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SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

ASSESSMENT OF THE QUALITY OF SERVICE DELIVERY FOR PRETERM BIRTH AND CARE AT KORLE-BU TEACHING HOSPITAL

BY

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(10876542)

THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC HEALTH (MPH) DEGREE

JUNE, 2022

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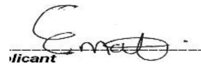
DECLARATION

I Evelyn Maa-Abena Tamma hereby declare that this thesis is entirely my work under the supervision of Dr. Adanna Nwameme. All cited literatures have been duly acknowledged. No such information has been submitted to this university or any other learning institution for an academic award to the best of my knowledge.

EVELYN MAA-ABENA TAMMA  ……19th October, 2022….

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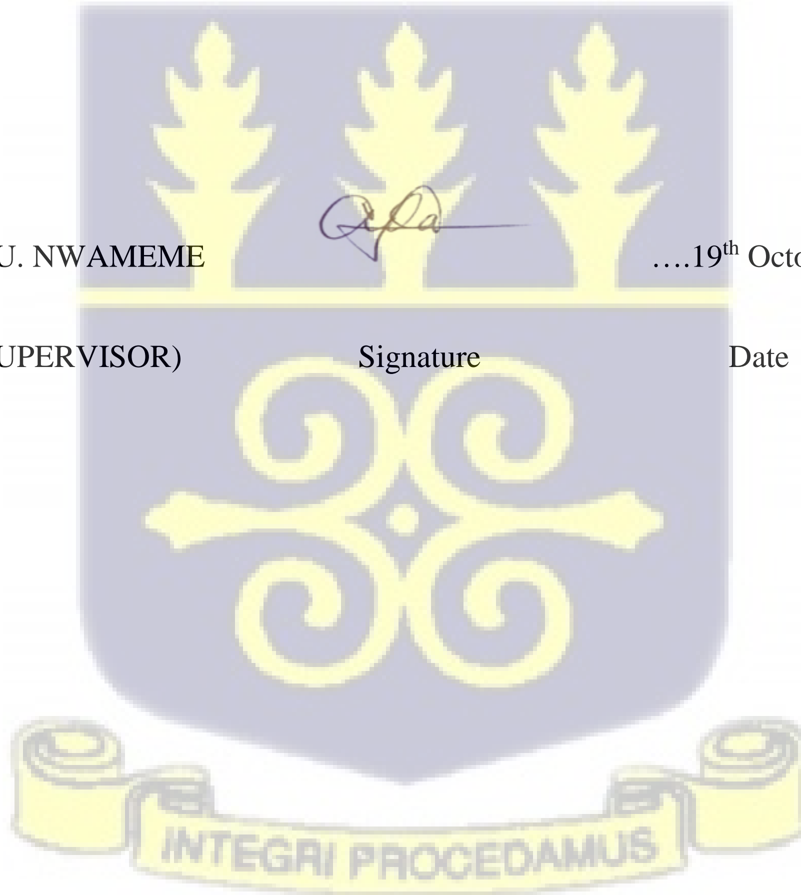
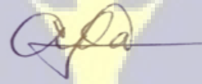


DR. ADANNA U. NWAMEME  ….19th October, 2022….

(ACADEMIC SUPERVISOR) Signature Date

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DEDICATION

I dedicate this thesis to my late father, Mr. Winfried Yaw Tamma, for all the sacrifices he made towards my education.

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ACKNOWLEDGMENT

My immense gratitude goes to the Good Lord for His strength, provision and help during this programme from the beginning to the end.

I appreciate my entire family for their support and prayers.

A very special thanks goes to Dr Kwame Adu-Bonsaffoh for believing in me and pushing me to get the very best out of me.

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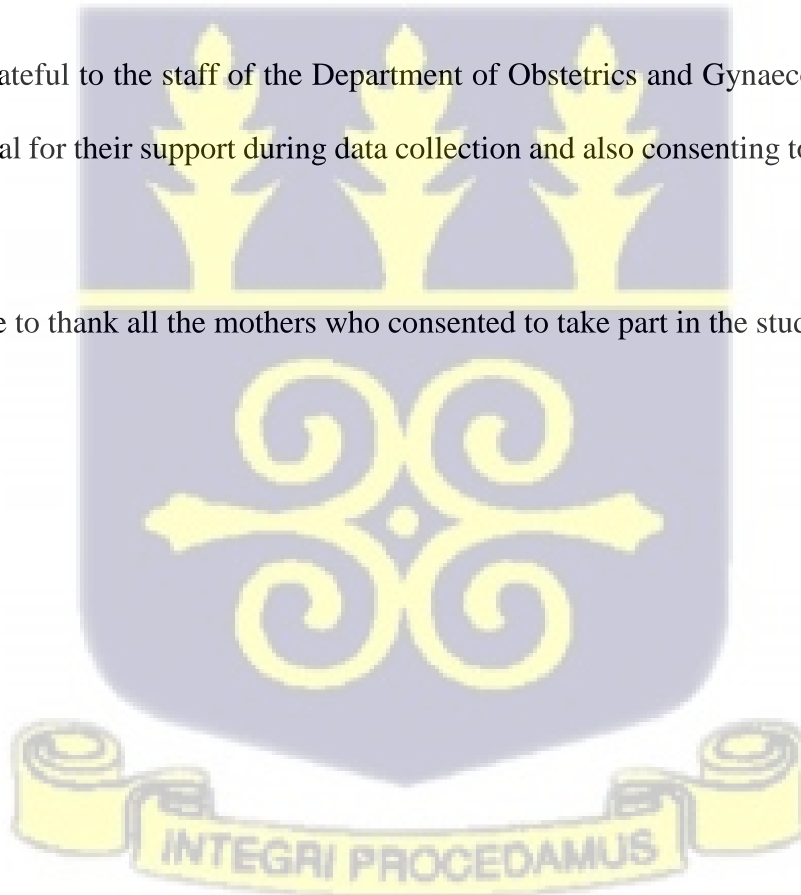
I am likewise grateful to the staff of the Department of Obstetrics and Gynaecology at Korle-Bu Teaching Hospital for their support during data collection and also consenting to participate in the study.

Lastly, I will like to thank all the mothers who consented to take part in the study.



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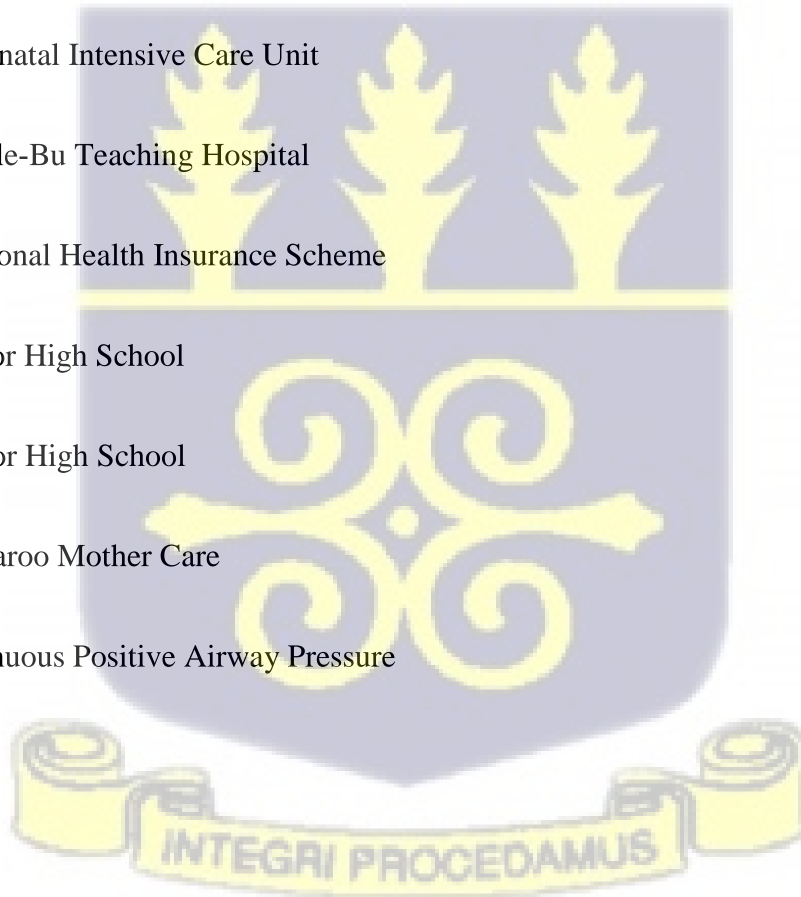

PTB	Preterm birth
HCPs	Healthcare professionals
LMICs	Low-and Middle-Income Countries
WHO	World Health Organization
SDG	Sustainable Development Goal
NMR	Neonatal Mortality Ratio
NICU	Neonatal Intensive Care Unit
KBTH	Korle-Bu Teaching Hospital
NHIS	National Health Insurance Scheme
JHS	Junior High School
SHS	Senior High School
KMC	Kangaroo Mother Care
C-PAP	Continuous Positive Airway Pressure

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ABSTRACT

Background: Preterm delivery or preterm birth is defined as a livebirth that occurs before 37 completed weeks of pregnancy. Globally, it is the leading cause of neonatal and perinatal morbidity and mortality. Recently the World Health Organization has updated its clinical guidelines to improve preterm birth outcomes. These include interventions such as administering corticosteroids to the pregnant women who are at imminent risk of preterm birth at 24 to 34 weeks of gestation and the provision of prophylactic antibiotics to the preterm newborn. However, it is imperative to know that the success of the implementation of these interventions will depend on the quality of service delivery offered by health care providers.

Methods: A qualitative design using in-depth interviews was conducted among health care professionals and women who experienced preterm birth at Korle-Bu Teaching Hospital. Both the deductive and inductive approaches were used to identify emergent themes and NVivo software version 12 was used to carry out the analysis.

Results: A total of 40 healthcare professionals and 30 women were interviewed. Evidence-based practices for routine care and management of complications and competent human resources were domains that were well implemented. Actionable information system, effective communication, respect and preservation of dignity and emotional support were fairly implemented. Motivated human resources, essential physical resources available and functional referral system were poorly implemented.

Conclusion: The quality of service delivery for preterm birth and care at Korle-Bu Teaching Hospital needs room for improvement. Health system related challenges such as lack of essential

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physical resources, staff shortages and a poor referral system were barriers to the quality of service delivery for preterm birth and care.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Introduction

This chapter presents a background of preterm birth and its consequences in sub- Saharan Africa and the world at large. In addition, the researcher justifies the need for assessing the quality of service delivery for preterm birth and care in a tertiary facility as well as outlining the benefits of the study.

1.2 Background

Preterm delivery or preterm birth (PTB) is defined as a livebirth that occurs before 37 completed weeks of pregnancy (Chawanpaiboon et al., 2019). Globally, it is the leading cause of neonatal and perinatal morbidity and mortality (WHO, 2015a). Every year about 15 million babies are born premature and more than one million of them die immediately after their birth (Blencowe et al., 2013). Low and middle income countries (LMICs) account for the largest burdens of prematurity with 80% of PTB occurring in sub-Saharan Africa and South Asia (WHO & UNICEF, 2014).

Preterm delivery has no identifiable cause and often occurs spontaneously (Chawanpaiboon et al., 2019). However, some commonly known risk factors include hypertension in pregnancy (pre-eclampsia/eclampsia), infection, multiple gestation, poor antenatal care, preterm premature rupture of membranes (PPROM) among many others (Mokuolu et al., 2010; Adu-Bonsaffoh et al., 2019; Chawanpaiboon et al., 2019).More so, premature babies are at the risk of several health challenges such as sepsis, respiratory distress syndrome, learning disabilities and hearing impairment (Chawanpaiboon et al., 2019). These babies therefore need a lot of specialized care coupled with

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prolonged hospital stays (WHO, 2012, 2016). For these reasons, prematurity is the most important determinant for infant survival and quality of life.

Preterm birth is not only a financial burden to the health care system but also a public health problem (WHO, 2012; Frey & Klebanoff, 2016; Adu-Bonsaffoh et al., 2019). The 2030 Sustainable Development Goal 3 (SDG 3) aims at reducing neonatal and under-5 mortalities to as low as 12 per 1,000 live births and 25 per 1,000 live births, respectively (United Nations, 2015). In order for Ghana, a sub-Saharan African country to achieve this goal, the issue of preterm delivery needs to be addressed as the country records prematurity as the second leading cause of death among children under five following malaria (WHO, 2015b).

