Brink, H., Van der Walt, C. & Van Rensburg, G. 2012. Fundamentals of Research Methodology for Health care Professionals, [3rd edition] South Africa.

Brink, H., Van der Walt, C. & Van Rensburg, G. 2014. Fundamentals of Research Methodology for Health care Professionals, [3rd edition] South Africa.

British HIV Association Guidelines Development Manual, 2014. Management of HIV infection in pregnant women, www.nice.org.uk/accreditation

Buckles, K., 2017. Maternal Socio-Economic Status and the Well-Being of the Next Generation(s).

Bunn, S. & Conlin, D., 2013. Draft integrated business plan. National Health Services Trust. Croydon Health Services.

Burns, S., Grove, K. & Gray, J., R, 2013. Practice of Nursing Research. Appraisal, Synthesis and Generation of Evidence, St Louis. Elsevier Saunders.

Bush, T., 2016. SWOT Analysis of starbucks, the World's Leading Coffeehouse CHAIN. Pestleanalysis.com>swot-analysis-threats.

Cameron, D., Gerber, A., Mbatha, M., Mutyabule, J. & Swart, H., 2012. Nurse initiation and maintenance of patients on antiretroviral therapy: Are nurses in primary care clinics initiating ART after attending NIMART training? *SAMJ: South African Medical Journal*, 102(2), pp.98-100.

Cao, W., Wan, Y., Tu, H., Shang, F., Liu, D., Tan, Z., Sun, C., Ye, Q. & Xu, Y., 2011. A web-based appointment system to reduce waiting for outpatients: A retrospective study. *BMC Health Services Research*, 11(1), p.318.

CDC, 2012. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 US dependent areas—2010.

CDC, 2017. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States.

Census, 2011. Municipal Report, Limpopo Statistics, South Africa.

Chaillet, N., Dube, E., Dugs, M., Francoeur, D., Dube, J., Gaghon, S., Lucie, P. & Dumont A. 2007. Identifying barriers and facilitators towards implementing guidelines to reduce Caesarean section rates in Quebee. *Bull WHO*, 85(10), pp.791-797.

Cherouny, P, H., 2014. 'Hypertensive disorder in pregnancy', *American Journal of Obstetrics and Gynaecology* vol. 17 (2).

Chinn, P, L. & Kramer, M, K., 2015. Integrated theory and Knowledge Development in Nursing, 9th Edition https://evolve.elsevier.com/cs/product/9780323316521.

Chinn, P, L. & Jacobs, M, K., 1987. Theory and Nursing-A Systemic Approach, 2nd Edition. Washington, the C.V Mosby Company

Christiaens, W., Gouwy, A. & Bracke, P., 2007. Does a referral from home to hospital affect satisfaction with childbirth? A cross-national comparison. *BMC Health Services Research*, 7(1), p.109.

Chikuse, B., Chirwa, E., Maluwa, A. & Odland, J., 2012. Midwives' adherence to guidelines on the management of birth asphyxia in Malawi. *Open Journal of Nursing*, 2(04), p.351.

Clark, H. & Anderson, A.A., 2004, November. Theories of change and logic models: Telling them apart. In American Evaluation Association Conference.

Coulter, A., Parsons, S., Askham, J. and World Health Organization, 2008. *Where are the patients in decision-making about their own care?* (No. EUR/07/5065810). Copenhagen: WHO Regional Office for Europe.

Cohen, M.S., Chen, Y.Q., McCauley, M., Gamble, T., Hosseinipour, M.C., Kumarasamy, N., Hakim, J.G., Kumwenda, J., Grinsztejn, B., Pilotto, J.H. & Godbole, S.V., 2011. Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine*, 365(6), pp.493-505.

Creswell, J. W. & Plano Clark, V., L. 2011.Designing and Conducting Mixed Methods Research, [2nd edition], United State of America.

Creswell, J.W., 2014. A concise introduction to mixed methods research. Sage Publications.

Crossman, A., 2018. Understanding purposive sampling. An Overview of the Method and its Applications. https://www.thoughtco.com

Crowther, C.A., Brown, J., McKinlay, C.J. & Middleton, P., 2014. Magnesium sulphate for preventing preterm birth in threatened preterm labour. The Cochrane Library

Cunningham, C., Watt, P., Aflaifel, N., Collins, S., Lambert, D., Porter, J., Lavender, T., Fisher, T. & Weeks, A., 2017. PPH Butterfly: a novel device to treat postpartum haemorrhage through uterine compression. BMJ innovations, pp.bmjinnov-2016.

Danchua, A., A., (2014) Knowledge of and challenges experienced by health workers managing maternity patients in primary health care clinics of Yobe state, Nigeria

Daniels, J.A., 2015. Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa (Doctoral dissertation, University of Cape Town).

Darega, B., Nagasha, D., Letimo, T., Hunde, T., Yadashi, H., Yeshitla, S., & Mintesinot, A., 2016. Perceived quality of nursing care practices in inpatient *Department of Bale Zone Hospitals, Oromiya Regional State, South East Ethiopia.*

David-Wayas, O., Ugbor, I.K., Martha, A. & Nwanosike, D.U., 2017. Analysis of Inequality in Health care Utilization among Pregnant Women in Nigeria: Concentration Index Approach. *International Journal of Asian Social Science*, 7(5), pp.424-433.

Dawson, A., Brodie, P., Copeland, F., Rumsey, M. & Homer, C., 2014. Collaborative approaches towards building midwifery capacity in low income countries: a review of experiences. *Midwifery*, 30(4), pp.391-402.

Department of Economic and Social Affairs, 2011.The millennium Development Goals Report, United Nations.

DoH, 2001. A comprehensive primary health care service package for South Africa printed for Government Printer Pretoria by formeset printers Cape Town.

DoH, 2007.Infant and Young Child Feeding Policy. Pretoria, South Africa.

DoH, 2008. Saving mothers report 2005-2007, Fourth Report on Confidential Enquiries into Maternal Deaths in South Africa, NCCEMD, Pretoria. Government Printers.

DoH, 2011. National HIV Testing Policy 2011 for health professionals, South Africa.

DoH Statistics, 2012. Pretoria, South Africa.

DoH, 2012. National Core Standards for Health Establishment in South Africa.

DoH Statistics, 2012. National Contraception and fertility Planning Policy and Service Delivery Guidelines. Pretoria. Government Printers.

DoH Statistics, 2013. Tenth Interim Report on confidential enquiries into maternal deaths in South Africa, Pretoria. Government Printers.

DoH, 2013: South African Infant and Young Child Feeding Policy, Pretoria. Government Printers.

DoH, 2014: Mother, Child Health and Nutrition booklet, Pretoria. Government Printers.

DoH, 2014. Saving Mothers 2011-2013: Sixth Report on Confidential Enquiries into Maternal Deaths in South Africa, NCCEMD, Pretoria. Government Printers.

DoH Statistics, 2015. Limpopo, South Africa

Desai, N.R. & Choudhry, N.K., 2013. Impediments to adherence to post myocardial infarction medications. *Current Cardiology Reports*, 15(1), p.322.

De Vos, A.S., 2005. Research at grass roots level for social sciences and human service professions, [3rd edition], Van Schaik, Pretoria.

De Vos, A.S., Strydom, H., Founce, C. & Delport, C.S.l. 2013.Research at grass roots for social sciences' and human service professions, [sixth edition], Van Schaik, Pretoria

De Vos, A.S., Strydom, H., Founce, C. & Delport, C.S.l. 2014. Research at grass roots for social sciences' and human service professions, [seventh edition], Van Schaik, Pretoria.

Dobbie, F., Hiscock, R., Leonardi-Bee, J., Murray, S., Shahab, L., Aveyard, P., Coleman, T., McEwen, A., McRobbie, H., Purves, R. & Bauld, L., 2015. Client satisfaction survey

Edhi, M.M., Aslam, H.M., Naqvi, Z. & Hashmi, H., 2013. Post partum Haemorrhage: causes and management. *BMC Research Notes*, 6(1), p.236.

Eygelaar, J.E. & Stellenberg, E.L., 2012. Barriers to quality patient care in rural district hospitals. *Curationis*, 35(1), pp.1-8.

Fawcus, S., 2010. A monograph of the management of Postpartum Haemorrhage. Definition of Maternal guidelines, South Africa.

Fawcus, S., Mbombo, N. & Hofmeyr, G.J., 2012. Trends in maternal deaths from obstetric haemorrhage in South Africa 2008-2010. In Obstetrics and Gynaecology Forum (Vol. 22, No. 2, pp. 9-17). In House Publications.

Figo Safe Motherhood and Newborn health, 2012.An internal recommendation that support skilled health care professionals. A journal of gynaecology& obstetrics, 119:s18-s21. Elsevier Ireland Ltd, Elsevier house, Brookvale plaza, East Park Shannon.

Friesen, M.A., White, S.V. & Byers, J.F., 2008. Handoffs: implications for nurses.

Fred, N., 2011.Strategy, Strategic management, strategic planning and strategic thinking.

Fulmer, S. A., 2014. Perceived competence in Enclopedia of quality of life and well-being research. Department of psychology, University of Notre Dame, USA, 4690-4693.

Gaede, B. & Versteey, M., 2011. The state of the right to health in rural South Africa.

George, L., 2010. Facilitating group learning. Strategies for success with adult learners ISBN 0470768630.

Gowan, M.J., 2015. Active Management of the Third Stage of Labor by Skilled Birth Attendants In a Rural Regional Hospital In Southern Ethiopia: A Qualitative Case Study.

Grissinger, M., 2017. Disrespectful Behavior in Health Care: Its Impact, Why It Arises and Persists, And How to Address It—Part 2. *Pharmacy and Therapeutics*, 42(2), p.74.