It is crucial that interventions are provided to help reduce the adverse outcomes of preterm birth, when preterm birth is inevitable. One such important intervention will be good quality maternal care aimed at a positive outcome for both the mother and baby (WHO, 2016). Researchers have argued that increasing facility based delivery and skill birth attendants did not necessarily produce the desired health outcome. For instance, in India the increase in facility based deliveries did not exhibit any clear effect on maternal health outcomes nor a change in neonatal mortality ratio (NMR) (Lim et al., 2010). Similarly, in South Africa, NMR remained the same even after increasing the coverage for skilled birth attendance and facility based delivery. The reason was attributed to poor quality of care during pregnancy, childbirth and the postnatal period (Kassar et al., 2013) . Health care professionals have linked this poor quality of care to health system-related challenges such as lack of infrastructure (theater, neonatal intensive care unit (NICU)), equipment, infection control items (gloves, disinfectants), potable water, neonatal care guidelines among many others (Njoroge, 2012; Essendi et al., 2015; Ndelema et al., 2016; Nguyen et al., 2017; Currie et al., 2018; Sumankuuro et al., 2018).The attentiveness of health care providers and their response

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to obstetric complications or emergencies are critical factors that underlie the provision of quality service for expectant mothers (Atinga & Baku, 2013). Staff shortages, heavy work load for staff, lack of beds and unavailability of ambulance services were attributed to facility-based delays (Brophy, 2015; Essendi et al., 2015; Mugo et al., 2018). Recently the World Health Organization has updated its clinical guidelines to improve preterm birth outcomes. These include interventions such as administering corticosteroids to pregnant women who are at imminent risk of preterm birth at 24 to 34 weeks of gestation and the provision of prophylactic antibiotics to the preterm newborns (WHO, 2016) . However, it has been reported that in low and middle income countries less than half of the births take place in hospitals that have corticosteroids available (Darmstadt et al., 2009; 2014). Lack of potable water, high hospital bills and mistreatment from health care workers were some of the challenges labouring women encountered during their care at health facilities (Pell et al., 2013; Sumankuuro et al., 2018; Bohren et al., 2019). Several studies have been carried out on preterm birth in Ghana but not many have assessed the quality of service delivery for preterm birth and care.

1.3 Problem statement

The etiology of preterm birth is multifactorial and its occurrence is often spontaneous (Beck et al., 2010; Chawanpaiboon et al., 2019) making it difficult to predict and prevent (Torchin & Ancel, 2016; Oskovi-Kaplan & Ozgu-Erdinc, 2018). Babies born preterm are at the risk of adverse infant outcomes such as poor Apgar score, low birth weight, perinatal deaths, neonatal intensive care unit (NICU) admissions and long term morbidity (Adu-Bonsaffoh et al., 2019; Chawanpaiboon et al., 2019). Survival of preterm babies was found to be associated with specialized neonatal care however this is not readily accessible to the majority of Ghanaians (Agbeno et al., 2021).

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In low-income countries, an estimated 12% of births occur preterm; compared to 9% in high-income countries (WHO, 2016). The prematurity rate in Ghana is 14.5% with prematurity accounting for the second leading cause of death among children under five (WHO, 2015b). Recently at Korle-Bu Teaching Hospital (the largest tertiary referral hospital in Ghana), an 18.9% incidence of preterm births among singleton pregnancies was reported (Adu-Bonsaffoh et al., 2019) although the number of antenatal care visits in Ghana has increased to at least four visits per pregnancy (Sakeah et al., 2017). However, over a decade ago among singleton pregnancies, preterm birth rate was 9.6% in the same institution (Nkyekyer et al., 2006). Considering the health implications preterm delivery has on preterm neonates, this increase is of national concern. More so since a higher proportion of PTB will end up at Korle-Bu Teaching Hospital (KBTH) it is imperative that the institution has what it takes to offer quality service. Several studies have been carried out on PTB at KBTH but not many have assessed the quality of service delivery for preterm birth and care.

1.4 Research questions

1. What are the services that are available for preterm birth and care?
2. Do the services offered comply with WHO framework for quality maternal and newborn care?
3. What are the challenges of preterm delivery and care that the health care professionals face?
4. What are the challenges that women with PTB experience with regards to the preterm services provided to them?

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1.5 Research objectives

1.5.1 Main objective

The principal objective of this study is to assess the quality of service delivery that is available for preterm birth and care at Korle-Bu Teaching Hospital.

1.5.2 Specific objectives

1. To ascertain the service delivery available for preterm birth and care.
2. To determine whether the services offered comply with WHO framework for quality maternal and newborn care.
3. To explore the challenges that health care professionals face when it comes to service delivery for preterm birth and care.
4. To explore the challenges experienced by women with preterm birth with regards to services provided to them.

1.6 Justification

This study is necessary to gain an insight into the quality of service delivery that is available for preterm birth and care amidst interventions and revised protocols. Frequently, inadequate implementations of protocols and differences between recommended care and clinical practices have been described as seen in studies carried out in Ghana, Nigeria, Malawi and Tanzania (Browne et al., 2015; Greensides et al., 2018). In addition, previous studies carried out on PTB at KBTH have not assessed management protocols in line with WHO guidelines.

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Knowing the current challenges that health care professionals and the women who experience preterm births face with regards to the management of preterm birth and care should be understood in order to improve clinical practice and outcomes. Provision of adequate resources to manage

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preterm birth and care, as well as guiding policies regarding preterm birth and care may be developed. In addition, education and training will lead to improvement in stakeholders' knowledge and skills. Evidence from a previous study shows that improved performance by health care professionals might increase the use of health services by clients (El Arifeen et al., 2004). An increase in clients' utilization of health facilities in a timely manner could lead to early interventions which could avert preterm delivery and also enable the various specialties prepare adequately to receive those preterm births which cannot be prevented. Proper management during preterm birth and care can lead to reduction in the rate of perinatal morbidity and mortality and eventually childhood mortality (WHO, 2015a). Lastly this study will contribute to the limited research on quality of service delivery for preterm birth and care in Ghana and Sub-Saharan Africa as a whole.

1.7 Conceptual framework

The WHO framework for quality of maternal and newborn care is the underpinning theory for this study. The framework was designed for quality of maternal and newborn health care to guide health care providers, managers and policy-makers in improving the quality of health services for mothers and newborns (WHO, 2016). The framework comprises of 8 domains which are; evidenced-based practices for routine care and management of complications, actionable information systems, functional referral systems, effective communications, respect and preservation of dignity, emotional support, competent motivated human resources and essential physical resources available. The first domain ensures that women and newborns receive routine care and the required evidence-based care and management of complications during labour, childbirth and the early postnatal period. The aim of the second domain is to ensure that all information in the health facility are recorded accurately and then used timely and appropriately

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to improve the care of women and newborns. Functional referral system ensures the appropriate referral of women and newborns conditions that cannot be dealt with effectively with the available resources while effective communication ensures all women and their families receive information about the care and have effective interactions with staff. The aim of the fifth domain is to ensure that women and newborns receive care with respect which maintains their dignity as well. Ensuring that the woman and her family receive emotional support that pertains to their needs to strengthen the woman's capability is the aim of the sixth domain while the seventh domain also ensures that competent motivated staff are constantly available to provide every woman and newborn with routine care and management of complications. Essential physical resources ensure that the health facility has the appropriate physical environment with adequate water, sanitation and energy supplies, as well as medicines, supplies and equipment for routine maternal and newborn care and management of complications (WHO, 2016).

Administering corticosteroids to mothers who are at imminent risk of preterm birth at 24 to 34 weeks of gestation and giving those confirmed with preterm pre-labour rupture of membranes routine antibiotics are part of the current WHO clinical guidelines to improve preterm birth. In addition giving antibiotics to preterm babies help fight infection. As part of the routine thermal care for preterm newborns, they are kept in incubators or under radiant warmers. Mothers are also encouraged to practice Kangaroo mother care to keep their preterms warm (WHO, 2016)

With regards to challenges of healthcare providers, previous literatures have revealed that staff strength, skills possessed by health care professionals, having a functional referral system and availability of equipment are important determinants of quality service delivery (Essendi et al., 2015; Gupta et al., 2016; Madumo & Mothokoa, 2017; Sumankuuro et al., 2018). Also from the perspectives of health care professionals, providing patients with emotional support,

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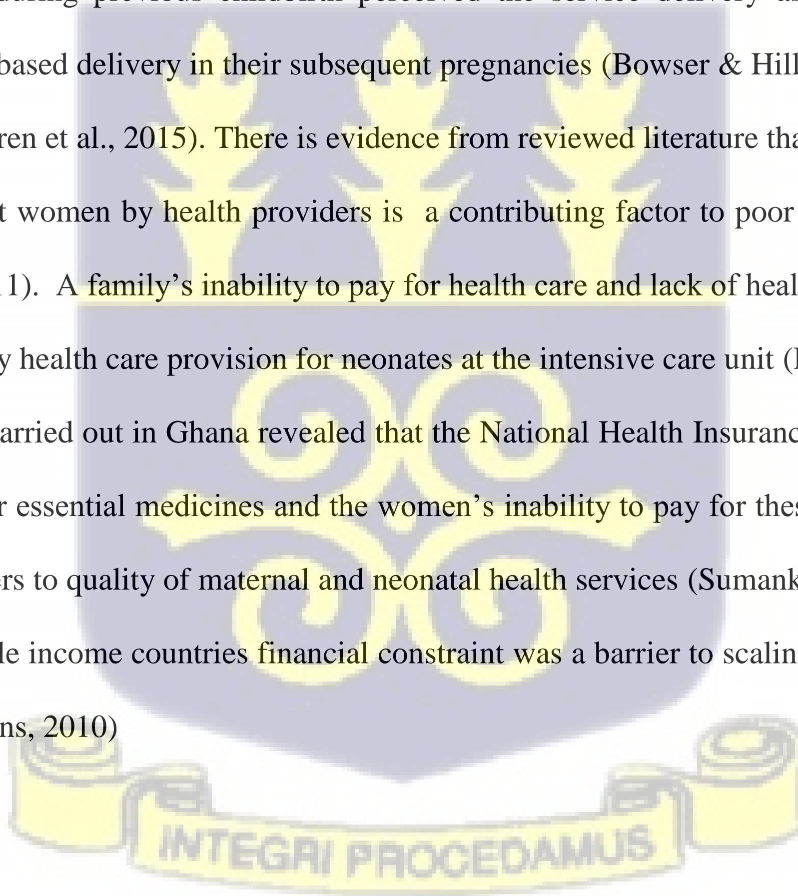
communicating with them effectively, as well as respecting and preserving their dignity are important factors that influence the quality of service delivery. Training of staff on current interventions, supervising them and then evaluating their performance will improve the quality of care for pregnant women and newborns (Nair et al., 2014). Non- compliance by patients with low educational level served as a barrier to them receiving quality care because their ignorance made it very difficult for health care providers to explain their conditions to them.

Women with preterm birth also face several challenges which may be socio-economic and at the health facility level. Pregnant women who experienced negative care such as mistreatment from health workers during previous childbirth perceived the service delivery as poor with some refusing facility based delivery in their subsequent pregnancies (Bowser & Hill, 2010; McMahon et al., 2014; Bohren et al., 2015). There is evidence from reviewed literature that delayed medical care for pregnant women by health providers is a contributing factor to poor quality of service (Pirkle et al., 2011). A family's inability to pay for health care and lack of health insurance were barriers to quality health care provision for neonates at the intensive care unit (Deshabhotla et al., 2021). A study carried out in Ghana revealed that the National Health Insurance Scheme (NHIS) refusal to pay for essential medicines and the women's inability to pay for these medicines were significant barriers to quality of maternal and neonatal health services (Sumankuuro et al., 2018). In low and middle income countries financial constraint was a barrier to scaling up preterm birth (Victora & Rubens, 2010)



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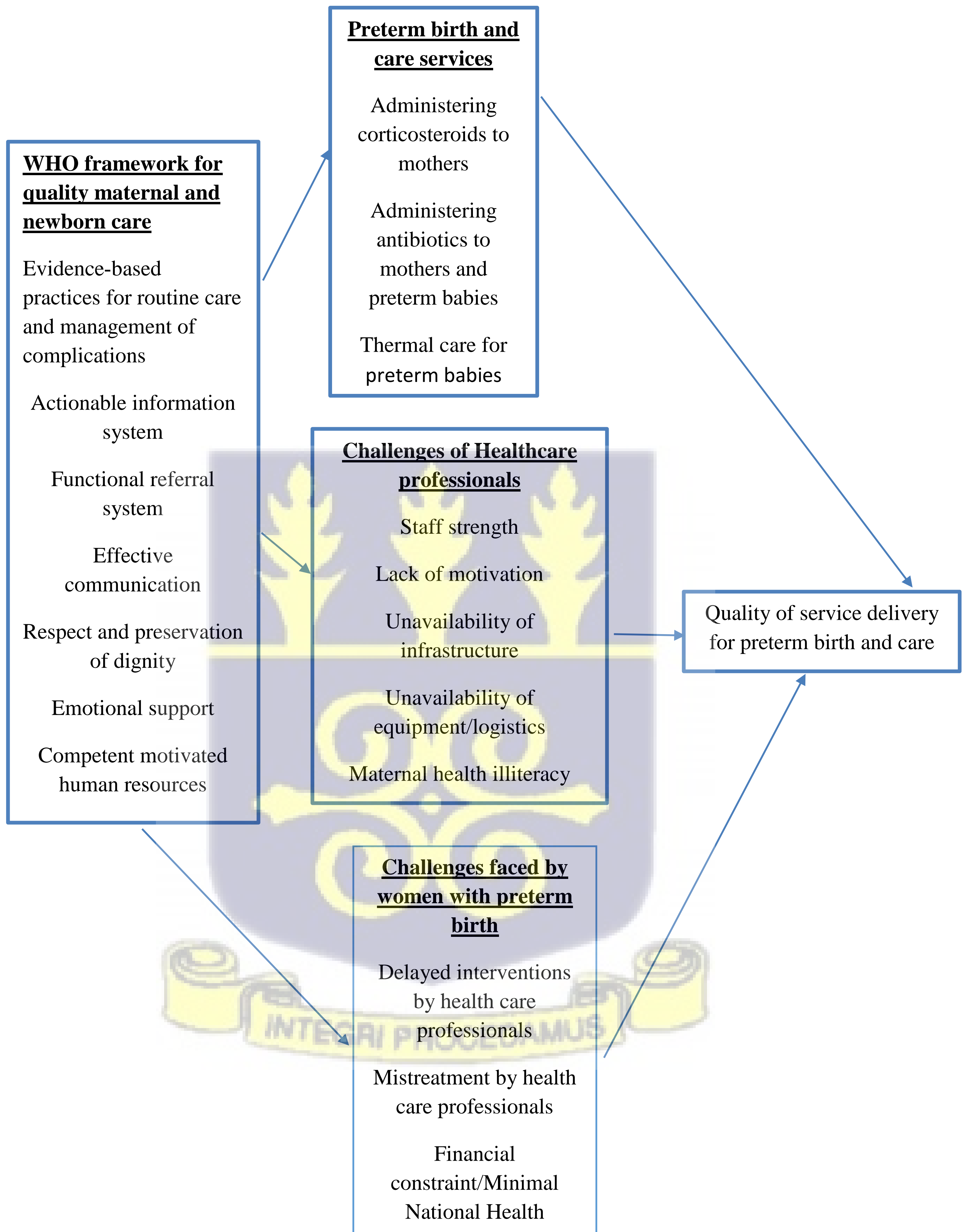

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Figure 1: Conceptual framework representing factors that influence quality of service delivery for preterm birth and care.