Gundala, S., Sastry, V.V., Manmohan, T. & Geeta, V., 2016. A study on adherence to dietary guidelines, treatment and preventive care among diabetic patients. *International Archives of Integrated Medicine* (*IAIM*), 3(5), pp.166-173.

Hanrahan, B.A. & Williams, A., 2017. Prevention of mother-to-child transmission of HIV guidelines: Nurses' views at four primary healthcare facilities in the Limpopo Province. *Southern African journal of HIV medicine*, *18*(1).

Health System Development Unit, 2012. Primary Health Care book one, South Africa.

Hinton, L., Locock, L. & Knight, M., 2014. Partner experiences of "near-miss" events in pregnancy and childbirth in the UK: A qualitative study. *PloS one*, 9(4), p.e91735.

Hofmey, G. J., 2010. A monograph of the management of Postpartum Haemorrhage. Assessing and managing blood loss, South Africa.

Hofmeyr, G.J., Abdel-Aleem, H. & Abdel-Aleem, M.A., 2013. Uterine massage for preventing postpartum haemorrhage. The Cochrane Library.

Hutchinson, P. L., Mal Do, & Sohail A., 2011. Measuring client satisfaction and quality of family planning services: a comparative analysis of public and private health facilities in Tanzania, Kenya & Ghana, Biomed central.

Imdad, A., Jabeen, A. & Bhutta, Z.A., 2011. Role of calcium supplementation during pregnancy in reducing risk of developing gestational hypertensive disorders: a meta-analysis of studies from developing countries. BMC public health, 11(3), p.S18

Janmejaya, S., 2016. Behavior of health workers toward the implementation of clinical guidelines. *Journal of Health Research and Reviews*, 3(1), p.6.

Johnson, S.L., Burke, J.G. & Gielen, A.C., 2012. Urban students' perceptions of the school environment's influence on school violence. *Children & Schools*, 34(2), pp.92-102.

Karel, Bhandari, Bhatt & Dahal, 2017. Effects of hypertensive drugs in pregnancy and the neonate, 101(30), pp.170-183.

Kasenga, F., Byass, P., Emmelin, M. & Hurtig, A.K., 2009. The implications of policy changes on the uptake of a PMTCT programme in rural Malawi: first three years of experience. *Global Health Action*, 2(1), p.1883.

Kattah, A.G. & Garovic, V.D., 2013. The management of hypertension in pregnancy. *Advances in Chronic Kidney Disease*, 20(3), pp.229-239

Khan, S., Timmings, C., Vogel, J., Islam, S., Puchalski, L. & Straus, S.E., 2014. Understanding Barriers and Facilitators to Implementation of Maternal Health Guidelines in Tanzania: A Great Network Research Activity. Google Scholar.

Kellogg, W. K., Foundation, 2004. Logic Model Development Guide, using Logic Models to bring Together Planning, Evaluation, and Action. One East Michigan Avenue East, Battle Creek, Michigan 49017-4058, Viewed 19 of October 2015 from http://www.wkk.ogr.

Kelly, J., Kohls, E., Poovan, P., Schiffer, R., Redito, A., Winter, H. & MacArthur, C., 2010. The role of a maternity waiting area (MWA) in reducing maternal mortality and stillbirths in high-risk women in rural Ethiopia. *BJOG: An International Journal of Obstetrics & Gynaecology*, 117(11), pp.1377-1383.

Koss, C.A., Dunne, E.F. & Warner, L., 2009. A systematic review of epidemiologic studies assessing condom use and risk of syphilis. *Sexually Transmitted Diseases*, 36(7), pp.401-405.

Laleva, K. & Georgieva, L., 2017. Work overload of nurses and midwives in Bulgarian hospitals and the need for provision of supporting care by health assistants. *Scripta Scientifica Salutis Publicae*, 3(1), pp.14-18.

Lakey, G., 2010. Facilitating group learning: strategies for success with adult learners. John Wiley & Sons.

Lalonde, A., 2012. Prevention and treatment of postpartum Haemorrhage in low-resource settings. *International Journal of Gynecology & Obstetrics*, 117(2), pp.108-118.

Langenegger, E. & Nout, C., 2010. A monograph of the management of postpartum haemorrhage, South Africa.

Leape, L.L., Shore, M.F., Dienstag, J.L., Mayer, R.J., Edgman-Levitan, S., Meyer, G.S. & Healy, G.B., 2012. Perspective: a culture of respect, part 1: the nature and causes of disrespectful behavior by physicians. *Academic Medicine*, 87(7), pp.845-852.

Lee, A.C., Cousens, S., Darmstadt, G.L., Blencowe, H., Pattinson, R., Moran, N.F., Hofmeyr, G.J., Haws, R.A., Bhutta, S.Z. & Lawn, J.E., 2011. Care during labor and birth for the prevention of intrapartum-related neonatal deaths: a systematic review and Delphi estimation of mortality effect. *BMC Public*

Limpopo Provincial DoH, 2013. Strategic departmental plan, South Africa.

Limpopo Provincial Department, 2015. Map, South Africa.

Limpopo Provincial DoH, 2016. VOTE NO: 7, Annual report, South Africa.

Lorenzo, G. B., 2011.Development and development paradigms a reasoned review of prevailing vision, Easypol, United Nations.

Lubaki, J.P.F., Ngolo, J.R.M. & Maniati, L.Z., 2010. Active management of third stage of labour, postpartum haemorrhage and maternal death rate in the Vanga Health Zone, Province of Bandundu, Democratic Republic of the Congo. *African Journal of Primary Health Care and Family Medicine*, 2(1), pp.1-3.

Mahnava, P., Durrant, K. & Luchters, S., 2015. Attitude and behaviours of maternal health care providers in interactions with clients: a systemic review NCBI-NIH, https://www.ncbi.n/m.nih.gov

Maroney, T.A., 2012. Angry judges.

Mathole, T., 2005. Whose Knowledge Counts: A Study of Providers and Users of Antenatal Care in Rural Zimbabwe (Doctoral dissertation, Acta Universitatis Upsaliensis).

Main, E.K., Goffman, D., Scavone, B.M., Low, L.K., Bingham, D., Fontaine, P.L., Gorlin, J.B., Lagrew, D.C. & Levy, B.S., 2015. National Partnership for Maternal Safety: consensus bundle on obstetric Haemorrhage. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 44(4), pp.462-470.

McInnes, R.J. & Mc Intosh, C., 2012. What future for midwifery? *Nurse Education in Practice*, 12(5), pp.297-300.

Mathole, T., Labonté, R., Sanders, D., Crush, J., Chikanda, A., Dambisya, Y., Runnels, V., Packer, C., MacKenzie, A., Murphy, G.T. & Bourgeault, I.L., 2015. Health worker migration from South Africa: causes, consequences and policy responses. *Human Resources for Health*, 13(1), p.92.

Matsuoka, S., Aiga, H., Rasmey, L.C., Rathavy, T. & Okitsu, A., 2010. Perceived barriers to utilization of maternal health services in rural Cambodia. *Health Policy*, 95(2), pp.255-263.

Mbombo, N., 2012. Trends in maternal deaths from obstetric haemorrhage in South Africa 2008-2010. In: *Obstetrics and Gynaecology Forum* (Vol. 22, No. 2, pp. 9-17). In-House Publications.

Metsch, L.R., Feaster, D.J., Gooden, L., Schackman, B.R., Matheson, T., Das, M., Golden, M.R., Huffaker, S., Haynes, L.F., Tross, S. & Malotte, C.K., 2013. Effect of risk-reduction counseling with rapid HIV testing on risk of acquiring sexually transmitted infections: the AWARE randomized clinical trial. *Jama*, 310(16), pp.1701-1710.

Mhlanga, R, E., 2010. Maternal, Newborn and Child health: 30 years On. Primary Health care: programme areas. *South African Health Review*.

Miller, C.M., Ketlhapile, M., Rybasack-Smith, H. & Rosen, S., 2010. Why are antiretroviral treatment patients lost to follow-up? A qualitative study from South Africa. *Tropical Medicine & International Health*, 15(s1), pp.48-54

Mkoka, D.A., Goicolea, I., Kiwara, A., Mwangu, M. & Hurtig, A.K., 2014. Availability of drugs and medical supplies for emergency obstetric care: experience of health facility managers in a rural District of Tanzania. *BMC Pregnancy and Childbirth*, 14(1), p.108.

Moorley, C. & Chinn, T., 2015. Using social media for continuous professional development. *Journal of Advanced Nursing*, 71(4), pp.713-717.

Mpambije, C.J., 2017. Poor Maternal and Child Health in Tanzania amidst Plenty: Review from Tanzania's Grand Corruption Scandals from 2005-2015.

Millennium Development Goal Report, 2015. Improving Maternal Health part of unfinished agenda, United Nations.

Mnyani, C.N. & McIntyre, J.A., 2013. Challenges to delivering quality care in a prevention of mother-to-child transmission of HIV programme in Soweto. *Southern African Journal of HIV Medicine*, 14(2), pp.64-69.

Mosadeghrad A., M., 2014. Factors influencing health care service quality NCBI-NIH, https://www.ncbi.n/m.nih.gov.

Moses, K.S., 2017. The perceptions of clinical nurse practitioners on service delivery in primary health care facilities in Eden District, Western Cape (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Naiker, V., Hooper, A.S.S.L. & Baduraliya, L., 2009. Customer Satisfaction Survey.

National Committee on Confidential Enquiries into Maternal Deaths, 2007. Saving mothers 2005–2007: fourth report on confidential enquiries into maternal deaths in South Africa. Expanded Executive Summary, Pretoria, South Africa: NCCEMD.

NDoH, 2007. Guidelines for maternity care in South Africa, A manual for clinics, community health centres and district hospitals, Third edition.

NDoH, 2014. National Consolidated Guidelines for the Prevention of Mother-to-child Transmission of HIV (PMTCT) and the Management of HIV in Children, Adolescents and Adults. South Africa.

NDoH, 2015. Guidelines for maternity care in South Africa, A manual for clinics, community health centres and district hospitals, fourth edition.

NDoH, 2015. Guidelines for the prevention of Mother to Child Transmission of HIV (PMTCT) and the Management of HIV in children, Adolescents and Adults, South Africa.

NDoH, 2016. Guidelines for Maternity Care in South Africa. A Manual for Clinics, Community Health Centres and District hospitals, Fourth Edition.

National Health and Medical Research Council ACT No.1992, 2011.Standard for Clinical Practice Guidelines & Publications. Australian Government.

Ngxongo, T.S. & Sibiya, M.N., 2013. Factors influencing successful implementation of the basic antenatal care approach in primary health care facilities in eThekwini district, KwaZulu-Natal. *Curationis*, 36(1), pp.1-7.

Newton, P.R., Naidoo, R. & Brysiewicz, P., 2015. The appropriateness of emergency medical service responses in the eThekwini district of KwaZulu-Natal, South Africa*. SAMJ: South African Medical Journal*, 105(10), pp.844-847.

NICE, 2014. Clinical guidelines for women's health care. Royal College of Obstetricians and Gynaecologist, London, United Kingdom.

O'Connor, A., Doris, F. & Skirton, H., 2014. Midwifery care in the UK for older mothers. *British Journal of Midwifery*, 22(8).

Osamor, P.E., 2015. Social support and management of hypertension in south-west Nigeria: cardiovascular topic. *Cardiovascular Journal of Africa*, 26(1), pp.29-33.

Osungbade, K.O. & Ige, O.K., 2011. Public health perspectives of preeclampsia in developing countries: implication for health system strengthening. *Journal of Pregnancy*, 2011.

Patterson, E.S. & Wears, R.L., 2010. Patient handoffs: standardized and reliable measurement tools remain elusive. *The Joint Commission Journal on Quality and Patient Safety*, 36(2), pp.52-61.

Pattinson, N., 2010. The midwife's approach to Postpartum Haemorrhage, chapter nine of the Monograph, University of Colombia, USA.

Payne, B.A., Hutcheon, J.A., Ansermino, J.M., Hall, D.R., Bhutta, Z.A., Bhutta, S.Z., Biryabarema, C., Grobman, W.A., Groen, H., Haniff, F. & Li, J., 2014. A risk prediction model for the assessment and triage of women with hypertensive disorders of pregnancy in low-resourced settings: the mini

PIERS (Pre-eclampsia Integrated Estimate of RiSk) multi-country prospective cohort study. *PLoS Medicine*, 11(1), p.e1001589.

Polit, D.F. & Beck, C.T., 2006. Nursing research principles and methods. Seventh edition. Philadelphia: J. D. Lippincott Company.

Polit, D.F. & Beck, C.T., 2014. Nursing research principles and methods. Eight edition. Philadelphia: J. D. Lippincott Company.

Pearce, C., 2007 Ten Steps to carrying out a SWOT analysis. *Nursing Management U.K.,* 14 (2) p.25.

Pearce, C., Hall, S., Phillips, C., Dwan, K., Yates, R. & Sibbald, B., 2012. A spatial analysis of the expanding roles of nurses in general practice. *BMC Nursing*, 11(1), p.13

Rizvi, F., Mackey, R., Barrett, T., McKenna, P. and Geary, M., 2004. Successful reduction of massive postpartum haemorrhage by use of guidelines and staff education. *BJOG: An International Journal of Obstetrics & Gynecology* 111(5):495-498.

Roberts, M. J., August, A. P., Bakris. G., Barton R. J. & Bernstein, I. M., 2013.Task force on Hypertension in pregnancy, the American college of obstetricians and gynaecologist, Women's health physicians. Washington DC 20090-6920.

Robertson, J., Kehler, S., Meuser, A., MacDonald, T., Gilbert, J. & Bennett, S., 2017. After the Unexpected: Ontario Midwifery Clients' Experiences of Postpartum Haemorrhage. *Canadian Journal of Midwifery Research & Practice*, 16(1).

Rouse, M., 2015. Implementation definition viewed 21 January 2016, from http://searchcrm.techtarget.com.

Royal College of Midwives, 2015. Maternity services overworked, understaffed and struggling to cope shows senior midwives survey Maternity, 15 Mansfield St, London, presented by Amy Leversidge.

Saburi, S., 2017. Experiences and perceptions of Zimbabwean migrant women accessing antenatal and infant/child immunisation in public health care services in Gauteng South Africa (2015-2017) (Doctoral dissertation.

Samal, J. & Dehury, R.K., 2015. Challenges faced by health workers in providing maternity management and family planning services in Assam. *Journal of Health Research and Reviews*, 2(3), p.90.

Samal, J., 2016. Behaviour of health workers towards the implementation of clinical guidelines, *India. J Health Res Rev*, 3:6-10.

Schack, S.M., Elyas, A., Brew, G. and Pettersson, K.O., 2014. Experiencing challenges when implementing active management of third stage of labor (AMTSL): a qualitative study with midwives in Accra, Ghana. *BMC Pregnancy and Childbirth*, 14(1), p.193.

Scheffler, E., Visagie, S. & Schneider, M., 2015. The impact of health service variables on health care access in a low resourced urban setting in the Western Cape, South Africa*. African Journal of Primary Health Care & Family Medicine*, 7(1), pp.1-11.

Searle, C., Human, S. & Mogotlane, S. M., 2013. Professional practice. A Southern African Nursing Perspective, Fifth edition, Heinemann Publisher, Sandton.

Sehume, O.M.M., 2016. Evidence-based guidelines to promote the health and safety of health care workers in selected public hospitals in the Tshwane health care district in Gauteng, South Africa (Doctoral dissertation).

Shane, B., 2001. Preventing postpartum Haemorrhage: managing the third stage of labor. *Outlook*, 19(3), pp.1-8.

Shenton, A.K., 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, *22*(2), pp.63-75.

Silal, S.P., Penn-Kekana, L., Harris, B., Birch, S. & McIntyre, D., 2012. Exploring inequalities in access to and use of maternal health services in South Africa. *BMC Health Services Research*, 12(1), p.120.

South African Nursing Council, 2016. Statistics, South Africa.

Spencher, A., 2013. Top seven Professional Challenges faced by nurses in the 21st century, United Kingdom.

Steven, R. & Kraritz, D. P.M., 2010: American Professional Wound Care Association, SELECT: Evaluation and Implementation of Clinical Practice Guidelines: A Guidance Document from the American Professional Wound Care Association©. *Advances in Skin & Wound Care*, 23(4), pp.161-168.

Stellenberg, E.L. & Ngwekazi, N.L., 2016. Knowledge of midwives about hypertensive disorders during pregnancy in primary health care. *African Journal of Primary Health Care & Family Medicine*, 8(1), pp.1-6.

Theron, G, B., 2010. A monograph of management of postpartum haemorrhage, surgical management of postpartum haemorrhage, South Africa.

Thompson, J.F., Ford, J.B., Raynes-Greenow, C.H., Roberts, C.L. & Ellwood, D.A., 2011. Women's experiences of care and their concerns and needs following a significant primary postpartum haemorrhage. *Birth*, 38(4), pp.327-335.

Thompson, M.A., Mugavero, M.J., Amico, K.R., Cargill, V.A., Chang, L.W., Gross, R., Orrell, C., Altice, F.L., Bangsberg, D.R., Bartlett, J.G. & Beckwith, C.G., 2012. Guidelines for improving entry into and retention in care and antiretroviral adherence for persons with HIV: evidence-based recommendations from an International Association of Physicians in AIDS Care panel. *Annals of Internal Medicine*, 156(11), pp.817-833.

Tibandebage, P., Kida, T., Mackintosh, M. & Ikingura, J., 2016. Can managers empower nurse-midwives to improve maternal health care? A comparison of two resource-poor hospitals in Tanzania. *The International Journal of Health Planning and Management*, 31(4), pp.379-395.

Townsend, R., O'Brien, P. & Khalil, A., 2016. Current best practice in the management of hypertensive disorders in pregnancy. *Integrated Blood Pressure Control*, 9, p.79.

Tesch, R. 1990. Qualitative Research: Analysis Types and Software Tools. New York: Falmer Press;.

United States Agency International Development, 2013. Maternal and child health program, viewed 19 January 2016, from http://www.usaid.gov/where-we-work/afghanistan and Pakistan.

United States Agency International Development, 2015. Ending preventable Maternal Mortality, Maternal Health Vision for Action Evidence for strategic Approaches.

Van Lonkhuijzen, L., Dijkman, A., van Roosmalen, J., Zeeman, G. & Scherpbier, A.J.J.A., 2010. A systematic review of the effectiveness of training in emergency obstetric care in low-resource environments. *BJOG: An International Journal of Obstetrics & Gynaecology*, 117(7), pp.777-787.

Visagie, S. & Schneider, M., 2014. Implementation of the principles of primary health care in rural area of South Africa. *African Journal of Primary Health Care & Family Medicine*, 6 (1), Art, #562, 10 pages. http://dx.doi.org/10.4102/phcfm.v6i1.562

Ward, J., 2014. Nine common problems in the nursing profession, http://www.Nursetogether.com, New York.

Warner, L., Klausner, J.D., Rietmeijer, C.A., Malotte, C.K., O'Donnell, L., Margolis, A.D., Greenwood, G.L., Richardson, D., Vrungos, S., O'Donnell, C.R. & Borkowf, C.B., 2008. Effect of a brief video intervention on incident infection among patients attending sexually transmitted disease clinics. *PLoS Medicine*, 5(6), p.e135.

Warwick, C., 2017. The challenges facing midwifery are immense. No wonder we have a crisis on our hands. The telegraph Health and Fitness news, United Kingdom.