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CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter gives a synopsis of preterm birth with its associated risk factors, the emergence of specialized preterm clinics and also a review on quality of care. The World Health Organization guidelines to improve preterm birth and care and the gaps within the care processes were also reviewed.

2.2 Preterm birth and risk factors

Globally preterm birth is considered a major public health challenge because it is the leading cause of neonatal and perinatal mortality and morbidity (WHO, 2015a). It accounts for about 10% of all births worldwide (Howson et al., 2012) with this rate still rising . Low and middle income countries (LMICs) account for the largest burdens of prematurity with 80% of PTB occurring in sub-Saharan Africa and South Asia (WHO & UNICEF, 2014). PTB remains a bother to obstetricians and pediatricians because being born premature greatly influences the chance of survival and quality of life. Globally it is estimated that 1.1 million babies die annually form major complications resulting from PTB (Kinney, 2012). Mothers who deliver before 37 completed weeks of pregnancy are faced with psychological strain because of the uncertainties in the prognosis of their neonates (Goldenberg, 2002; Howson et al., 2012).

Preterm birth has three subcategories which are: extremely preterm (<28 weeks of gestation), very preterm (28 to 32 weeks of gestation) and moderate to late preterm (32 to 37 weeks of gestation) (Dbest, 1977). On the other hand, PTB can also be classified as following spontaneous preterm

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labour (meaning spontaneous onset of labour or following preterm prelabour rupture of membranes (PPROM)) or elective preterm birth (meaning caesarean or labour induction, for a maternal or fetal indication or other non-medical reasons) (Dimes et al., 2012; WHO, 2018; Chawanpaiboon et al., 2019). Spontaneous PTB accounts for about two thirds of all preterm births globally (Bronstein, 2016).

There is no identifiable cause to preterm delivery. However, researchers have found an association between preterm birth and behavioural factors such as illicit drug use, tobacco use, poor nutrition and pre-pregnancy weight. Similarly, they also found an association between preterm birth and psychological factors such as anxiety, depression and lack of social support A strong, modest or poor association between these factors and preterm birth were found (Behrman & Butler, 2007). In accordance, other studies have revealed that maternal hypertension, advanced maternal age, premature rupture of membranes and poor antenatal care are significantly associated with preterm birth (Adu-Bonsaffoh et al., 2019).

2.3 Specialized care for preterm birth

Addressing the risk factors for preterm birth and the improving the maternity care services offered to women will essentially prevent PTB. Specialized preterm birth clinics emerged especially in developed countries as a result of the increasing acumen of diagnosing these risk factors (Vernet et al., 2017). The United Kingdom was the first country to establish the first modern-day preterm birth clinic in 1998. Asymptomatic women at high risk of preterm birth as a result of their obstetrics or gynecological history received focused and specialized care at the preterm birth clinics. Studies have proven that spontaneous preterm delivery among asymptomatic high risk women can be predicted using the transvaginal cervical length assessment and quantitative fetal fibronectin (Crane & Hutchens, 2008; Abbott et al., 2015). In instances where preterm delivery cannot be

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prevented, maternal interventions offered by health care professionals can improve outcomes (WHO, 2015). Previous systematic reviews carried out between 1980 and 1994 in United Kingdom and the United States of America failed to find conclusive evidence to either support or refute the efficacy of specialized preterm birth clinics as compared to standard antenatal care. However, only few studies in this area were available at the time of the reviews (Malouf & Redshaw, 2017; Whitworth et al., 2011).

Researchers have argued that obtaining the expected health outcome for both mother and unborn baby is dependent on the quality of care since increasing the coverage of maternal and newborn interventions does not necessarily produce the expected health results (Austin et al., 2014). Previously antenatal care was assessed by using adequacy of prenatal care utilization (APNCU) index. This index which was commonly used only assessed the adequacy of number of visits and adequacy of care initiation (Kotelchuck, 1994). The content of the care provided and the risk conditions of the women were not included in the assessment (Kotelchuck, 1994; Bloch et al., 2009). For instance, in certain settings the use of health education as a tool for assessing the quality of ANC was limited although health education was carried out during ANC. The reason was that the various topics for the education were not stated and hence there was no way for the content to be evaluated (Bloom et al., 1999). Yeoh et al. (2018) assessed the adequacy of ANC and its association with pregnancy outcomes. They used an approach that included both adequacy of content and adequacy of utilization. The outcome of their study revealed that inadequate content was associated with higher prevalence of preterm birth and suggested that inadequate utilization of ANC increased the risk of preterm birth.

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2.4 Definition of quality of care

There is no single universally accepted definition for quality of care from literature. Different people have different interpretations ranging from the perspectives of patients, health care providers, managers among many others (Pittrof et al., 2002; WHO, 2016). Several definitions have emerged from many literature sources with one defining quality of care as "doing the right things right, obtaining the best possible clinical outcome, satisfying all customers, retaining talented staff and maintaining sound financial performance" (Leebov, 1993). With reference to several definitions from past and present literature, the World Health Organization came up with a definition for quality of care which is "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered" (WHO, 2016).

Understanding what quality care means is the first step to improving maternity services since lack of clarity will make it very difficult or impossible to design interventions that will yield improved results (Pittrof et al., 2002; WHO, 2006). The quality of care for women and newborns is therefore "the degree to which maternal and newborn health services increase the likelihood of timely, appropriate care for the purpose of achieving desired outcomes that are both consistent with current professional knowledge and take into account the preferences and aspirations of individual women and their families" (WHO, 2013).

2.5 WHO guidelines to improve preterm birth and care

The current WHO clinical guidelines to improve preterm birth outcomes includes administering corticosteroids to the mothers who are at imminent risk of preterm birth at 24 to 34 weeks of gestation and post-delivery, as well as the provision of prophylactic antibiotics to the preterm babies. Antenatal tocolytics are given to mothers when appropriate while magnesium sulfate is

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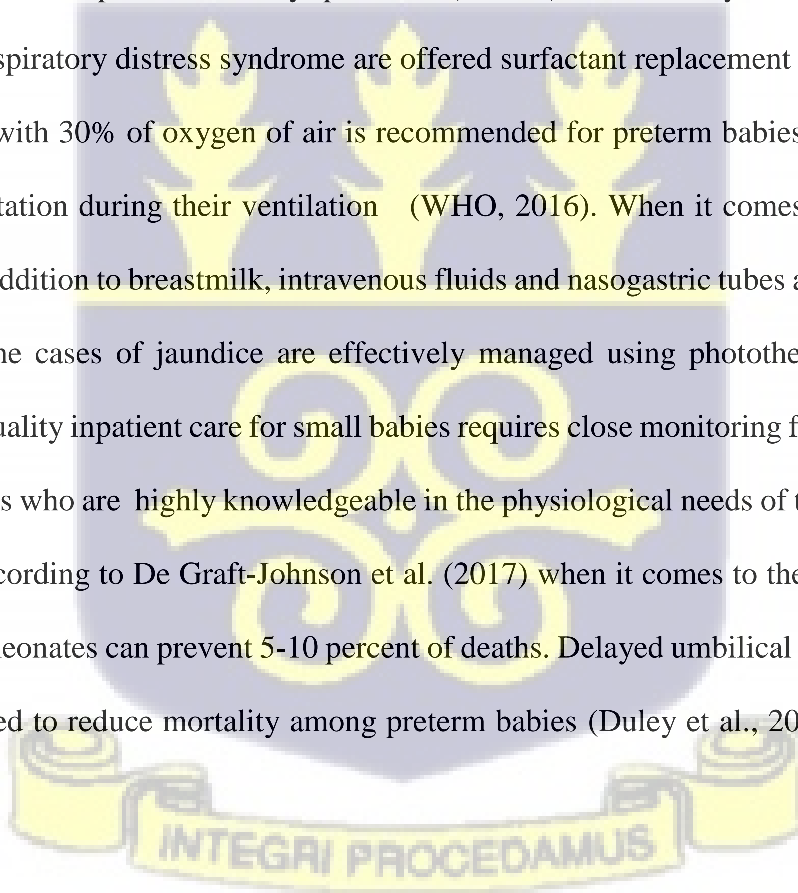
administered to them to protect the fetus from neurological complications. Routine antibiotics are also given to women confirmed with preterm pre-labour rupture of membranes to prevent the onset of infections (WHO, 2016).

Thermal care is offered to preterm newborns as part of the routine care. Preterm babies who weigh 2000g or less at birth and are stable are given Kangaroo Mother Care which is skin-to-skin contact between mother and baby. The infant is kept vertically between mother's breast and under her clothes. On the other hand, those who are not stable are kept in the incubator or under radiant warmers. Preterm newborns that have been diagnosed with respiratory distress syndrome are started on continuous positive airway pressure (C-PAP) immediately. Intubated ventilated preterms with respiratory distress syndrome are offered surfactant replacement therapy. A start of oxygen therapy with 30% of oxygen of air is recommended for preterm babies born before or at 32 weeks of gestation during their ventilation (WHO, 2016). When it comes to the feeding of these babies, in addition to breastmilk, intravenous fluids and nasogastric tubes are used to support their feeding. The cases of jaundice are effectively managed using phototherapy. In addition, obtaining high quality inpatient care for small babies requires close monitoring from trained health care professionals who are highly knowledgeable in the physiological needs of the babies (Moxon et al., 2015). According to De Graft-Johnson et al. (2017) when it comes to the care of preterms, resuscitation of neonates can prevent 5-10 percent of deaths. Delayed umbilical cord clamping has also been revealed to reduce mortality among preterm babies (Duley et al., 2019; Fogarty et al., 2018).



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2.6 Challenges of health care delivery to women with preterm birth

Health care providers face several challenges when providing care to women with preterm birth. Several studies have reported on these challenges which range from health system related ones to patient related ones, and they have been reviewed below.

2.6.1 Health system related challenges

In developing countries, the lack of infrastructure has been identified as a major challenge in the delivery of primary health services (WHO, 2006). Several literatures have also come to the consensus that the lack and poor quality of infrastructure were barriers to maternal health care. For example, a study carried out in rural Vietnam reported that the buildings used to provide health care to pregnant women were substandard because they were poorly designed. In the same study health workers in certain communities did not have any building to operate from. The use of the same room for gynaecological examination and delivery promoted the spread of infection (Nguyen et al., 2017). Similarly in Northern Ghana midwives were forced to deliver women in rooms not designated for labour due to lack of space (Sumankuuro et al., 2018). In addition, the lack of beds for delivery or at the lying-in wards were reported by (Mugo et al., 2018; Sumankuuro et al., 2018).

In instances where obstetric complications warrant the need for preterm delivery through emergency caesarean section (C/S), the lack of theatres in health facilities could delay the care process jeopardizing the life of the mother and her unborn baby. This was confirmed by Njoroge (2012) with the lack of theatres in lower level facilities being the chief reason for referrals. Fawcus et al. (2012) also identified non- functioning theaters as a barrier to quality maternal health care.

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Infection prevention is crucial in the management of women with preterm birth since they can easily pass on the infection to their unborn babies. The unavailability of infection control items such as hand gloves and facilities for handwashing including potable water are impediments to infection control as reported in several studies (Hsia et al., 2012; Essendi et al., 2015; Nguyen et al., 2017; Sumankuuro et al., 2018).

In low income settings the absence of ultrasound machines and the low availability of ultrasound services led to the suboptimum estimation of gestational ages with birth attendants missing out on pregnant women who should have received corticosteroids (Kalish & Chervenak, 2005; Neufeld et al., 2006). In their study, Madumo and Mothokoa (2017) revealed that insufficient cardiotocography (CTG) machines prevented the continuous monitoring of women in labour until they delivered.

The unavailability of medicines was highlighted as a barrier health workers faced in their service delivery to women delivering preterm. Darmstadt et al. (2009) and Darmstadt et al. (2014) reported that in low income countries less than half of the births take place in hospitals that have corticosteroids available. The lack of oxytocin was also reported by Mugo et al. (2018) in their study which was carried out in South Sudan.