Weeks, A., 2015. The prevention and treatment of postpartum haemorrhage: what do we know, and where do we go to next. *BJOG: An International Journal of Obstetrics & Gynaecology*, 122(2), pp.202-210.

WHO, 2010. Handbook for guideline development 2008. The WorldHealthOrganization, Genevahttp://apps.who.int/iris/bitstream/10665/75146/1/9789241548441_eng. pdf (accessed 2 February 2013).

WHO, 2011. Transformative scale up of health professional education: an effort to increase the numbers of health professionals and to strengthen their impact on population health.

WHO, 2011. Who recommendations for prevention and treatment of pre-eclampsia and Eclampsia. GENEVA.

WHO, 2012. WHO recommendations for the prevention and treatment or postpartum haemorrhage: evidence base.

WHO, 2014. Trends in maternal mortality rate from 1990-2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division.

WHO and UNICEF, 2015. Trends in maternal mortality: 1990-2015: estimates from WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division.

WHO, 2016. WHO guidelines approved by the guidelines Review Committee, WHO Guidelines: Maternal, Reproductive and Women's health, viewed 12 January 2016. http://www.who.int/publications/ guidelines/reproductive health/en.

Yorsten, D., 2010. Clinical auditing to improve patient outcomes. NCBI-NIH

ANNEXURE A

University of Venda Research Ethics Committee Clearance Certificate

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mrs TI Ramavhoya

Student No:
11606805

PROJECT TITLE: **Development of a strategy to facilitate the implementation of maternal health guidelines in Limpopo Province, South Africa.**

PROJECT NO: SHS/16/PDC/34/1910

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof S Maputle	University of Venda	Promoter
Prof RT Lebese	University of Venda	Co-Promoter
Prof DU Ramathuba	University of Venda	Co-Promoter
Mrs TI Ramavhoya	University of Venda	Investigator - Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: October 2016
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Prof. G.E. Ekosse

UNIVERSITY OF VENDA
DIRECTOR
RESEARCH AND INNOVATION
2016 -10- 25
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"A quality driven financially sustainable, rural-based Comprehensive University"

ANNEXURE B

Request for Permission to Conduct the Study

School of Health and Science
University of Venda
Private Bag X5050
Thohoyandou
0950
18 February 2017

Limpopo Provincial PHC Manager
Private Bag X9302
Polokwane
0700

Dear Sir/Madam

APPLICATION FOR PERMISSION TO CONDUCT RESEARCH STUDY AT YOUR DISTRICTS

I am student at University of Venda towards studying a doctoral degree in nursing (DCur). My student number is 11606805, I hereby request permission to conduct a study in your province in the following districts: Mopani and Vhembe. The purpose of the study is to develop a strategy that will facilitate the implementation of maternal health guidelines, hence reduction of maternal morbidity and mortality rate.

The study will benefit the whole province at large. It will also contribute to the achievement of Sustainable Development Goal number 3 and empower health care professionals with knowledge regarding guidelines that must be implemented when providing maternal health care services.

I Hope that my application will be favourable considered.

Yours faithfully

Ramavhoya Thifhelimbilu Irene

ANNEXURE C

Permission from Limpopo Province DoH to Conduct Research

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Latif Shamila (015 293 6650) Ref:4/2/2

Ramavhoya TI
University of Venda
Private Bag X5050
Thohoyandou
0950

Greetings,

RE: Development of a strategy to facilitate the implementation of maternal health guidelines in Limpopo Province, South Africa

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
   - Research must be loaded on the NHRD site (http://nhrd.hst.org.za) by the researcher.
   - Further arrangement should be made with the targeted institutions, after consultation with the District Executive Manager.
   - In the course of your study there should be no action that disrupts the services.
   - After completion of the study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
   - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
   - The above approval is valid for a 3 year period.
   - If the proposal has been amended, a new approval should be sought from the Department of Health.
   - Kindly note, that the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated.

Head of Department

14/12/2016
Date

18 College Street, Polokwane, 0700, Private Bag x9302, POLOLKWANE, 0700
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: http/www.limpopo.gov.za

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ANNEXURE D

Permission from Limpopo Province DoH: Mopani District to Conduct Research

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH
MOPANI DISTRICT

Ref: S4/2/2
Enq: Mohatli IE
Tel: 015 811 6543

To **Ms. Ramavhoya T.I**
University of Venda
Private Bag x 5050
THOHOYANDOU
0950

Re: PERMISSION TO CONDUCT RESEARCH IN MOPANI HEALTH FACILITIES: YOURSELF

1. The matter cited above bears reference
2. This serves to respond to the request submitted to research on the topic: **"The development of a strategy to facilitate the implementation of maternal health guidelines in Limpopo Province, South Africa"**.
3. It is with pleasure to inform you about the decision to permit you to conduct research in the facilities within Mopani District.
4. You will be required to furnish hospital authorities with this letter for purposes of access and assistance.
5. You are further advised to observe ethical standards necessary to keep the integrity of the facilities.
6. The Mopani District wishes you well in your endeavour to generate knowledge.

District Executive Manager
Date: 2017/01/18

ANNEXURE E

Permission from Limpopo Province DoH: Vhembe District to Conduct Research

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OFHEALTH
VHEMBE DISTRICT

Ref: S5/6
Enq: Muvari MME
Date: 27 January 2017

Dear Sir/Madam

PERMISSION TO CONDUCT A STUDY: RAMAVHOYA T.I

1. The above matter bears reference
2. Your letter received on the 16/01/2017 requesting for permission to conduct a study is hereby acknowledged
3. The District has no objection to your request as the Province has already granted permission through the HOD.
4. Permission is therefore granted for the study to be conducted within Vhembe District.
5. You are however advised to make the necessary arrangements with the facility concerned.
6. Wishing you success in your studies

.....
DISTRICT CHIEF DIRECTOR

25/01/2017
.....
DATE

Private Bag X5009 THOHOYANDOU 0950
OLD parliamentary Building Tel (015) 962 1000 (Health) (015) 962 4958 (Social Dev) Fax (015) 962 2274/4623
Old Parliamentary Building Tel: (015) 962 1848, (015) 962 1852, (015) 962 1754, (015) 962 1001/2/3/4/5/6 Fax (015) 962 2373, (015) 962 227

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ANNEXURE F

Consent Form

TITLE: Development of Strategy to Facilitate Implementation of Maternal Health Guidelines in the Limpopo Province, South Africa.

RESEARCHER: RAMAVHOYA T.I.

You are invited to participate in a research project titled: Development of a Strategy to facilitate the implementation of Maternal Health guidelines in the Limpopo Province.

The intent of this study is to develop and implement an intervention strategy that is aimed at reducing the maternal morbidity and mortality rate in Limpopo Province.

This study may benefit you directly as professional nurses will be able to implement guidelines in relation to maternal health care services, hence, be able contribute to the achievements of millennium developmental goals number 5 & 6 through the provision of maternal health, health promotion and prevention hence reducing maternal morbidity and mortality rate.

The knowledge obtained may also be shared with other people in the community. There will be no risk or discomfort from participating in the study.

You will meet with the researcher and her team may be twice, for completion of the questionnaire and validation of the study for the duration of 1 hour 30 minutes at a designated area of your work. Questionnaires' will be formulated in English.

A record of those who will participate in the study will be kept and your name will not be included on the questionnaire and data will not be linked to your name.

Data will be stored in a secure place and no one except the research team will have access to your information.

Your identity will not be revealed when the study is reported or published. If you have questions about the study or about participating in the study, feel free to contact (Ramavhoya T.I) at 015 961 4173 (work) and 084410 2208 (cell).

Your participation in the study is totally voluntary and you are under no obligation to participate. You are free to withdraw from the study anytime, without penalty or jeopardizing the health care to be given to you or your child.

The study and its procedure have been approved by appropriate people and research committees of the University of Venda.

I have discussed the above points with the subjects and the subjects understand the risks, benefits and obligations involved in participating in the project.

…… ……

Investigator **Date**

I understand that my participation is voluntary and I may refuse to participate or withdraw my consent anytime without penalty.

I hereby freely consent to take part at this research project.

…… ……

Signature of Witness **Signature of Participant**

……

Date

ANNEXURE G

Interview Guide

SECTION 1: BIOBLIOGRAPHICAL DATA

Participant code					
How old are you?					
Race group	**African**	**White**	**Coloured**	**Indian**	**Other**
	1	**2**	**3**	**4**	**5**
What is your nationality?	**South African**		**1**		
	Other, please specify		**2**		
How many years of service do you have as a professional nurse?	**1-3**		**4-9**		**10 and above**
What is your highest level of education	**Diploma**		**Degree**		**Other, Specify**
	1		**2**		**3**

SECTION 2: TO EXPLORE THE EXPERIENCES & CHALLENGES FACED BY PROFESSIONAL NURSES IN RELATION TO THE IMPLEMENTATION OF MATERNAL HEALTH GUIDELINES

1. **What was your experience in the management of women with PPH?**
2. **What was your experience in the management of women with gestational hypertension?**
3. **What was your experience in the management of pregnant women with pre-eclampsia?**
4. **How did you manage the women who were diagnosed HIV-positive during their first visit? Was it easy? If not, what was your experience in the management related to the guidelines?**

ANNEXURE H

Questionnaire

SECTION 1: BIOBLIOGRAPHICAL DATA

Participant code					
How old are you?					
Race group	**African**	**White**	**Coloured**	**Indian**	**Other**
	1	**2**	**3**	**4**	**5**
What is your nationality?	**South African**		**1**		
	Other, please specify		**2**		
How many years of service do you have as a professional nurse?	**1-3**		**4-9**		**10 and above**
What is your highest level of education	**Diploma**		**Degree**		**Other, Specify**
	1		**2**		**3**

SECTION 2.1: KNOWLEDGE OF AVAILABLE GUIDELINES

Answer all questions. Choose the correct alphabet and circle the answer.