The shortage of potable water in health facilities forced midwives to abandon the care of pregnant women in search for water (Nguyen et al., 2017; Sumankuuro et al., 2018). Lack of electricity was also a limiting factor as Essendi et al. (2015) reported that midwives in the rural communities had to conduct deliveries at night using torch lights due to lack of electrical power. Furthermore, blood products and drugs could not be stored in refrigerators because there was no power.

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The care of women with preterm delivery requires immediate attention. Delays in referrals adversely affect both maternal and neonatal outcomes (Gupta et al., 2016). Poor reception for telecommunication especially in the rural areas made it difficult for calls to be made to referral hospitals (Sumankuuro et al., 2018). Lack of communication between lower level facilities and higher ones was also identified as a barrier to immediate care for obstetric emergencies by (Njoroge, 2012). Bad condition of roads especially during the rainy season, lack of transportation and lack of ambulance services were highlighted by many as barriers to proper referral system (Fawcus et al., 2012; Njoroge, 2012; Essendi et al., 2015).

The lack of obstetricians and anesthetists to perform C/S operations was a challenge HCPs encountered in the care for women who needed to deliver preterm through surgery (Fawcus et al., 2012; Njoroge, 2012). Evidence of lack of specialists to assist during deliveries at night and in instances where complications such as bleeding set in were reported by (Mugo et al., 2018).

Usually in developing countries, there are more doctors residing in urban areas than in rural areas. In Ghana, data in 2012 revealed that over 50% of doctors resided in Greater Accra, the capital city. Evidence from several studies have revealed that lack of potable water, electricity, poor working environment, no building to operate from and lack of equipment demotivated health workers making it very difficult for them to reside and work in rural communities (Hsia et al., 2012; Essendi et al., 2015; Nguyen et al., 2017).

Several studies have reported that labouring women require a lot of monitoring however shortages of staff was an impediment to health workers providing these women with the required standard care. (UNFPA et al., 2014; Filby et al., 2016; Bogren et al., 2018). Staff shortages were also linked to heavy workload and stress experienced by health workers (Essendi et al., 2015). In certain

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instances, obstetric complications which could have been managed by health facilities were referred as a result of HCPs being too tired after working for long hours (Sumankuuro et al., 2018). A study in Kenya reported that health facilities had to be closed down when nurses went on leave because of inadequate staffing (Essendi et al., 2015).

Research carried out in Northern Ghana revealed that inadequately trained health workers including midwives was a significant barrier to improved maternal and neonatal health outcomes (Sumankuuro et al., 2018). According to Garces et al. (2012) lack of the required skills by birth attendants to assess the risk of preterm birth or to administer antenatal corticosteroids safely were barriers to quality care for women delivering preterm in low resource settings. Mahwasane (2018) also reported that not responding to poor fetal movement appropriately by midwives and not giving antenatal steroids affected neonatal outcomes.

2.6.2 Patient related challenges

Socioeconomic and cultural factors can negatively influence the patronage of ANC services by pregnant women and hence affect maternal health outcomes and the survival of their unborn babies especially in sub Saharan Africa. For instance, the belief that pregnancy needs to be hidden from evil eyes at the early stages was common among some Ghanaian communities. Pregnant women therefore stayed home and started antenatal during the second or third trimester. There is also the belief that obstetric complications are caused by evil spirits and hence the need to seek spiritual intervention than care at health facilities (Dako-Gyeke et al., 2013).

In some communities the decision regarding where a woman delivers lies with the husband. Failure to grant the woman permission to deliver at the health facility could prevent her from receiving appropriate care (Sialubanje et al., 2015). In addition, women who had illiterate husbands were

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less likely to deliver in health facilities (Kifle et al., 2018). Women's limited knowledge on the benefits of seeking antenatal care and delivering in health facilities was also an impediment to their receiving quality care (Shiferaw et al., 2013). Other significant barriers to quality of maternal and neonatal health services are NHIS refusal to pay for essential medicines as well as the women's inability to pay out-of-pocket for these medicines (Sumankuuro et al., 2018).

2.7 Challenges of health care provision for preterm babies

In providing care for preterm babies, health care providers face a number of challenges. Some of these are health system related while others are due to patient related issues. Reviews from several studies that reported on these challenges are below.

2.7.1 Health system related challenges

Neonates born preterm require immediate care at the NICU. The unavailability of NICUs especially in the rural areas affects the care of preterm infants. The lack of NICUs in health facilities was identified as a factor that contributes to mortality among preterm neonates in developing countries (Ndelema et al., 2016). A study carried out in rural Uganda reported lack of infrastructure as a barrier to quality care for preterm babies (Waiswa et al., 2010). In addition, the unavailability of rooms for KMC was identified by some researchers as a barrier in providing quality care for preterm babies (Waiswa et al., 2010; Mahwasane, 2018).

Premature babies cannot regulate their body temperatures and require warmth (Currie et al., 2018). The lack of equipment such as ventilators and incubators were reported by several researchers as challenges health care providers faced in proving care for preterm neonates (Mahwasane et al., 2020; Waiswa et al., 2010). In addition, these neonates require oxygen to help them breathe since their lungs are not fully matured. The unavailability of oxygen, oxygen masks and suction

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machines for asphyxiated babies were reported by (Essendi et al., 2015; Mahwasane, 2018). In their study Sumankuuro et al. (2018) also revealed that the lack of mandatory equipment to manage emergency deliveries such as a well-equipped resuscitation table for preterm delivery was a barrier to health service delivery. Furthermore, lack of electricity prevented the operations of equipment like incubators and suction machines (Essendi et al., 2015).

Preterm babies are prone to infection. Joseph (2015) identified infection prevention as a challenge nurses faced in their care for preterm babies. Studies carried out in Northern Ghana and Kenya reported that the unavailability of infection control items such as hand gloves, disinfectants and facilities for handwashing including potable water made it difficult for infection prevention (Essendi et al., 2015; Sumankuuro et al., 2018). The use of the same instrument for more than one baby can lead to the spread of infection (Mahwasane, 2018). In addition, the lack of autoclaves to sterilize used equipment was an impediment to infection prevention (Essendi et al., 2015). The lack of space at NICU also caused overcrowding as reported by Mugo et al. (2018), further predisposing the preterm babies to infection.

The care of preterm babies is one that requires specialist care from medical providers such as neonatologists, pediatricians and pediatric nurses since they have to spend a lot of time at the NICU (Verma et al., 2003). The lack of such specialties is a major barrier in the care of preterm neonates (Mahwasane, 2018). In Burundi, district hospitals were unable to offer NICU services to preterm neonates because of the lack of trained staff (Ndelema et al., 2016). Midwives in rural health facilities in Kenya lacked the skill to perform complex resuscitation leading to birth asphyxia or death (Essendi et al., 2015).

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A study conducted in Cape Town, South Africa identified staff shortages as challenges HCPs working at state hospitals encountered in neonatal care (Brophy, 2015). Preterm babies require constant monitoring (Currie et al., 2018). In her study, Mahwasane (2018) reported that poor staff strength did not allow for constant monitoring of neonates because HCPs could not spend enough time on one baby to pick up any changes or complications that might have set in.

Thommesen (2014) discovered that feeling of insecurity, frustration at work and poor working conditions were some of the challenges midwives had in providing quality maternal and neonatal care. In addition, midwives in Ethiopia failed to show urgency in emergency situations because majority of them lacked passion for the profession right from the onset.

Evidence from several studies have revealed that lack of knowledge by health care workers on the benefits of KMC and the lack of knowledge on the criteria such as gestational age and weight of a preterm baby that qualifies the preterm to begin KMC were barriers to proper care for preterm infants (Lawn et al., 2013; Seidman et al., 2015; Utami & Huang, 2019). More so those who lacked knowledge about the benefits of KMC were of the notion that KMC was the alternative of the poor to incubator care (Charpak & Ruiz-Pelaez, 2006; Chan et al., 2017; Tahir & Fatmi, 2019). Several studies also highlighted the lack of training for health care workers with regards to KMC as an impediment to the appropriate practice of KMC (Yawson et al., 2016; Chan et al., 2017; Jamali et al., 2019).

The lack of protocols or neonatal care guidelines was highlighted by some researchers as a challenge encountered by health care providers in the care for babies not born at term. A study carried out in two academic hospitals in central Guateng revealed that nurses and doctors who worked in the neonatal unit did not have firsthand knowledge of neonatal pain since only 5.8% of

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them were able to give the full definition of neonatal pain (Khoza, 2014). Furthermore 64% of them said there were no written pain management guideline in the wards they worked in. A study carried out in eastern Uganda also revealed that lack of protocol and guidelines for managing preterm babies were challenges encountered by community health workers (Waiswa et al., 2010).

Poor roads and the unavailability of proper means of transport causes delays in transferring preterm neonates to referral hospitals for further management (Essendi et al., 2015; Rathod et al., 2015). In India, bullock carts were used in remote areas for transporting sick neonates to the hospital. Two-wheeler, auto or taxis were also used in some instances. The lack of well-equipped ambulances accompanied by trained personnels increased the risk of adverse events during transportation (Rathod et al., 2015).

2.7.2 Patient related challenges

Financial constraints were a considerable challenge with regards to preterm care. A family's inability to pay for health care and lack of health insurance were barriers to quality health care provision for neonates at the intensive care unit (Deshabhotla et al., 2021). Financial constraints also prevented mothers from visiting their neonates since they couldn't afford transportation to the health facility. This in turn prevented the babies from receiving breastmilk and kangaroo mother care (Lee et al., 2012).

Illiteracy made it very difficult for mothers to understand diagnosis and comply with treatment for their preterm babies. A study carried out in the United States revealed that mothers of Hispanic and Asian descent were not keen on carrying out skin-to–skin contact with their babies because of the fear that unwrapping their babies will make them too cold (Lee et al., 2012).

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Premature birth and NICU admissions sometimes affect the emotional state of mothers leading to some distancing themselves from their babies. Mothers refuse to visit their babies at the NICU or delay in seeing them because of the belief that they will eventually die (Medina et al., 2018). This affects early bonding between mother and child which is a critical factor in child development (Forcada-Guex et al., 2011).

2.8 Health care challenges faced by women with preterm birth

A study carried out in Ghana revealed that none of the sub district hospitals in the northern region had potable water. Pregnant women and postnatal mothers were required to draw water for nurses whenever they sought care and were asked to return home to draw water for nurses if they sought care without it. This discouraged expectant mothers from delivering at such facilities (Sumankuuro et al., 2018). In some instances, expectant mothers were abandoned by midwives who left health facilities in search for water. Hence in case of any obstetric complication, there were no midwives present to attend to them (Nguyen et al., 2017; Sumankuuro et al., 2018). Lack of potable water also hindered the cleaning of the health facilities thus exposing the women to infections (Sumankuuro et al., 2018).A study carried out in 194 countries revealed that almost half of the late neonatal deaths were caused by infection (Oza et al., 2014). In other studies, some health facilities could not provide women with clean delivery services as women did not get water to bath with after delivery, water to use at the toilets and clean water to drink (Bartram et al., 2015; Jalu et al., 2019; Buback et al., 2021). Being in such an unhygienic environment exposed the women to the risk of major disease outbreaks like cholera and the spread of antimicrobial resistance (WHO, 2014).

In addition, delivering in health facilities that did not have electricity was challenging especially at night because midwives could not hold unto torches or lamps while conducting deliveries at the

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same time. This sometimes resulted to bad outcomes such as mothers losing their lives or their babies (Essendi et al., 2015) . Midwives also sometimes resorted to involving relatives of laboring women to assist them in conducting deliveries by holding unto torches or lamps in facilities that did not have electricity. This sometimes violated the rights of the women since those relatives might not be the right people to see the women in an undressed state (Essendi et al., 2015; Sumankuuro et al., 2018). Furthermore, equipment which are powered by electricity cannot be operated in facilities that did not have electrical supply. This prevents women and their babies from receiving essential maternal and newborn services. A study carried out in Kenya revealed that blood products and drugs could not be stored in refrigerators due to lack of electricity thus preventing women and their babies from receiving blood transfusion and certain medications (Essendi et al., 2015). More so, the unavailability of power to operate incubators prevents babies from receiving essential NICU services like oxygen and thermal regulation support (Essendi et al., 2015; Mahwasane, 2018). A study carried out in Ethiopia revealed that pregnant women were not screened for pregnancy related health conditions due to electric power disruptions. This therefore left women at risk of pregnancy related complications which could lead to bad outcomes for mothers and babies (Desalegn et al., 2016).