1. What guideline must be used in the management of HIV pregnant women?

a. Primary care 101

b. Integrated management of young children

c. Prevention of mother to child transmission

2. Management of third stage of labour includes?

i. Rubbing up the fundus

ii. Cord control traction

iii. Insertion of intravenous infusion

a. i

b. i and ii

c. ii and iii

3. Management of an HIV positive pregnant woman includes?

a. Initiation of ART drugs the same day

b. Collection of base line and initiation with results

c. CD4 cell count of 350, not to be initiated

Continued/…

4.	**Which guideline will you apply to a with a blood pressure of a diastolic of 110 or more measured on 2 occasions four hours apart?** a. Primary care 101 b. Reproductive health guideline c. Maternity care guideline in South Africa
5.	**The following women are at risk of developing pre-eclampsia?** **i. Primigravida** **ii. Multigravida with two children** **iii. Women with chronic hypertension** a. i b. i and ii c. ii
6.	**You can continue with magnesium sulphate in pre-eclamptic women if the following happens?** **i. Patellar reflexes present** **ii. Respiratory rate of less than 16** **iii. Urinary output of less than 100 ml in the last four hours** a. i b. ii and iii c. i, ii and iii
7.	**You need to advise a primigravida regarding the importance of blood pressure checking's, which guideline will you consult?** a. Primary care 101 b. Lactation management guideline c. Maternity care guideline in South Africa
8.	**What guideline will you use for a woman suffering from induced hypertension in pregnancy?** a. Primary care 101 b. Maternity care guideline in South Africa c. Pregnancy induced hypertension guideline
9.	**A 38 pregnant women presented with abdominal pains for about 3 hours, which guideline will you implement?** a. Primary care 101 b. Midwifery guidelines for women in labour c. Maternity care guideline in South Africa

Continued/…

10.	**You just delivered 30 year old women, after 1 hour when you examined her you find that she was bleeding more than expected. Which guideline will you consult?**
	a. Primary care 101
	b. Maternity care guideline in South Africa
	c. Postpartum haemorrhage guideline
11.	**Para 3 gravida 4 tested HIV-positive, she is 8 weeks pregnant. Which guideline will you apply on her management?**
	a. Maternity care guideline in South Africa
	b. National guideline on prevention of mother-to-child transmission
	c. Guideline on HIV testing
12.	**The definition of postpartum haemorrhage include the following:**
	a. Blood loss of 500 ml and more
	b. Blood loss of less than 500 ml
	c. Cord control traction

SECTION 2.2. CHALLENGES FACED BY PROFESSIONAL NURSES

Answer all questions and indicate the correct answer with an X

QUESTION	YES	NO
1. IS the number of professional midwives correlate with the number of pregnant women seen on a daily basis		
2. Do you sometimes experience a burden of workload		
3. Have you ever experienced a needle prick when rendering your services		
4. Do you have the basic essential equipment to carry out your normal duties		
5. Were you provided with enough knowledge to manage a women with pre-eclampsia		
6. Do you have enough drugs to manage women with pre-eclampsia		
7. Do you have the necessary skills to manage postpartum haemorrhage		
8. Do you sometimes experience difficulties in the management of women with PPH		
9. Are two midwives allocated during the night to help each other		
10. Is the ambulance turnaround times within norm (less than 60 minutes)		
11. Do you sometimes experience complains from patients in relation to waiting periods		

Continued/…

SECTION 2:3 COMPETENCIES OF HEALTH CARE PROFESSIONALS IN THE PROVISION OF MATERNAL HEALTH

Indicate your answer with an X.

QUESTION	AGREE	DISAGREE
1. Will you advise a woman to start antenatal care if she discovered she is pregnant after a gravidex test		
2. The department is advising women to start antenatal care before 20 weeks has elapsed, do you think this is correct		
3. Do you think it is important to follow basic antenatal care during pregnancy		
4. Blood for WR, Rh, Hb are taken during the first visit and at 32 weeks		
5. The HIV test for a pregnant women is done during the first visit and each every 3 months until the cessation of breastfeeding		
6. Iron supplements are only given during pregnancy		
7. ARTdrugs, especially fixed dose combination is given at any stage during pregnancy if tested positive for HIV		
8. It is safe to give a pregnant women Efiverenz at an age of gestational age		
9. Co-trimaxazole tablets to be prescribed if the pregnant women is HIV positive regardless of WHO clinical staging.		
10. Misoprostol may be given as part of 3rd stage of labour if Oxytocin is not available		
11. It is important to monitor the blood pressure of each pregnant women at each visit to prevent pre-eclampsia		
12. An HIV negative woman to be tested during delivery if tested two days ago		
13. An HIV positive mother must not breastfeed her child to prevent HIV transmission to the baby		
14. If the Hb of a pregnant HIV positive women is less than 8 gld, Art must be initiated the same day		
15. A woman who is 35 yrs old and above is at risk of developing PPH after delivery		
16. Gestational hypertension occurs before 20 weeks of pregnancy		
17. Essential hypertension occurs after 20 weeks of gestation in pregnancy		
18. A primigravida is not at risk of pre-eclampsia because of her first pregnancy		
19. You must go and call for an ambulance to avoid noise in the labour room of a women with eclampsia		
20. Prevention of PPH include rubbing up of the fundus after delivery		
21. Inserting an indwelling urinary cather is part of management of PPH		
22. You must continue with Magnesium sulphate even when the respiratory rate is 16 b/minutes		
23. Infections can cause PPH		

SECTION 2.4: TRAINING RECEIVED AS A PROFESSIONAL NURSE

Indicate your answer with an X

QUESTION	YES	NO
1. Did you ever receive training on voluntary training and testing		

	(VCT/HCT/PIT)		
2.	Were you trained on prevention of mother to child transmission		
3.	Did you receive training on the management of obstetric emergency (ESMOE)		
4.	Did you have knowledge on the Basic Antenatal Care		
5.	Were you ever exposed to the training of management of hypertension in pregnancy		
6.	Do you know on the management of pueperial sepsis		
7.	Have you ever received training on the management of sexual transmitted infection		
8.	Were you trained on ART management		
9.	Were you ever trained on ionized prophylaxis initiation		
10.	Do you attend peri-natal mortality meetings		
11.	Have you ever attended a training on immunization		

SECTION 3 SUPPORT OFFERED BY DISTRICT MATERNAL HEALTH MANAGERS AND OMN

Indicate your answer with an X.

QUESTION		YES	NO
1.	Do the District Executive manager and OMN release midwives without difficulties for the purpose of conducting training		
2.	Do you consider delivery statistics for nurses to be trained		
3.	Is staff allocated according to the needs of the facility		
4.	Are two midwives allocated to attend to a pregnant women including during the night		
5.	Is basic equipment such as blood pressure machine always available all the time		
6.	Is emergency transport always available in case of emergency		
7.	Are the ambulance's turnaround times within norm, arrive within 60 minutes after a request		
8.	Are maternal guidelines available in each consulting room		
9.	Are midwives trained if there is an updated or new guideline before its implementation		
10.	Is the criteria for transfer of women at risk and emergency known by midwives		
11.	Is continuous education on maternal guidelines offered through out		
12.	Is there a standardised eclamptic box to each and every facility		
13.	Are maternal health incidences reported and investigations started within 24 hours		
14.	Are clinical audits conducted on maternal records once per month		
15.	Are emergency drugs such as magnesium sulphate always available		
16.	Are uteretonics always available and used to all women delivered		
17.	Are EOSOT drills conducted and monitored twice per month		
18.	Is health education with regard to dashboard indicators given daily		
19.	Is the supervision by district maternal health managers done to monitor the implementation of maternal guidelines once in two months and for health care facility done daily by OMN		
20.	Is there a client satisfaction questionnaire available to be completed by mothers after delivery		
21.	Is the monthly perinatal mortality meeting effective in the provision of maternal health care		

ANNEXURE I

Validation Instrument: Questionnaire

DEVELOPMENT OF A STRATEGY TO FACILITATE THE IMPLEMENTATION OF MATERNAL HEALTH GUIDELINES IN LIMPOPO PROVINCE, SOUTH AFRICA

INSTRUCTIONS

1. **Please tick or fill the gaps appropriate**
2. **Do not write your name except the code provided**
3. **Do not discuss your answer with anybody**
4. **Respond to all the question**

SECTION 1: BIOBLIOGRAPHICAL DATA

Participant code					
How old are you?					
Race group	**African**	**White**	**Coloured**	**Indian**	**Other**
	1	**2**	**3**	**4**	**5**
What is your nationality?	**South African**		**1**		
	Other, please specify		**2**		
How many years of service do you have as a professional nurse?	**1-3**		**4-9**		**10 and above**
What is your highest level of education	**Diploma**		**Degree**		**Other, Specify**
	1		**2**		**3**

SECTION 2: BUILDING ON STRENGTH AND OVERCOMING WEAKNESSES

STRENGTH	STRATEGY	AGREE	DISAGREE	COMMENTS, IF ANY
1. To enhance the availability of human resources	Motivate the Provincial DoH to do the following: -Increase the uptake of midwives for basic and post basic (advance midwifery) training for midwives to reduce shortage of staff.			
	-Revive the basic training in midwifery to enrolled nurses so that the human resources are increased.			
	-To extend the training on matters pertaining to midwifery to home based careers that may help in identifying women at risk and offer appropriate education to women			
2. To enhance the knowledge, training and adherence of midwives to guidelines on the three conditions; PPH, Hypertensive disorders and HIV in pregnancy.	-Continuous professional development for midwives especially on maternity care guidelines conditions such as PPH that are preventable to be planned.			
	-The training must cover all the midwives not few to avoid shifting of responsibilities to those who attended the training			
	-In case of an updates, the District MHCM must ensure that updated information is known by all midwives in time.			
	-Arrangements must be made for midwives to attend symposium and yearly midwifery conferences.			
	-The District Executive Managers to arrange for yearly award giving ceremony for midwives who are adhering to guidelines as a form of positive reinforcement.			
3. To overcome difficulties and frustration during the management of PPH & HPT in pregnancy by midwives	-Purchase teaching models/manikin and equipment needed by midwives and be distributed to each facilities for midwives to practice EOSOT.			
	-Strict monitoring of EOSOT drills for midwives to practice complicated conditions hence be competent.			
	-More than one midwives to be allocated day and night to each facility so that every			

	time midwives help each other in the management of pregnant women.			
4. To enhance the Support from colleagues during management of the women	-Advertisement of post and hiring of more midwives to facilities where they are shortage of midwives so that two midwives be allocated during the night.			
5. To enhance support from managers, MHCM and DEM must;	-Visit facilities so that they offer support on challenges experienced by midwives in the implementation of the guidelines.			
	-Purchase resources and distribute them fairly to PHC facilities.			
	-Integrate programmes so that managers had time to implement the information in their facilities and to supervise and monitor the implementation of maternal health guidelines.			
6. To enhance Prompt response by ambulance services, the Government must;	-Purchase more vehicles that will be used as ambulances in order to increase the ambulance responses when called by midwives.			
	-If possible, designated ambulances must be purchased for maternal health care services only			
7. To ensure the availability of drugs	-Operational Managers and midwives are monitoring the availability of drugs daily including Magnesium Sulphate			
	-The Provincial DoH to design a standardized register that will be used by all PHC facilities to record the drugs.			
	The District pharmacy to allow facilities that are far from the hospital to have more stock of magnesium sulphate if possible 40 vails and to have a system in place to control and avoid drug wastage.			
8. To ensure the availability of equipment, the District Office asset manager and the asset	-Involve midwives during the purchase of equipment so that they brought in inputs for new equipment and they must be trained on the proper use and care of equipment. -Benchmark with other provinces in order to identify new technological use of			

management team must;	equipment.			
	-Manage equipment through inventory in order to ensure the availability of equipment to all the facilities.			
	-Increase the number of equipment ordered so that surplus stock is distributed to PHC facilities.			
9. To enhance 24 hour maternal health care services the following must be done the District Executive Manager;	-Increase the security in each and every facility so that midwives are safe all the times.			
	-Provide midwives with resources needed in order to implement maternal health guidelines successfully			
	-Programme Managers must always support midwives even psychologically and encourage them to work even during difficult times.			
10. To enhance the availability of HIV counselling services, The District Executive Managers to;	-Increase the number of human resources for the successfully implementation of the service and to make sure that HIV testing kits are always available.			
11. To enhance free maternal health care services	-Each and every district to build a maternity hospital with a maternity home where high-risk women can await for their deliveries nearer with advanced technologies and human resources with expertise in maternal health matters.			
12. To enhance Accompaniment of women by midwives to hospital	-Managers to support them with enough staff so that services at the PHC facilities must continue even when one has accompanied the women			
13. Failure by women to do follow-up to hospital because of lack of money, Midwives at the hospital and at PHC level to;	-Educate women on the importance of follow-up visits so that women can take the visit into considerations and safe money for such visits.			
	-Work with home based careers, clinic committee members and to visit the chief's kraal during their meetings in order to inform the community regarding the important's of follow-up visits by pregnant women in order to reduce maternal morbidity rate.			

14. Some PHC facilities are far from the community as such there is failure to access PHC services, The Provincial DoH Limpopo and the DEM to;	-Purchase park homes that may be used as health care facilities in areas where there is poor access to health care services.			
	-Hire staff that will render health care services including maternal health to that area not to move staff from other facilities.			
15. To enhance utilization of the service by the community, PHC staff must;	-Always display a positive attitude towards the community in order to encourage them to utilize the service all the time.			
	-Have a reviewed board of service standards that reflected hours of operations and services rendered and the board to be at the entrance of the facility.			

SECTION 3: EXPLORE OTHER OPPORTUNITIES AND MINIMIZE IDENTIFIED THREATS

OPPORTUNITIES	STRATEGY	AGREE	DISAGREE	COMMENTS IF ANY
1. Reduction of waiting times, The District Executive Managers must;	-Support OMN with resources so that it be possible for professional nurses/midwives to implement the IDEAL clinic realization programme hence reduction of waiting times			
	-Purchase park homes to be utilized as consulting rooms in facilities with shortage of consulting rooms to reduce waiting times.			
	-Consolidate registers used to record patient's information in order to avoid duplication of information hence reduction of patients waiting periods.			
	-OMN to encourage nurses to use an appointment strategy in order to book patients for their appointments.			
	-Professional nurse/midwives to give education to patients on the importance of adhering to dates and time given in order to facilitate the booking system.			
2. Deployed cadres as managers with no expertise, the National, Provincial and District DoH	-Advertise higher post for managers and hire personnel with appropriate qualifications in order to reduce the rate of MMR.			

must;				
3. Availability of OMN and they must;	-Draw weekly programme in order to evaluate the progress made and services rendered by midwives.			
	-Draw a monthly teaching programme and adhere to it in order to capacitate midwives.			
	-Supervise and monitor the implementation of maternal health care services on a daily basis.			
4. Many programmes to be implemented, the DEM and Provincial DoH to;	-Integrate programmes so that OMN are able to implement them.			
	-Hire more OMN so that two OMN be allocated especially in busy clinics, one for maternal health and another one for general care services.			
5. Personnel trained on basic midwifery to be offered EOSMO training, MHCM to;	-Plan CPD in a form workshops and in-service training on all midwives related to EOSMO and other information related to maternal health guidelines.			
	-Support OMN and encourages midwives on the implementation of EOSOT drills in their facilities.			
	-Evaluation of the effectiveness and the changes brought in by EOSOT drills in the implementation of maternal health guidelines by OMN.			
6. Disrespect by colleagues on the next level, the DEM and the CEO must;	-Arrange for quarterly value clarification/workers for a change meeting where both hospital and PHC staff must come together and state their challenges in order to promote a trusting relationship between the hospital and the PHC staff.			
7. Women present early to PHC services and believe in scientific medicine	-Continuous encouragement must be given through daily health education to women by midwives so that they continue to seek medical interventions earlier in order to reduce maternal morbidity and mortality rate.			
8. Accompaniment of women by relatives to PHC facilities	-The traditional leaders, clinic committee members and home based careers to influence the community on accompanying pregnant women to the PHC facilities when in labour in order to support women in case of complications so that midwives are able to implement			

	the maternal guidelines with easy.			
9. Availability vs shortage of dynamaps	-Nurses to use and keep dynamaps safely in order to sustain its efficiency and for easy provision of maternal health care services by midwives.			
10. Mom-connect programme, OMN to;	-Encourage facility coordinators and midwives to continue to register women on Mom-Connect in order for women to be kept up to date throughout their pregnancies.			
	-Midwives to encourage women to read the massages and record the information received via SMS in a book so that they don't forget the information.			
	-Door to door services must be done by home based careers and facility coordinators to register women and to check the effectiveness of the programme.			
	-The NDoH to incorporate cell phone remainders in order to remind women of their follow-up antenatal care visits.			
11. Cell phones connected to National Level that checks availability of essential drugs such as ART, The NDoH must;	-Include drugs that prevent eclampsia, Magnesium Sulphate and uterotonics on the reporting system.			
	-At that National level, there must be a responsible person who will make a follow up in facilities where there is shortage of drugs.			
	-The operational manager to nominate the responsible person who will check the availability of ART drugs in the facility.			
12. Allocation of one vs two midwives, The Assistant Managers must,	-Continue to allocate two midwives during the night so that they help each other in the management of complicated cases.			
	-Arrangements of on duty that will make it possible for allocation of two midwives during the night must be done by assistant managers.			
13. SANC regulations	-The Laws formulated by the SANC, made midwives to conform to the rules and regulations and as such, maternal health care services are offered with caution by midwives in order to avoid removal from the roll and law suits from court.			

14. Monthly reviews conducted by OMN	-Draw up an action plan on the gaps identified during monthly reviews and implement those actions in order to improve health care services.			
15. Availability vs shortage of consulting rooms	-Facilities that are having enough consulting rooms must continue to implement the IDEAL clinic realization by practicing three streams in order to improve maternal health care services and to reduce waiting periods.			
	-The Provincial DoH Limpopo to ensure that there is enough health care personnel who will render health care services in those consulting rooms.			
16. Accessible tarred vs poor gravelled roads by the Department of Roads and Transport gravelled roads	-Maintain roads so that it be easy for ambulances and other cars to access the roads without delay in order to facilitate the transfer of women to the hospital.			
17. Lack of co-operation by women, midwives to;	-Establish a good patient and nurse relationship so that the women will be able to listen to the health advises given by the midwife during labour.			
	-Be a change agent; they must change the attitude of the women and their own attitude so that both accept each other and work together in order to reduce the risk of poor co-operation.			
18. Hiding history of PPH by women, midwives must;	-Teach women about the importance of giving full history during ANC so that they be able to plan for the delivery of the women hence reducing maternal morbidity and mortality rate.			
19. Believe in traditional healers, church and witchcrafts by women, midwives must;	-Work together with the community leaders by visiting the chief kraal in order to educate the community of the dangers of mixing traditional medicines with western medicines.			
20. Lack of integration with other structures on matters pertaining to maternal health care	-Educate home based careers and they must work together by identifying women at risk of doing so and educate women on the dangers of mixing scientifically proven medicines and traditional medicines			

guidelines and the DEM and MCWH to;	-Traditional leaders together with the OMN to organize imbizo where traditional healers are invited in order to provide them with health information so that they reduce their traditional ways of rendering their services without protection.			
	-Arrange training of Home based careers on matters pertaining to pregnant women that include taking of blood pressure and urinalysis so that they refer the women early if they discovered any deviation from normal ranges hence initiating management of the women by midwives in time.			
	-Again home based careers must receive and to have superficial knowledge of maternal health care guidelines and to have an understanding on how to care for a pregnant women.			
	-Organize training in a form of workshops for Life Orientation teachers so that they have superficial understanding of the maternal health care guidelines in order to deal with pregnant students.			
21. Need for CTG machines and the DEM to;	-Midwives to extend giving of health information on matters pertaining to maternal health care services during women societies and at their churches.			
	-Plan and purchase CTG machines for PHC facilities so that midwives are able to monitor maternal and fetal well-being correctly hence lessening the burden on the use of fetal scope to improve maternal outcomes.			
22. Need for Billboards and the DEM to;	-Purchase billboards that will remind midwives and the community at large on maternal related information in order to inform them about their health.			
23. Failure to conduct client satisfaction survey and the DEM to;	-Ensure the availability of standardized client satisfaction survey in each and every PHC facilities in order to improve the health of our nation			