In other studies labouring women's source of dissatisfaction with care included negative behaviours of health care providers such as frowning at them, verbally abusing them, shouting at them and ignoring them (Dzomeku, 2011; Maya et al., 2018; Mayra et al., 2022). Ignoring them could lead to health care providers not picking up on any changes or complications that might have set in during their care. This could delay timely interventions. Furthermore, women may be discouraged at seeking health care or they may seek health care at the hospital as a last resort

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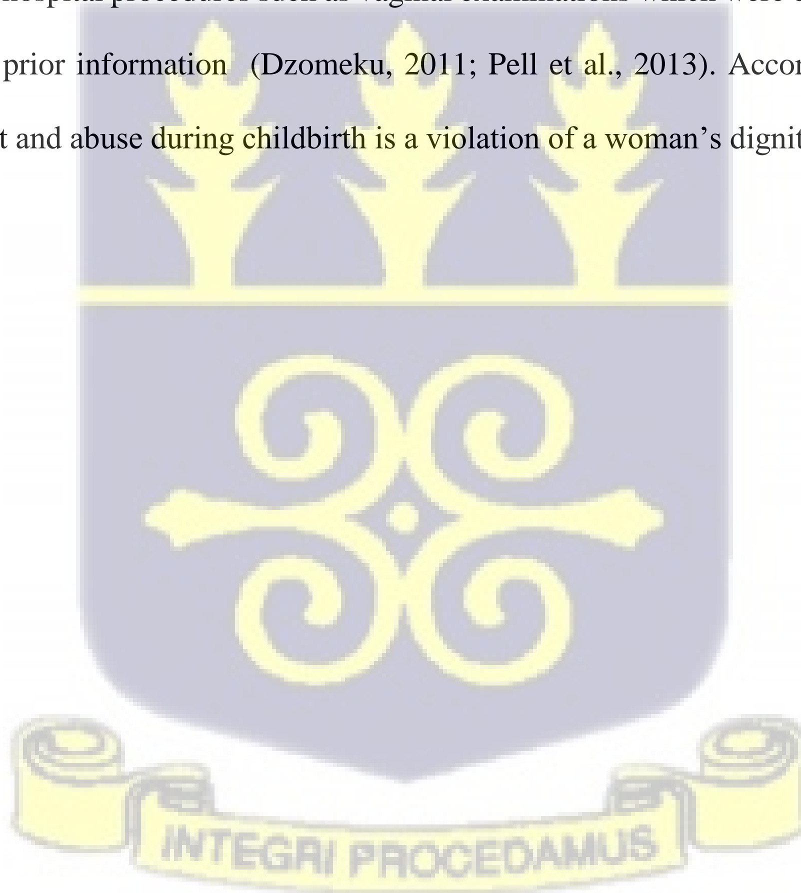
because of these negative behaviours exhibited by health care providers (Maya et al., 2018; Mayra et al., 2022).

According to several studies, women not understanding their hospital bills and not having any member of staff explain how the bills were arrived at made them feel exploited. Furthermore, they were detained if they could not settle their hospital bills upon discharge. Being detained made them feel humiliated. As a result some women reported at the hospital when they were close to second stage of labour to reduce their length of stay in the hospital and hence a decrease in the bills (Dzomeku, 2011; Nayak & Nath, 2018; Sharma et al., 2019). In addition the women were also dissatisfied with hospital procedures such as vaginal examinations which were carried out without their consent or prior information (Dzomeku, 2011; Pell et al., 2013). According to Sen et al. (2018) disrespect and abuse during childbirth is a violation of a woman's dignity.



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CHAPTER THREE

3.0 METHODOLGY

3.1 Introduction

This chapter focuses on the methods used to assess the quality of service delivery for preterm birth and care at KBTH. It addresses how these methods enabled the researcher achieve the research objectives. Furthermore, it gives a description of the study design, study site, the study population and how they were selected. In addition, this section looks at the data collection procedure, data collection tool, how rigour was achieved and the technique used in analyzing the data. Lastly it describes how ethical consideration was obtained and how the data was stored.

3.2 Study design

This is a qualitative study using secondary data from the PETITE study (Prematurity in Ghana: determinants, clinical courses and outcomes of preterm births in a tertiary hospital in Accra). An exploratory qualitative design was used for this study. Exploratory research enables the researcher to discover new ideas and, gain new insights and also increase the knowledge of a phenomenon (Grove & Gray, 2018). Hence this design enabled the researcher to explore the availability of service delivery for preterm birth and care and also gain insights of the challenges faced by women during preterm delivery and care.

3.3 Study site

Collection of the qualitative data was conducted at the maternity unit under the Department of Obstetrics and Gynecology at Korle-Bu Teaching Hospital. This hospital is the largest tertiary health facility in the country and it conducts approximately 10,000 deliveries annually. The

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department is divided into 5 units which are handled by 5 medical teams (A, B, C, D & E) of medical staff. Each team is made up of senior consultants, consultants, senior residents, junior residents and house officers with the senior consultants leading their teams. The maternity unit has a Neonatal Intensive Care Unit situated on the third floor. The NICU has a 50 incubator and cot capacity which admits between 120 to 150 preterm babies in a month. The NICU also offers a 24-hour pediatrician cover.

3.4 Study population

The study population was made up of women who had experienced preterm births and medical professionals which comprised of obstetricians, midwives and pediatricians, all with different levels of experience with preterm birth and care at KBTH.

3.4.1 Selection criteria

3.4.2 Inclusion criteria for women

The selection process for the women was according to the following criteria:

- Age should be 18 years and above.
- Childbirth that took place at KBTH before 37 completed weeks of gestation.
- Preterm birth following both spontaneous onsets of labour (including preterm prelabour rupture of membranes) or provider-initiated (medically indicated) cases.
- Caesarean deliveries for maternal or fetal indication or both.
- Written informed consent should have been obtained.

3.4.3 Exclusion criteria for women

The exclusion criteria for women included:

- Any pregnancy that ended in still birth.

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- Women with multiple pregnancies.

3.4.4 Inclusion criteria for medical professionals

The selection criteria for medical professionals included:

- Participants should be responsible for the care, management and delivery of pregnant women having preterm births.
- Participants should be responsible for or are involved in the care of preterm newborns.
- Participants should have worked in the facility for at least three months.
- Written informed consent should have been obtained.

3.4.5 Exclusion criteria for medical professionals

Nurses at the NICU and medical staff who were not involved in the care and management of women delivering preterm and those who were not involved in the care and management of preterm babies were excluded.

3.5 Sample size

Recruitment of participants were carried out until no new information emerged from subsequent interviews (data saturation). According to Francis et al. (2010), saturation is reached within 17 interviews in a study. In this study, saturation was reached after 20 women were interviewed. Ten more were interviewed after that bringing the total number of interviews to 30. On the other hand, for the medical professionals saturation was reached after 30 interviews were carried out. An additional 10 were carried out afterwards and this brought the total to 40. Field notes were taken and transcriptions were done concurrently with data collections. This also enabled the researcher determine when saturation was reached.

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3.6 Sampling Technique

Sampling is the way in which participants are selected from the population for a study (Mindell et al., 2015). Purposive sampling method was used to recruit participants for this study. This method of sampling allowed the researcher to select only the participants who could provide the needed data for the study. Convenience sampling, a type of purposive sampling which allows researchers to recruit readily available participants was used. Potential participants were approached and those who were ready and consented to take part in the study were interviewed straight away. This quickened the data collection process at KBTH considering how busy the working environment is.

3.7 Data collection procedure

Eligible participants were approached based on the specified inclusion criteria and interviews were conducted by the researcher who is accustomed to cultural norms and experienced in conducting in-depth interviews. All complicated cases including preterm deliveries are carried out at labour ward one thus women who had preterm delivery were identified from the admission and discharge book at this ward. The women were then followed up at the various maternity wards where they were sent to after delivery and invited to participate in the study. Some of the women were also followed up at NICU if they were not on the ward and invited to participate. Identification numbers were assigned to participants who agreed to participate in the study. Interview dates were then scheduled after they were discharged or during their 6-weeks postpartum.

On the other hand, the HCPs were approached at the labour ward, lying-in ward or their rest rooms and then invited to participate in the study. Identification numbers were also assigned and interviews were conducted straight away if participants were ready as at the time they were

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approached. Those who could not grant the interview immediately were scheduled on dates they found to be convenient.

Detailed information concerning the purpose of the study as well as its potential benefits and risks were explained to all participants (mothers and healthcare professionals). Written informed consent was obtained from participants before the interviews were conducted. Face-to-face in-depth interviews were conducted in quiet designated rooms in the department from September 2019 to March 2020. The IDIs for the mothers were carried out in Twi, Ga (Ghanaian dialects) and English whiles that for the healthcare professionals were carried out in English. The IDIs for the participants were audio recorded. The interviews lasted between 17 to 60 minutes for all participants.

3.8 Data collection tool

Data was collected using semi-structured interview guides which allowed the medical professionals to share their experiences in caring for women with preterm births as well as caring for preterm babies. The guide also allowed the women who experienced preterm births to share their experiences of the care they received. The interview guides had open ended questions and probes which allowed the interviewer to elicit more information from the participants.

3.9 Rigour

Rigour is the criteria by which a research is evaluated for its worth (validity and reliability) (Lishinski et al., 2016). According to Lincoln and Guba (1985) trustworthiness of a qualitative research involves establishing credibility, transferability and confirmability. All these were employed in this study as detailed below.

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3.9.1 Credibility

The researcher had prolonged engagement with the participants by spending seven months at the maternity learning and gathering data. The transcripts of the interviews were returned to the participants to confirm the accuracy of the recorded interviews. Members of the research team were allowed to review and assess the transcripts, emerging themes from the transcripts and the final report. In addition, the supervisor reviewed the whole research work.

3.9.2 Transferability

Detailed information about the research design, participants, data collection method, sampling technique and research context have been provided. This will enable other researchers replicate this study in other tertiary facilities in the Greater Accra Region or beyond.

3.9.3 Confirmability

The researcher ensured that probing was done to seek clarification from respondents. More so the interviews were transcribed verbatim and this ensured that the findings were the results of the experiences and ideas of the respondents. The assumptions and beliefs of the researcher about the service delivery for preterm birth and care at the facility were reflected upon and this ensured that personal biases were not introduced into the study.

3.10 Data analysis

All audio recorded data were transcribed into Word documents. The thematic approach which entails careful reading and rereading of data (Guest et al., 2012) was employed for data analysis. Hence the transcripts were read over and over again by the researcher to gain understanding of the experiences of the respondents, note initial ideas and also to identify similarities in the data. Field notes were also reviewed to identify any relevant information to the study. Recurring words and

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phrases were grouped into codes. Similar codes were then grouped into subthemes and then finally into themes. Both the deductive and the inductive approach were used to identify themes in this study. With the deductive approach, themes emerged from some prior theoretical framework, literature or an underpinning theory. In the case of this study the underpinning theory was the World Health Organization framework for quality of maternal and new born care. On the other hand, with the inductive approach, themes emerged from the data. After the researcher had consulted with the supervisor and then agreed on the final emergent themes, the code book was then developed. A codebook is a data management tool for organizing segments of similar or related texts to assist in interpretation (Crabtree & Miller, 1999). A codebook has components like a code, a brief definition of the code, a full definition of the code, guidelines for when to use the code, guidelines for when not to use the code and examples from the text. The NVivo version 12 software was used for the coding and analysis after the codebook had been developed.

3.11 Pre-test

The research tool was pretested at Ledzokuku-Krowor Municipal Assembly (LEKMA) Hospital. Two midwives, one obstetrician and one pediatrician were interviewed. In addition, two women who had experienced preterm delivery were also interviewed. The feedback from the pre-testing was used to amend the initial interview guide of all ambiguous and irrelevant questions. The updated interview guide was employed for the study.

3.12 Ethical consideration

The study was approved by the Ethical and Protocol Review Committee of College of Health Sciences, University of Ghana (CHS-Et/Ml0- 9.2/2018-2019). After the ethical clearance was obtained, an introductory letter together with a copy of the ethical clearance was sent to the head of Department for Obstetrics and Gynaecology of KBTH to seek permission to collect data for the

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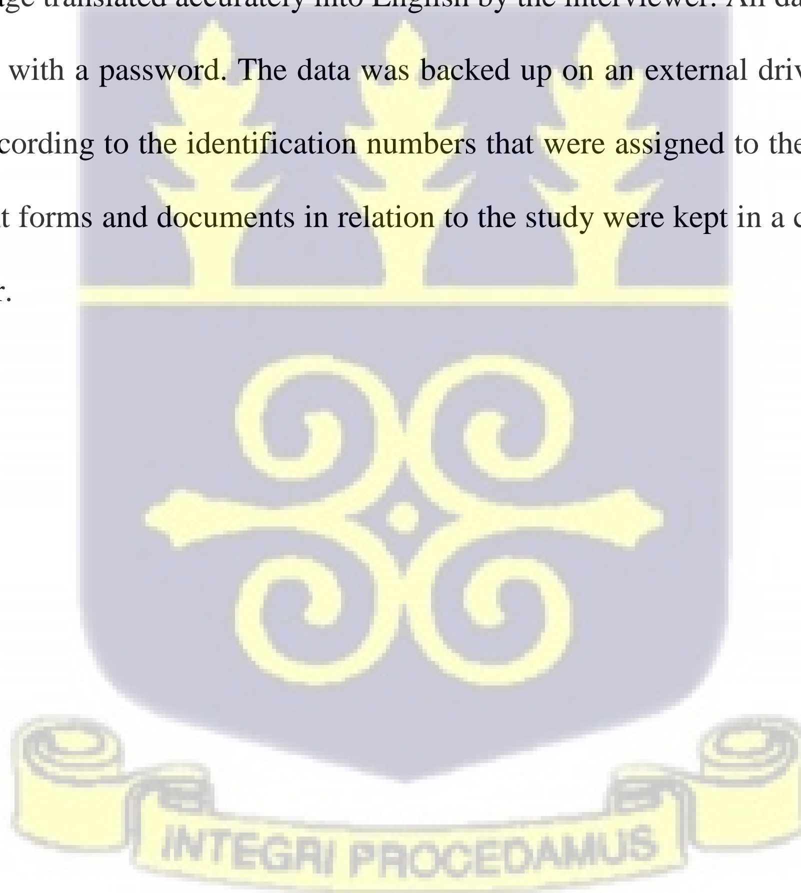
study. After permission was granted written informed consent were obtained from all the study participants prior to the interviews and they were assured of strict confidentiality of the information provided. Their identities were not in any way going to be linked with the information they provided. Moreover, only members of the research team were going to have access to the information they provided. They were also informed that they could withdraw at any time point in the study without any fear of retribution.

3.13 Data Storage

All audio recorded data was listened to several times and then transcribed verbatim, with those in the native language translated accurately into English by the interviewer. All data was then stored unto a computer with a password. The data was backed up on an external drive. The transcripts were labelled according to the identification numbers that were assigned to the participants. All informed consent forms and documents in relation to the study were kept in a cabinet and locked by the researcher.



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CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This section outlines the distribution of the social demographics of the participants as well as findings from narratives of health care professionals about availability of service delivery for preterm birth and care, service delivery compliance with WHO framework and challenges faced by healthcare providers during provision of PTB and care services. In addition, findings from narratives about challenges faced by women during preterm delivery and care will be presented in this chapter.

4.2 Socio demographic characteristics of respondents

Initially a total of 50 health care professional and 50 women who experienced preterm births were invited to take part in the in-depth interviews. Five midwives and 5 obstetricians declined because they had emergencies and couldn't reschedule. Ten women were unavailable as they were following up on their babies' lab results, 5 had to return home to attend to their children and 5 were emotionally stressed from their baby's admission at NICU and therefore declined.

Subsequently, in-depth interviews were carried out among 40 health care professionals and 30 women. The HCPs comprised of 25 midwives, 10 obstetricians and 5 pediatricians. Most of the HCPs (n= 20, 50%) were between the ages of 30 to 39 years. A little more than half (n=21, 52.5%) had worked with the hospital between the period of 1-5 years. With regards to ranks, majority of the interviewees were staff midwives (n=10, 25%), senior resident obstetrician & gynaecologists (n=7, 17.5%) and senior resident pediatricians (n=3,7.5%) (Table 1).

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Majority of the women were married or cohabiting (n=19, 63.3%) and had attained JHS level of education (n= 13, 43.3%). Half of the women were traders (n=15, 50%) and majority were between the ages of 30-39 years (n=14, 46.7%). Most of the women had no history of previous preterm birth (n=28, 93.3%) (Table 2).

Table 1: Social demographics of healthcare professionals

Variables	Frequency (n)	Percentage (%)
Age (years)		
20-29	12	30
30-39	20	50
40-49	8	20
Length of service at Korle-Bu (years)		
<1	4	10
1-5	21	52.5
6-10	12	30
10+	3	7.5
Sex		
Male	9	22.5
Female	31	77.5
Rank		
Pediatrician consultant	1	2.5
Pediatrician specialist	1	2.5
Senior resident pediatrician	3	7.5
Consultant obstetrician & gynecologist	2	5
Senior resident obstetrician & gynaecologist	7	17.5
Resident obstetrician & gynaecologist	1	2.5
Principal nursing Officer	1	2.5
Midwifery officer	9	22.5
Senior staff midwife	5	12.5
Staff midwife	10	25
Total	40	100

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Table 2: Socio demographics of women with preterm births

Variables	Frequency (n)	Percentage (%)
Age		
<20	2	6.7
20-29	12	40.0
30-39	14	46.7
40+	2	6.7
Marital status		
Single	11	36.7
Married/co-habiting	19	63.3
Education		
None/primary	2	6.7
Junior High School (JHS)	13	43.3
Senior High School (SHS)	11	36.7
Tertiary	4	13.3
Number of previous births		
0	1	3.3
1	14	46.7
2	6	20.0
3+	9	30.0
Religion		
Christian	29	96.4
Muslim	1	3.3
Ethnicity		
Akan	13	43.3
Ewe	3	10.0
Ga	9	30.0
Other	5	16.7
Occupation		
Unemployed	3	10.0
Hairdresser	5	16.7
Trader	15	50.0
Seamstress	3	10.0
Others	4	13.3
Previous preterm birth		
Yes	2	6.7
No	28	93.3
Total	30	100

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4.3 Thematic analysis results

Following the data analysis, eight major themes and thirty-eight sub themes emerged from the interviews with the HCPs and women who had preterm births and these are presented in Table 3.

Table 3: Major themes and subthemes from narratives of healthcare professionals and women with preterm births

Major Themes	Subthemes
Theme 1: Care process for women with PTB	Education on preterm delivery Preterm delivery as emergency Assessment of preterm labour Aborting contractions Administering dexamethasone, magnesium sulphate and antibiotics Monitoring of women and checking fetal heart rate Counselling Liaising with NICU
Theme 2: Care process for preterm babies	Resuscitation Weight and blood sugar Thermoregulation Administering oxygen Administering IV fluids Administering of antibiotics Phototherapy
Theme 3: Service delivery in line with WHO framework	Evidence based practices for routine care and management of complications Actionable information system Functional referral system Respect and preservation of dignity Effective communication Competent human resources Motivated human resources Essential physical resources available
Theme 4: Challenges HCPs encountered caring for women with PTB	Unavailability of equipment and supplies Staff shortages Transporting preterm babies to NICU Emotional disposition of women Women's illiteracy Financial constraints Difficulty in the management of women with PTB

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Theme 5: Challenges pediatricians encountered caring for preterm babies	Lack of equipment Staff shortages Unavailability of drugs Delays with lab investigations Difficulty in the management of preterm babies
Theme 6: Challenges women with PTB encountered with regards to the care	Delayed C/S Lack of running water Invasion of mosquitoes Mistreatment from HCPs
Theme 7: Mothers challenges with NICU admission	Delayed lab results Difficulties moving to and fro from NICU Minimal NHIS coverage
Theme 8: Recommendations by Healthcare professionals	Recommendations to HCPs to improve on quality of care Recommendations to government by HCPs

4.4 Availability of service delivery for preterm birth and care

The themes identified address issues with regards to services available to women with PTB as well as the care offered to babies who were born preterm.

4.4.1 Care process for women with preterm birth

According to the respondents the women were educated on preterm birth during antenatal. Also from the respondents' narratives, the care process for women with preterm delivery starts right from the emergency where the women were assessed to confirm whether they were experiencing preterm delivery. Attempts were made to abort contractions if possible and if not the women were given steroids, antibiotics and other medications to help with the maturation of the fetus lungs. Monitoring of both the mother and the fetus is carried out and a delivery plan decided on. The care for these women is a multidisciplinary one where pediatricians were also brought in to assist or are informed ahead of time of the arrival of a preterm baby. The women were also counselled as part of the care process.

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Narratives of health care professionals confirmed that pregnant women were educated on preterm delivery during the educational sessions. The women were taught how to detect when they went into labour and when it was preterm labour by paying close attention to certain body symptoms in their bodies. In addition, the women were taught how to differentiate between urine and liquor and what to do in an emergency situation when they were at home.

> *"What they are told…. I know they educate them on… they are pregnant so they should study themselves especially the signs of labour. Even though you are not term, you can get into labour at the preterm so they educate them about the contractions, the signs and show [them] signs of labour. Signs of labour that will let them know that I'm going into preterm labour." (Midwifery officer, 3 years- service)*

> *"Yes, because they will tell you that when you start losing liquor, yes you have to come to the hospital. So they even tell you how to differentiate between the liquor and the urine because it's the same, it's clear. They will tell you that when something is coming from your private part and it's slimy, it means it's liquor but the typical urine, the smell alone can tell you but that one is slimy. So they will tell you that if you see this thing maybe it means that your baby is about to be born and then when you have cramps, lower abdominal pains, so all these are signs of premature or preterm labour. So they tell them." (Principal nursing officer, 2 years- service)*

> *"Ok, yeah sometimes I think they talk about the preterm delivery so that the woman will be aware of what happens in case she is in the house and something is happening during their pregnancy." (Staff midwife, 3 years- service)*

According to one respondent, prematurity wasn't an expected outcome so it wasn't usually discussed. However, women with previous experiences of delivering preterm received education on preterm delivery because they stood the chance of experiencing a possible reoccurrence.

> *"Oh no. On a normal…. we don't even expect them to go into prematurity. However, if there is a patient who has once had it, she stands the chance of getting it again so there, she will be elaborated on that. But then it's not a topic we normally talk about." (Staff midwife, 1 year-service)*

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Healthcare professionals recounted that preterm births were treated as emergency cases. The women were triaged once they arrive at the hospital and not made to join routine queues. In addition, there was always a doctor in the emergency room to attend to patients.

> *"Those are considered as emergencies so they don't join the routine antenatal. They are sent to the emergency and I think preterm labour is triaged as either orange or yellow. There is always a resident in the emergency room so the resident will see the patient". (Senior resident obstetrician & gynaecologist, 6 years-service)*

> *"When she comes, she goes to the ER (emergency) and a doctor sees and they examine and when they diagnose preterm labour, they are admitted to the ward." (Principal nursing officer, 2 years-service)*

According to the respondents the patients were assessed to confirm whether they were presenting with preterm labour or not and if they were, what could be causing it and which stage they were in. This informed the health care professionals as to which course of action to take.

> *"So once they come to the emergency, they want to know whether it is really labour, or preterm contractions or premature rupture of membranes. So we will assess her and we will really take or make a decision there. So when we know that is preterm labour then we quickly examine them. If they are in active phase we quickly take them to the labour ward for monitoring." (Resident obstetrician & gynaecologist, 3 years-service)*

> *"Err ok. Patients who have come in with preterm labour. Usually we want to assess what brought about the labour, whether they had any trauma, any infection, any drugs or anything that cause it and also, we want to know the history. That they had a history of preterm birth, whether they have a previous history of cervical incompetence and the rest and the gestation really matters." (Resident obstetrician & gynaecologist, 4 years-service)*

> *"So usually with the preterm labour if the client presents with preterm labour if the gestation is very early, you are supposed to be above 28 weeks but before 34 weeks we initially assess the client, take a proper history from the clients to identify where exactly the underlying cause of preterm labour is coming from. It could be from infections, there are a host of causes so you identify the underlying causes then you start managing it." (Resident obstetrician & gynaecologist, 1 year-service)*

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According to one respondent, in Ghana any birth that occurs before 28 weeks is defined as threatened abortion whilst that occurring between 28 weeks and 37 completed weeks of pregnancy was defined as preterm birth.

> *"In Ghana, we use 28 weeks as our period of viability but in other jurisdiction such as Europe some use 20 and 24 weeks. So for us anything (delivery) below 28 weeks technically speaking threatened abortion but anything from 28 weeks and before 37 completed weeks will be deemed as preterm." (Consultant obstetrician & gynaecologist, 20 years-service)*

The HCPs stated that depending on the stage of the labour, contractions could be stopped by giving the women tocolytics. They also reiterated that they did their very best to stop the contractions so as to buy more time for the fetuses to get to maturity to secure their chances of survival. The health care professionals also declared their intention to avoid incidences of preterm deliveries as much as possible.

> *"So if the person comes in preterm labour, because usually we don't want any prematurities or any babies born preterm, what we try as much as possible to do is to abort the contraction. So we have medications that we try and give some of the patients to prevent contractions from progressing. Solely with the aim of getting the contractions to stop." (Senior resident obstetrician & gynaecologist, 6 years-service)*

> *"Those who are preterm around 29 weeks we try tocolytics for them and admit them to the ward, monitor the baby, monitor whether the contractions are seasoned and try to push the pregnancy to term or add more gestation, push to further gestation to enable them grow well and it's more likely they will survive." (Resident obstetrician & gynaecologist, 6 years-service)*

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In some instances, tocolytics were given to slow down the contractions thus allowing dexamethasone to take effect before delivery. Depending on the frequency of the contractions the women were either sent to the labour ward or the lying-in-ward. The administering of dexamethasone or tocolysis was continued at the lying-in-ward.

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"Occasionally, we give tocolysis to buy time for the dexamethasone to work and usually we send them to the wards. Some may be sent to the labor ward because contractions are increasing in frequency but most of them are sent to the lying-in wards where the dexamethasone is continued or the tocolysis is continued." (Senior resident obstetrician & gynaecologist, 16 years-service)

One important sub theme that emerged from the narratives was the administration of medications such dexamethasone, magnesium sulphate and antibiotics to the women experiencing preterm labour. According to the HCPs dexamethasone helps with the lung maturation of fetus, magnesium sulphate for neuro development and antibiotics to protect both mother and baby from infection.

".... if the membranes have ruptured, for more than 12 hours we will want to start antibiotics so the mother doesn't become febrile or the baby so we don't introduce further infections." (Midwifery officer, 3 years-service)

"...you have to give the patient dexamethasone, the first shot if it has not been given and if is less than 32 weeks we give them magsulphate to help with the neuronal development." (Resident obstetrician & gynaecologist, 6 months-service)

"So we admit them to the ward, put them on antibiotics, give them steroids to mature the lungs and we hope that they will reach 34 completed weeks by which time the lungs would have matured and then there is a reasonable chance of the baby coming out without respiratory difficulty." (Consultant obstetrician & gynaecologist, 20 years-service)

The care process for a woman delivering preterm includes monitoring the labour on the partograph and also monitoring the fetal heart rate till delivery. According to HCPs, their monitoring isn't different from that of women who are delivering full term.