	-Midwives must ensures that each and every women completes this survey on discharge in order to improve maternal health care services.			
	-Operational Managers must assess the efficiency of the survey and discuss the comments given by women with the staff once per month so that corrective measures are done.			
24. Failure to conduct clinical audits by OMN and they must;	-Together with the second in-charge to agree on a date fortnightly where they review maternity case records both on women who delivered and those still to deliver in order to evaluate care rendered by midwives to women.			
	-Draw a strategy with the second in charge on how to deal with gaps identified in order to improve the knowledge and skills of midwives.			
25. Availibilty vs Shortage of guidelines and MCWH to;	-Order enough guidelines so that each and every consulting room and if possible each and every midwife have the maternity care guidelines.			
	-The Limpopo College of Nursing to design a rule for their students so that after completion of their studies, to bring in their maternity care guidelines provided to them when appointed in a PHC facility in order to reduce the shortage of maternal health care guidelines.			
	-The OMN to monitor if the newly qualified professional midwife has brought in the maternity care guideline when appointed during their induction period for their own use when caring for a pregnant woman.			

ANNEXURE J

Confirmation by Independent Coder

Qualitative data analysis

Doctor of Philosophy in Health Sciences

Ramavhoya TI

THIS IS TO CERTIFY THAT:

Prof. Tebogo Maria Mothiba has co-coded the following qualitative data:

Unstructured one-to-one interviews

For the study:

Development of a Strategy to Facilitate the Implementation of Maternal Health Guidelines in Limpopo Province, South Africa

I declare that the candidate and I have reached consensus on the major themes reflected by the data during a consensus discussion meeting. I further declare that adequate data saturation was achieved as evidenced by repeating themes.

Prof TM Mothiba

ANNEXURE K

Confirmation by Language Editor and Typesetter

Donavon C. Hiss

Cell: 072 200 1086 | Fax: 021 959 3215 | E-mail: dhiss@outlook.com or hiss@gmx.us

24 August 2018

To Whom it May Concern

This serves to confirm that I have edited the language, spelling, grammar and style of the PhD thesis by **Thifhelimbilu Irene Ramavhoya**, titled: **Development of a Strategy to Facilitate the Implementation of Maternal Health Guidelines in Limpopo Province, South Africa**." The manuscript was also professionally typeset by me.

Sincerely Yours

Dip. Freelance Journalism, Dip. Creative Writing, MSc (Medicine), PhD

ANNEXURE L

Interview Transcript

Participant J from Lev:

Age: 58 years old

Professional midwife with 24 years of experience

Qualification: Degree in Nursing

Race: South African

Key: **R**—Researcher
P—Participant

R—Afternoon

P—Afternoon

R—How are you?

P—I am fine

R—I want to know your experiences regarding the management of a woman with post-partum haemorrhage?

P—*Yes, I had met woman with PPH. I have seen and manage such woman. I called my assistant to come and help me. I rubbed the fundus and emptied the women's urinary bladder. I inserted a drip of ringers lactate and added 40 units of Syntocinon on the drip then I opened it while observing how the patient was reacting to treatment. I had to call an ambulance when I have observed that there was no improvement. Though nowadays there is a pill that the guideline has recommended in which it is inserted and is called prosta…what…what. I haven't used the pill because I have not yet experience a patient with PPH for now.*

R—Is the pill available in your facility now?

P—*Yes, it is found in the PPH pack, it's just that I haven't encounter patients now with PPH since a new guideline was distributed.*

R—Okay…with the case that we were discussing about, how old was the patient and her gravida?

P—*She was gravida 2 with big baby of 3,7 kg in which even her placenta was big in which I suspected it to be the cause of haemorrhage. She was 35 years old.*

R—Okay … what might have been another cause of PPH apart from big baby?

P—*There was nothing else because her perineum and vaginal wall was intact in which I suspected that a big baby goes along with a big placenta and the area it attaches itself was a big area in which it is not easy to manage the area because of a big scar so the area easily bleeds.*

R—Ohoo … Okay, HM…How was the management of this woman?

P—*I managed her well.*

R—Was the women transferred to hospital?

P—*Yes, I transferred her to hospital so that they can check her Haemoglobin level, because even though she did not experience dizziness, the women's HB might fall because of blood loss. She needs to be checked at the hospital.*

R—Cases that you have experienced, do they come in numbers in the evening or during the day?

P—*They do come during the day and even during the night.*

R—The one that you managed, what time did she experience PPH?

P—*It was during the night, around eight (8) pm.*

R—Who helped you to manage the women?

P—*I was alone with a junior nurse, because there is no other midwife that helps during the night. A junior nurse that helped me was the one whom I called so that she can assists me. I send her to collect some of the equipment's and drugs that I needed.*

R—Hmm… I heard you saying that you transferred her to hospital, what source of transport did you used?

P—*I used an ambulance.*

R—What was the turnaround time for the ambulance?

P—*Ambulances are available but the problem is delay, you may call an ambulance and you will get an answer of that the ambulance that has gone to take another patient or it has gone to Polokwane. Sometimes there is one ambulance, a patient has to wait.*

R—When you said it delays, how many hours does it takes?

P—*It took 1hour, 1 hour 30 minutes to 2 hours.*

R—Hmm…it delays. Do you have other cases that you have managed that you experience difficulties? The participant related her experiences in the management of a woman with pre-eclampsia.

P—*Yes, there was a difficult case that I have managed recently. A woman came presenting with epigastric pain, one on the right side. One can see that she was in real pain. When I checked her blood pressure, it was 190/120. I assessed her and found that the patient was having severe pre-eclampsia that can be come imminent eclampsia at any minute. I checked her blood pressure three times using different blood pressure machines and it remained the same. I quickly inserted 200mls of ringers lactate on her and injected 4 gram of magnesium sulphate in the drip. I closed the other side of the drip and open 200mls so that it runs for 20 minutes, then I gave her 5mg of magnesium sulphate on each buttock.*

R—Hmm…you were busy

P—*Yes, it was an urgent case in which I repeated the blood pressure several times and seems to have slow down but after five minutes, it roses again. I gave her Methyldopa 500mg stat and Nifedipine 10 mg for her to swallow not to put underneath her tongue so that if she does so the blood pressure may drop faster.*

R—Hmm...Jaa...it was a difficult case

P—*Yes the patient was seriously ill and she was still complaining of epigastric pain meaning that the liver was congested and damaged. I then called an ambulance for her. The patient came at 5 am though she said she started to experience pain at 02h00 am. The ambulance delayed, because it came at 08h30.*

R—So the ambulance delayed a little?

P—*I think it took about 1h30 minutes; the patient was then transferred to hospital.*

R—Hmm...

P—*At the hospital, the patient was admitted in ICU*

R—Yoo…

P—*She died on the 7th; she was transferred on the 3rd to the hospital.*

R—Hmm…Eish….

P—*When she arrived at the hospital the same day, she was done Caesarean Section, delivered pre-term baby that was taken to nursery. The baby also died. They were buried together. She was done C/Section and I think already she has developed DIC.*

R—What is DIC?

P—*Disseminated what what….where the blood failed to form clots. She was taken to theatre for the second time for hysterectomy because she was continuing to bleed even the urinary output was no longer there. I think the kidneys were affected because when she was still here, when I inserted the urinary catheter, there was blood in urine.*

R—Okay, does that mean that her urinary output has decreased?

P—*Yes, she was urinating but even when she was here, her urinary output was less than 100mls and that is the indication that there was a problem in her kidneys.*

R—What parity was the patient?

P—*She was Para 2 Gravida 3 of 30 years old. She had RPR positive and receives all the three doses of Penilente, but afterwards it was negative. She also had 2 abortions in between.*

R—Hmm…

P—*In the ANC card that information was not indicated, maybe she had verbalized that at the hospital by words of mouth.*

R—Did she have a history of hypertension?

P—*It was not visible because the patient was attending ANC at a certain clinic, but when I checked her records, her last BP was 135/98 and I think the nurse who helped her did not take that into account because it seems as her blood pressure was rising bit by bit. Sometimes the nurse who attended her did not take it into consideration.*

R—May be her urine did not have any abnormalities with her previous visits

P—*I don't know, but when I checked her urine, she had protein in urine and oedema of the lower limbs. She was not a fat person but she was swollen.*

R—Hmm…But she was complaining of epigastric pain

P—*Yes.*

R—And I think if she found somebody else, the person should have misdiagnose the patient

P—Yes, the patient could have been mismanaged, especially with the case that presented themselves in this way. I once seen a patient who presented with headache and that person easily had fits. But with such cases I think it is better because the one who presented with epigastric pain is difficult because the liver had many functions.

R—I can understand your experience, I heard you saying that you gave the patient Magnesium Sulphate 5grams on both sides and 4gram on the vacolitor, do you have enough stock of Magnesium?