"At any point we send them to the labour ward. They start CTG monitoring. We have this machine the CTG monitor, then we will put on the woman's abdomen to measure fetal activity, that is the fetal heart rate and stuff like that. So that machine will be on, it goes on like normal labour, the woman is assessed, vaginal examinations are done every four hours." (Senior staff midwife, 4 years-service)

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"Then subsequently if you are going to have supervised vaginal delivery you monitor the patient on the partography when the patient gets to the active phase of labour and then till they deliver. You do just as you do for any normal pregnancy." (Resident obstetrician & gynaecologist, 6 months-service)

"When they are in labour, we send them to the labour ward, they are monitored on the pantograph and these days we have CTG so they are put on the CTG as well. They are managed in labour as normal people." (Consultant obstetrician & gynaecologist, 20 years-service)

The condition of the women and the procedures carried out were explained to them. They were informed that their babies will be sent to NICU if they were born preterm. This allayed some of the anxiety they felt. In the case where the baby's chance of survival was low, the woman was counselled and in instances where the pregnancy needed to be terminated, the decision was left for her to make.

"We try and tell the women why we are doing what we are doing and that if their child is preterm, their child will be sent to a special ward which is the NICU on the third floor because premature babies have specific problems. That is what we tell them." (Senior resident obstetrician & gynaecologist, 16 years-service)

"For preterm labour, I really don't know if we do anything vastly different besides counselling the patient on the fact that she may not get to term and then counselling on the fact that the outcome of the baby may not be a life birth that she can send home. And we also try and counsel them on what their options are. If we keep the baby can we achieve a good result at the end? Is it advisable to let it go? Ultimately the decision is hers to make." (Resident obstetrician & gynaecologist, 3 years-service)

"So when they come in we try to explain to them for them to understand. So when the woman understands her condition and she knows that there is something that can be done for her, she is relaxed through the process." (Midwifery officer, 3 years-service)

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The care of women delivering preterm is a multidisciplinary one. HCPs at maternity liaise with those at the neonatal intensive care unit for continuous care of neonates delivered preterm.

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Pediatricians were sometimes called in during delivery so that they could start with the immediate care of the neonates from the delivery room.

> *"Normally when they come with preterm, now there are NICU doctors' numbers available. When preterm comes we will pre-inform them that may be we have a woman in labour with this gestational age. So when the woman is about 8cm you call them so that they will be around while the baby is being delivered so that if there is any immediate care the baby will need before sending the baby to NICU, they will do it here before the baby is sent to NICU." (Midwifery officer, 10 years-service)*

> *"So immediately, you will want to make the baby warm and inform the NICU doctors. Sometimes the NICU doctor will want to come here and assist the baby or we will take the baby to NICU. So that is what we normally do and most of the time too because the pregnancy is not at term." (Midwifery officer, 3 years-service)*

> *"Also we notify the NICU or the neonatal intensive care to the labour ward and help as soon as the baby is delivered so that they transfer the baby to NICU." (Consultant obstetrician & gynaecologist, 20 years-service)*

4.4.2 Care process for preterm babies

One important theme that emerged was the care process for babies born preterm. HCPs recounted that the care process for neonates included resuscitation, checking their weights and sugar levels, thermoregulations, administering of antibiotics and putting them on oxygen. Intravenous fluids were also given to those who couldn't feed well and phototherapy was carried out for those with jaundice. In addition, kangaroo mother care was also carried out and mothers were also taught how to handle the preterms.

Resuscitation of the babies was carried out right after birth if the babies do not cry or breathe properly. Prior to that, babies were shown to mothers for identification of sex and then the mothers were informed about anything that might be wrong with their babies. HCPs ensured items for

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resuscitation were set up prior to delivery because preterm babies are perceived as babies that are at risk.

> *"…but if the baby is not fine and baby needs resuscitation, we first show baby to mother for identification of sex and then tell them what is wrong with the baby, if baby is crying or not and then we go on with the resuscitation." (Staff midwife, 3 years-service)*
>
> *"Ok actually for them (women experiencing preterm birth) we see the babies as "at risk babies". We make sure we set the resuscitaire up for any occurrences in case the baby comes out and the baby is not able to breathe well." (Senior staff midwife, 4 years-service)*
>
> *"So we prepare our items for resuscitation and other things. Immediately baby is out, baby is prepared and sent to NICU." (Staff midwife, 3 years-service)*

Checking of the baby's weight and sugar level are crucial aspects of the routine management for preterms. These are the first things that are carried out when the babies arrive at NICU, in addition to the temperature and oxygen saturation checks.

> *"Once the baby arrives in NICU, care starts right away from the nurses' station. So the nurses there will weigh the baby, they will check the baby's temperature, they will check the baby's blood sugar, yes often times we check the baby's saturation." (Senior resident pediatrician, 10 years-service)*
>
> *"Ok so usually when they come in on the account of prematurity, we first weigh them and check their blood sugars." (Senior resident pediatrician, 7 years-service)*
>
> *"So when they come, first we have the nurses there. They take the weight; we have to check the random blood sugar to really see." (Pediatrician specialist, 10 years-service)*

Thermoregulation is another important aspect of preterm care from the respondents' narratives. Preterm babies especially those weighing less than 1.5kg cannot control their body temperature. This makes them cold and hence the need to always keep them warm by putting them inside an incubator. In instances where incubators were not available babies were put under radiant warmers until the availability of an incubator.

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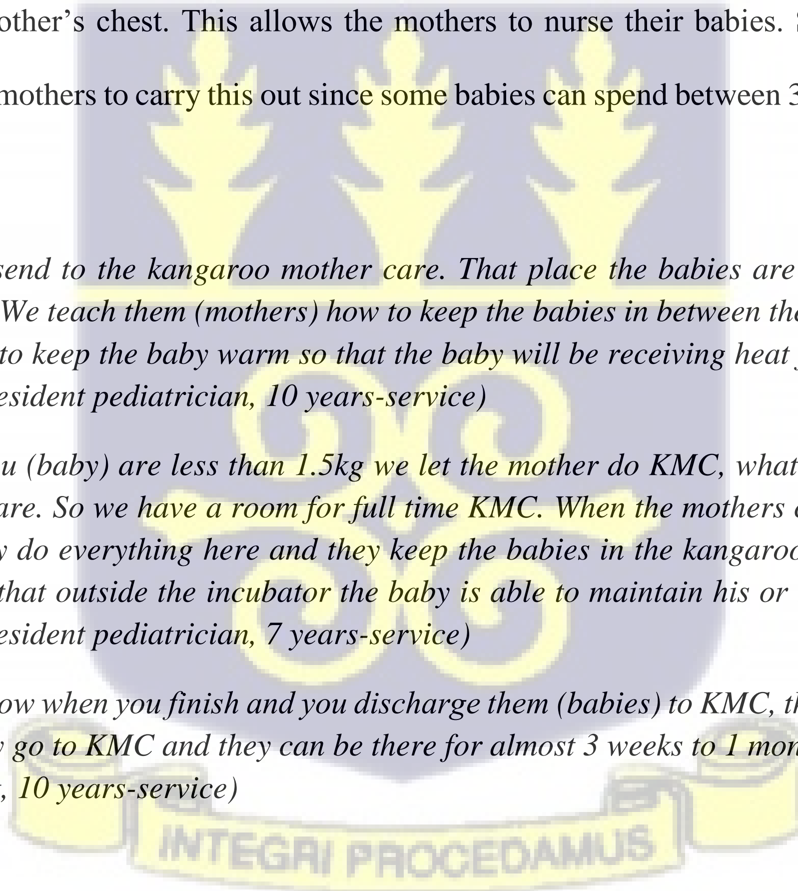
> *"Those that are very small usually less than 1.5kg when they come in and they are not able to maintain their body temperature, at times they will have to go into an incubator." (Pediatrician consultant 3 years-service)*
>
> *"…ideally we should have a window that they transfer them but they are coming from the labour ward so most at times when they come, they are already cold. We transfer them into an incubator if we have one. We use that one or the radiant warmer till we get an incubator for them." (Pediatrician specialist, 10 years-service)*
>
> *"… for instance they check the baby's temperature and if is low, there and then they know that they have to do something to warm the baby up." (Senior resident pediatrician, 10 years-service)*

Kangaroo mother care (KMC) is also a care process to keep the babies warm by keeping them in between their mother's chest. This allows the mothers to nurse their babies. Special rooms are provided for the mothers to carry this out since some babies can spend between 3 weeks to a month at KMC.



> *"…. we send to the kangaroo mother care. That place the babies are nursed with their mothers. We teach them (mothers) how to keep the babies in between their chest and wrap the baby to keep the baby warm so that the baby will be receiving heat from the mother." (Senior resident pediatrician, 10 years-service)*
>
> *"…. if you (baby) are less than 1.5kg we let the mother do KMC, what we call kangaroo mother care. So we have a room for full time KMC. When the mothers come in they sleep here, they do everything here and they keep the babies in the kangaroo position until we are sure that outside the incubator the baby is able to maintain his or her temperature." (Senior resident pediatrician, 7 years-service)*
>
> *"…and now when you finish and you discharge them (babies) to KMC, they are like almost 1kg. They go to KMC and they can be there for almost 3 weeks to 1 month." (Pediatrician specialist, 10 years-service)*

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According to the health care professionals, babies with respiratory problems need to be on oxygen in order to support their breathing. This support is provided to them as soon as the need is detected in addition to any other intervention that is required.

> *"A baby who needs oxygen will be transferred into the cubicle right away and be given oxygen and interventions that need to be given will be given." (Senior resident pediatrician, 10 years-service)*

> *"Maybe they came in because they were breathing fast and all they need is really oxygen. For those that have respiratory distress syndrome, they will need oxygen." (Pediatrician consultant, 3 years-service)*

Respondents recounted that most preterm babies cannot feed at the initial stages so they are given IV fluids until they are able to feed on their own. In instances where their blood sugars are low, dextrolyte infusion is administered to bring the blood sugar up.

> *"….then we usually will start with fluids, IV fluids. We don't start feeding immediately." (Senior resident pediatrician 7 years-service)*

> *"...IV fluids because most of them can't feed at the beginning so you have to give them drips to help them until they are ready to feed." (Pediatrician consultant, 3 years-service)*

> *"Once they check the blood sugar and blood sugar is low they know they have to intervene by giving some dextro (dextrolyte) to bring the blood sugar up." (Senior resident pediatrician, 10 years-service)*

Administering antibiotics is the first management plan for the babies. According to the medical professionals they gave the babies antibiotics when they suspected that the babies had infection while lab investigations were being carried out. Antibiotics prescribed were revised after lab investigations confirmed cases of infection.

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"Now some babies will go on to have lab investigations done and antibiotics may be prescribed or other medications prescribed. That is the first management plan for the baby." (Senior resident pediatrician, 10 years-service)

"Depending on their gestational age, if we think they have infection, we may start antibiotics." (Senior resident pediatrician, 7 years-service)

"So you set a line, give them IV fluids, put them in an incubator, start them on antibiotics whiles you investigate." (Pediatrician consultant, 3 years-service)

According to the participants the babies were examined for jaundice because their red blood cells tend to break down most of the time. Those who developed jaundice while on admission or at the time of admission were treated using phototherapy.

"For those that developed jaundice whether at the time they came or later on, you have to put them under phototherapy." (Pediatrician consultant, 3 years-service)

"They can also have jaundice because their red blood cells tend to break down too often. So you check for all those things as and when these issues come up and address them." (Resident obstetrician & gynaecologist, 6 months-service)

4.5 Service delivery compliance with WHO framework

This is one of the important themes that emerged from the interviews. Respondents gave their take on how the eight domains were being implemented in the hospital pinpointing those that needed to be improved upon.

There was the general impression that the management of complications and the routine care for mothers and newborns were evidenced based. Protocols were pasted on the walls to serve as a guide for HCPs to follow pertaining to the particular case that was being presented.

"With birth asphyxia, please let me take this as an example. With birth asphyxias, in case this baby is immediately identified she is sent to the neonatal intensive care unit where further management is continued. The baby is weighed, RBS checked, vital signs done,

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temperature checked and immediately labs are taken. Fluids are started and oxygen given. The baby is put under a radiant heater and then in an incubator." (Midwifery officer, 10 years-service)

"Yeah we have protocols on the walls so first of all if there is any problem you have to call the doctor. You take the first initiative then you call the doctor. With the eclampsia you give magsulphate. So if you call the doctor and the doctor comes around and says you should give, we have magsulphate so you just start to prevent subsequent seizures." (Senior staff midwife, 3 years-service)

"There are protocols on the walls for the midwives to see and for everyone to see at each step what kind of treatment to give for a particular case when it presents." (Staff midwife, 2 years-service)

There were mixed findings from HCPs about accessing patients' data from the hospital. There were those who said data on patients were not readily available referring to instances of missing folders and poor recording of information. On the other hand, there were those who thought otherwise referring to the patients' folders as the source for data.

"I don't think is that optimal because there are times that you cannot find the folder occasionally. So maybe if we computerize the system which corrects that situation then maybe that will be a thing of the past." (Consultant obstetrician & gynaecologist, 20 years-service)

"There are instances where a patient may come and the person would have attended clinic on a number of occasions and you require some very important information to help make it a more concrete diagnosis but you can't get the data. Folders are probably missing and if they are there you don't have some pages." (Resident obstetrician& gynaecologist, 1 year-service)

"Yeah, yeah is in the folders. Every review is written, every clerk. When doctors clerk our patients, everything is written in the folder and the antenatal books so information are readily available. Like labs, everything is written and printed." (Staff midwife, 9 months-service)

The referral system needs to be improved upon according to the HCPs. Referring to Korle-Bu

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Teaching Hospital is difficult if you do not know someone who works there personally. The referring facilities also refer without informing the hospital ahead of time and there were also challenges with referring cases outside Korle-Bu due to unavailability of ambulance. Patients were required to pay for ambulance services.