P—*We are having a lot because even in our dispensary room, Magnesium is available. When we use the drugs in the Pre-eclamptic box or emergency trolley, we do the refill.*

R—Some of the primary health care facilities those that are in remote areas are complaining that once they use the drugs in the emergency trolley, they are left with nothing.

P—*We have the once in the emergency trolley, Pre-eclamptic box and others in the drug cupboard, we cannot have a shortage of this drug, it is very important, we cannot work without it.*

R-How did you feel after the patient has left?

P—*Hey…when a patient is sick, you also feel somehow, because you don't know how the will meet on the way. The patient was well when she went to the hospital though she was complaining of pain on the chest. Another thing that I heard was that, she was also complaining of dizziness, I heard from the nurse who accompanied the patient to the ambulance because I was already in the nurse's home bathing.*

R—Okay

P—*The patient did not even had placenta Previa because I should have notice it and felt it during palpation*

R—Were you alone during that time?

P—Yes, I was alone with the assistant nurse. I think there must be another midwife working or assisting each other because it is not good to come across such a patient while you are alone. If you are two, you will be able to help each other with the management.

R—Hmm…I agree with you, do you also experience women with gestational hypertension, if so *what was your the management?*

P—*Yes, but a lot of them, some are already on treatment. I have managed some patients where I checked their blood pressure and found that it came after 20 weeks of gestation. I gave them Methyldopa and refer them to hospital for Urea & Electrolytes (E&U) to be taken so as to check how their kidneys are functioning.*

R—What about when they came back from the hospital?

P—*I monitor them in order to see if their blood pressure is controlled or not. Most of the patients do their reviews at the hospital and they attend their ANC at the hospital as high risk patients, they also deliver at the hospital.*

R—You are working with pregnant women where some are there for first antenatal care, what was your experience in the management of a woman who was diagnosed HIV positive during her first ante-natal visits?

P—*Eeee.. this is a difficult situation because such patients will behave like she is hearing you but in reality when you ask her questions, she won't answer any of them, meaning that such a patient is*

hearing the news for the first time and she is also in shock. This is a problematic case, but one is forced to explain to her the benefits of treatment i.e. drugs that I gave to the women to help her together with her baby so that the baby can be free from the virus especially if she has taken the drugs as prescribed and she has started her ANC early. When the women comes back for follow-up, and I ask her about her experiences in relation to treatment and side effects, some will say they did not experience any, though some will tell you that I had mild diarrhoea. I reassured them that it will pass my child but heee… it is difficult especially for a first time diagnosed patient.

R—Hmm…

P—*You can feel sorry for the patient, the situation is not easy to find yourself within but I continue to counsel them, explain to them the advantaged of taking the drugs. I also emphasize the issue of taking drugs the same time. I usually ask them on when they will take the drugs, a women will say around eight, I will emphasize that they must take the drugs at exactly eight O'clock, so as to prevent giving time in between for the virus to replicate. I also advise them to disclose their status to their husbands so that they can also come for testing.*

R—Do they come for testing?

P—*No, I think the women don't disclose their status to their husbands. They don't tell their husbands their status.*

R—Okay, they don't disclose?

P—*Yes, they don't because they are afraid they will be divorced, laughing… (researcher & participant) though the husband is the one who infected her, it's like the women got it from somewhere else. It is difficult.*

R—I had you saying that you counsel them and give them drugs the same time and the blood?

P—*Yes, the patient is supposed to come back within 7 days for the results, to check especially creatinine. It can be down from 30- 35 it does not allow me to give drugs, he women qualifies to get the three drugs, but from 40 though it will still be low it allows me to give drugs.*

R—Do you still have the three drugs?

P—*Yes, we still have them because there are chronic patients with kidney conditions who are using the three drugs.*

R—When you check, how is the waiting period for those who are still waiting to be helped outside?

P—*The waiting period is long, sometimes it takes 1 hour especially for the one who tested positive, I have to counsel the women for adherence of drugs, issue her drugs, take all the necessary bloods, such as creatinine, Alt, Viral load. The viral load is very important because when the woman delivers, her viral load must be low. If the viral load of a woman is 1000, the child is not given Nevirapine only but AZT to be added.*

R—But if you are working and taking 1 hour, what about those who are waiting outside?

P—*I do explain to them that we will be delayed a little bit and nowadays there is no problem because where I work, there is a cubicle for chronic patients, reproductive health which includes pregnant women and minor ailment cubicle. Patients are informed that there is a first ANC visits so that there will be a delay for a while so that they don't get surprised but things are working well. We don't mix services.*

R—I do understand that with the new style of rendering health care services, things are better, are you not having days where there was shortage of staff may be others has gone to attend workshops

P—*Like now, in our shift, we are 4, one has gone to school, one is on leave, we are left being two, now we are compiled to share minor ailment and reproductive while other one take minor and chronic so that we can mix services because there is nothing that we can do. There is no one who can help us. Except if we are four services are more smoothly. Because one can take immunisation and Family planning and one deal with maternity only when one is doing minor and another one chronic only.*

R—Okay I can hear you, in your facility, I know that there is no shortage of staff except when one is on leave or attending workshop or sick

P—*Yes, staff in our facility is okay but now the problem is, there is one who is attending school she goes there for a long period and one is on leave and last month we worked overload, when one comes back form leave, I am also going on leave, meaning that the two midwives will work overload.*

R—Meaning that this year you will be over burden by work?

P—*Yes this year, there is a problem with staff.*

R—Do you have the support from Maternal Health Care Manager?

P—*You mean Mr...that person for support, but I have never seen him maybe he is coming in another group, I have never seen him coming for support but I have seen him coming where there was a case of maternal death. Last year of unbooked case.*

R—In everything that we have discussed, do you think there is a challenge in using maternal guidelines?

P—*Maternal health care guideline was the best tool in the management of that woman with severe pre-eclampsia; it has shown me the whole management as long as everything is available (resources). It helped me a lot. Because even the Dr from the hospital called and asked me why I delayed to give magnesium on each buttocks, I explained that I was guided by maternal guideline page 73 that explain a delay, if I anticipated delay in the ambulance I must give, if it will be faster, I must not give the client will receive it at the hospital. He told me that at the hospital, they are using protocols not guidelines that explain them to give it as soon as possible following the loading drugs. He then confirmed that with me after checking I was working while opening it referring to it.*

R—Hmmm, Is it easy to implement the guideline alone, while you are supposed to help the patient at the same time?

P—*It is not easy, it needed somebody with a sharp mind, continuous usage and studying it before helped me to grab the information faster, even if the woman comes without opening it one is able to implement the information. The guideline needs to be read even if one does not have a patient and you know that many nurses don't give themselves time to studying, nurses don't read it, but the day I encountered that patient, I read the whole chapter on hypertension until I finished it, I repeated it several times that I mastered that information. I read it in order to prepare myself for future so that in case I can experience the same problem, I am able to implement it.*

R—Hmm…okay, but what are the other challenges that you are facing in which if they are resolved the service will smoothly.

P—*I see that the most important thing that can be purchased in our facility is a CTG machine because if I need to argument the patient, how can I argument her without it, because with the Doppler it moves anytime from the patient so CTG machine I can work well. If the women stays being 2cms without progressing with the foetus's fetal health rate being okay, and her pelvis is adequate, no abnormalities in her, I can argument such a patient and she delivers well. I think every facility needs it. We really need that machine.*

R—Okay, the CTG machine must be available?

P—*Yes it must be available.*

R—Anything else that can make the service to run smoothly?

P—*Yes, even if we can have a sonar (both researcher and participant laughing), yes it is a problem especially if the woman does not know her gestational age; it is so boring, though we were taught not to worry about sonar and to work using a tape… (Laughing both researcher & participant) yes, they say we must work using a tape.*

R—I thought in your facility there is a CTG machine because your facility is more advanced.

P—*No, it is more advanced but equipment such as CTG is not there, they must provide us with it. But in relation to drugs, they are available, we are having syntocinon always.*

R—So the drugs are available?

P—*Yes, they are, we don't have a problem with drugs. Ambulance is a problem the area where they are located is far, if they can be stationed nearer but I don't know, where it can be better, because a patient can die while waiting for an ambulance.*

R—Ya…it is difficult.

P—*Yes it is difficult, because sometimes you will find their phones not working, one must remember and check for a cell phone of a paramedic person that you have used a long time ago, and the person*

will tell you that I am not on duty, take this numbers of another personnel, until one calls that person. The landline sometimes is not working.

R—Yaa...

***P**—I also think that as an ideal clinic, the Doctor must always be available, not the one that comes some of the days like Monday, wed, Friday, the Doctor must always be available all day.*

R—Is the Doctor not always available?

P—*No, he comes Monday and Thursday. If he is always available, I think we can work well, because any problem that we encounter, we will refer to him urgently or its maternity case or general case.*

R—Does he see also the maternity cases because in a certain facility I heard that he refuses to see maternity cases?

P—*Yes he agrees, even if I came across a post—dates patient and refers her to him, he sees the patient and refer her to hospital the same day, he does not segregate patients.*

R—I heard you, thank you for your time unless if you have some things that you need today?

P—*I think that if I remember something I will contact you because I can remember something when you are gone that I did not say this; if I have said it maybe we will get help. The other thing is duplication of work, there is maternity case register, there is a general register so the same information is written twice, this also took a long time, when the patient is inside, she does not get out, so those who are outside will ask themselves on what is happening inside there maybe people are playing inside because even observations that are done to the patients are so many.*

R—Okay, I understand, those in the outside will think that you are playing inside.

P—*Yes and one will be trying to work faster.*

R—Okay, thank you for your time.

P—*Its fine if I remember something, I will give you a call.*

R—Okay, I have heard you are working very well.

P—Yes, we are working.

R—Good bye!