> *"Korle-Bu is not well prepared to receive cases let me put it this way. There is a lot of work. If you've worked in the periphery before, there is a lot of work you have to do before your patient gets to Korle-Bu. Sometimes it comes down to who you know. If you know somebody at maybe NICU before you can refer because it is a lot of work. Calling people, asking for special favours before you can get your preterm baby to be admitted. Sometimes when you call, there is no bed and stuff so if you ask me, that is why we are a developing country." (Senior resident 0bstetrician & gynaecologist, 6 years-service)*

> *"There is a major problem with the functional referral system where people are referred without your knowledge. We have a communication unit where calls are supposed to be received and alerted but it is not effective because you will be there and cases arrive which you have no idea about. Therefore, there is the need to improve upon it." (Consultant obstetrician & gynaecologist, 10 years-service)*

> *"So there are no ambulances available. We have ambulances available in Korle-Bu to transfer patients from one department to another department but we don't have ambulances available to transfer patients outside Korle-Bu when we are referring. So we have to call the national ambulance service. When there is availability of ambulance they will come and patient will have to pay for those services too." (Resident obstetrician & gynaecologist, 4 years-service)*

Mixed findings were reported by participants regarding effective communication between them and patients. Language barriers made effective communications difficult on some occasions. Some participants also recounted that they were able to communicate the conditions effectively to patients for them to understand.

> *"I think some of the staff are doing well, they are able to communicate for the patient to understand and also re-echo what the staff has said. The staff try as much as possible to see really whether the patient understood it well. That's subjective though. So in my view*

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I think we do well explaining the condition of the patients to them." (Resident obstetrician & gynaecologist, 4 years-service)

"Am not sure we are doing well with that regard. Some of the patients don't understand what we are saying because maybe we are not communicating effectively. You've asked somebody to come for admission at this time and the person didn't understand. She didn't know. In terms of communication we have a lot to do. They don't understand us". (Consultant obstetrician & gynaecologist, 20 years-service)

"Yeah but sometimes we have language barrier because we can't speak all languages. So with that sometimes we involve the relatives who can speak Twi or English. That one is sometimes a bit difficult." (Staff midwife, 3 years-service)

Majority of the health care professionals said patients were fairly treated with respect and dignity. They also added that the design of the labour ward does not provide much privacy to women in labour as they are seen lying next to each other without a screen to shield them.

"*Definitely the answer will be, for all, I will say no ha-ha. We try. There is still more room for improvement because judging from what the patients say, some of them will tell you that you have not showed them enough respect. I am talking generally. Personally on my own personal level, I try and show a lot of respect to the patients but I can't speak for the whole Korle-Bu environment.*" *(Consultant obstetrician & gynaecologist, 20 years-service)*

"*Yes so they are human beings of course. Every baby is a human being who has rights. So we try to respect the babies and accord them that respect, to respect their dignity and of course we do have a few bad nuts here and there. Some people may look down on others and we do have that. This is a human institution so it does happen but as much as possible we respect everybody." (Senior resident pediatrician, 10 years-service)*

"*Hmm they (women) are not (treated with dignity) especially on our labour wards. Labour ward one, is not our fault but the way it is designed. For instance, you come in and you see women in labour and they are lying next to each other on their beds. Labour is such a private emotional thing that there should be some sort of (privacy). But labour ward two is better because those rooms are cubicles but labour ward one, we don't have that so I don't think we preserve their dignity enough." (Resident obstetrician & gynaecologist, 3 years-service)*

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Emotional support is not optimally provided to patients by HCPs due to the overwhelming number of patients and the heavy work load of health workers. Respondents did their best to support them and also get family members and psychologists involved in offering emotional support to these women.

> *"I think, well we do our best. We try as much as possible to, I mean put ourselves in their shoes and again we are not there yet for the same reason. Because there is so much work load. I mean as a human being if you are under stress you can't function as you should so we try our best to put ourselves in their shoes and sympathize with them but is not yet optimal." (Resident obstetrician & gynaecologist, 6 months-service)*

> *"Oh sometimes we try and do that. As we said earlier on, the job can be overwhelming so by the time you finish one there is another one and you may not have time to be doing that. By and large we try to sympathize with those who need it." (Senior resident obstetrician & gynaecologist, 6 years-service)*

> *"Not routinely. We offer the services as and when they are needed. So if we think that the mother needs the services of a clinical psychologist, we do call for one. Where we are unable to get one, we try and talk to the mother, the father, any family or relative as and when it is demanded we do offer emotional support coming from us the staff as in nurses and doctors." (Senior resident pediatrician, 10 years-service)*

Narratives from the HCPs confirmed that the hospital had staff who were competent and possessed the requisite skills after passing through training. In addition, all medical professionals ensured that their license were renewed as expected as none of them worked with an expired license.

> *"I will say yes we have competent staff." (Consultant obstetrician & gynaecologist, 20 years-service)*

> *"I should think that err not just in Korle-Bu but in Ghana as a whole our staff are very, very competent. Very, very competent. More often than not the gap has to do with resources and facilities but in terms of competence, skills and those things I think we have it." (Resident obstetrician & gynaecologist, 6months-service)*

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"Yes *we have competent staff because all the staff are trained, passed out and they have their license and I think every 6 months, you are supposed to provide your license, not expired ones." (Midwifery officer, 11 years- service)*

On the whole participants were not motivated. The working environment was not in any way encouraging since it lacked the needed logistics, equipment and staff strength. HCPs were not provided even with drinking water. The only motivation for them was having safely delivered a mother of a healthy baby.

"Motivated, am not sure as you will expect because one, even the environment in which we work sometimes does not motivate you because we don't have soap, water and sanitizer. We don't have the equipment; we don't have the medications to work with sometimes so that one alone. Even though we come motivated to work we don't get the resources and you see a baby that could have been saved but because of some of this logistics unavailability they die." (Senior resident pediatrician, 10 years-service)

"For motivation, none. We are not motivated in any way. The only thing that I can say motivates midwives on this ward is when you have delivered a woman and you know the woman is safe, the baby is healthy, baby is sucking and the woman is smiling. That is the thing that we use to motivate ourselves." (Midwifery officer, 3 years-service)

"That is the problem. They are not adequately motivated especially if you come to work and the nurse patient ratio is so huge. You know this is an ICU (intensive care unit) and even getting water to drink is a problem. So as for the motivation is not even in terms of monetary but generally even the working environment, there is not enough motivation for the staff here." (Senior resident pediatrician, 7 years-service)

There was the general impression that the essential physical resources available were not enough considering the large number of patients. The theatres were not enough and even in cases where instruments were available, they couldn't perform up to standard or they ended up breaking down easily because of the pressure on them.

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"…The cesarean section is one case. You can have a case booked. Let's say an elective. The patient will starve from morning till... and you end up doing the case at 8 or 9 pm but she has been prepared since 6 am. We only have 2 theatres seeing such a large number of cases." (Resident obstetrician & gynecologist, 3 years-service)

"We don't have a lot of the things. Like I said, we have ICU that does not ventilate babies. That is a huge problem because if the baby comes and has a good heart rate but you can't ventilate and this baby dies that is a problem. We have incubators but we have lots of the props not working so what they (incubators) do is to only keep the babies warm. They (incubators)can't do any other thing." (Senior resident pediatrician, 7 years-service)

"Some not all. Some and even the ones that are there they are not really enough. They are not enough because we have a lot of patients around with few logistics to work with. They end up putting pressure on the machines and they get spoilt early and we don't have new ones to replace them with." (Senior staff midwife, 4 years-service)

4.6 Challenges faced by health care providers during provision of preterm birth and care services

The health care providers faced some challenges when it came to caring for women with preterm birth. Furthermore, the pediatricians were able to recount issues that presented them with difficulties while caring for preterm babies.

4.6.1 Challenges healthcare professionals encountered when caring for women with PTB

Health system related challenges such as unavailability of equipment and supplies, staff shortages, transporting preterm babies to NICU were barriers that prevented HCPs from rendering proper service to the women. Patient related challenges such as emotion disposition, illiteracy and financial constraints were also identified as barriers. HCPs also expressed concerns with the difficulties in the management of the condition.

According to respondents they didn't have enough instruments to work with and even in instances where they had the instruments, they were not in good working condition and hence could not be

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used. The number of CTGs machines were not enough. In addition, they also experienced shortages of oxygen and other consumables needed to provide care.

"Yes, yes because some of the instruments are rusted, some too are not in good shape. Some of the scissors are blunt and you can't even use it to cut the cord." (Senior staff midwife, 3 years-service)

"*I think so. I think so because in our labour ward for instance personally I think the number of CTGs, cardio topographs that we have are not enough. Ideally every laboring woman should have a separate CTG and there are times that we even run out of oxygen." (Resident obstetrician & gynaecologist, 1 year-service)*

"Korle-Bu and instruments ha-ha the things are not there. Even consumables not only instruments, the consumables, the syringes, the needles that we need to work with, they are not there. Just last month there was shortage. You have to go round begging for items." (Principal nursing officer, 2 years-service)

There was a general impression that staff shortage was a big challenge especially when staff had to work 24 hours because there were just few of them. Having a few of them on duty made them very tired and in some instances they were not enough to take care of all the patients.

"Oh yes! We always have challenges with staff strength. The management will say they are posting a lot of staff. On the ground, we need the numbers. We don't have the numbers." (Consultant obstetrician & gynaecologist, 20 years-service)

"*Indeed staff strength is a major thing. We have a huge deficit in the staff strength. Like I mean, I heard is supposed to be one nurse to two patients or three patients. Here is like one nurse to like ten patients. Is really bad, is like something we can all laugh about and stuff but it's really drains us the nurses because when we come to work and there are more patients, it means there are more stuffs to do and there are not enough nurses to take care of the patients." (Senior staff midwife, 4 years-service)*

"In my opinion, the mere fact that we have to work 24 hours when we are on duty is what I will say when it comes to medical staff. I think if we were enough and all hands were on the deck and we have adequate time, then we wouldn't have to run 24 hours. If you have the 24-hour duty, then it means you think that someone will have to stay in from morning till the following day morning, you get it? So I will say that yes we are not enough. If we are not running a 24- hour duty or we are not being stressed out, then I will say we are

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enough but we are not enough." (Senior resident obstetrician & gynaecologist, 6 years-service)

According to the respondents transporting preterm babies to NICU was challenging because they had to use the stairs most of the time since the elevators were either broken or delayed in coming. In instances where the babies needed respiratory support, HCPs had to be fast in transporting them. This led to some nurses running up the stairs while carrying the babies.

> *"…then the other challenge is that, when we are transporting the babies to NICU, because is preterm we cannot wait for lift. You can't say that you are going to stand there, press and wait till the lift comes. You will have to climb, use the stairs and because it is preterm too you will have to be fast. Otherwise, I said the lung is not fully matured so the baby needs respiratory support and is only at NICU that we can get." (Midwifery officer, 3 years-service)*
>
> *"… most of the time we have to send the babies to NICU and the lift might not be working as at that time and that will delay the baby getting to NICU. That is my challenge." (Midwifery officer, 3 years-service)*
>
> *"…we end up having to run with the baby to NICU. Running means carrying the baby and running. You are running because the elevator is not working. We have two elevators but I've never seen the two work at a time. I don't know whether is intentional. The elevators are not working and this nurse has to run. Imagine this nurse falling with the baby and look at how long it will take this nurse." (Resident obstetrician & gynaecologist, 1 year-service)*

Knowing that they are delivering their babies preterm makes the women very anxious and sad with some even blaming themselves. There is also the fear of losing the baby and the fear of the unpredictable condition of the baby after birth. The women get very depressed making it difficult for HCPs to get through to them. This affects their compliance in some instances.

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"*Some of them feel sad seriously. 'Omu aniije' (they are not happy) because no woman will be happy. It's like my baby is not big. Some of them feel it's an abnormality so some of them might not cooperate." (Senior staff midwife, 3 years-service)*

"Sometimes because of the emotional instability, whatever you are saying, they are not hearing. The fact that their babies will have to be taken to NICU, it makes them become disoriented and all that." (Staff midwife, 1 year-service)

"Oh sometimes, some of the mothers they feel guilty. Some think probably I didn't do something right. Maybe am the cause of the preterm labour and others are anxious. Is basically the anxiety, the unforeseen state of their babies afterwards. So it's just the fear of anxiety level, the fear of losing the baby because the baby is not really up to term that's all." (Senior staff midwife, 4 years-service)

Low educational level of the women was a major barrier which stood in the way of the women understanding their condition regardless of HCPs efforts to explain their condition to them. Also religious beliefs with complete adherence to the pastor's instructions which opposed that of the doctors made the care of the women extremely difficult.

"...some of them their educational level is very low, so trying to explain even their condition to them, trying to make them understand what is going on with them is not easy." (Staff midwife, 1 year-service)

"For me maybe ignorance or illiteracy. They don't really appreciate what is going on. Then another issue is about religion. They will tell you that my pastor says this so am holding unto it. Sometimes a mother might have high Bp, hypertension and that will lead to the preterm delivery and we have to bring the baby out and they say no, I will not allow. So one is about religion. They will not cooperate with you. They think their pastor is right and the doctors are wrong. So one major challenge is religion. They believe their pastors more than us." (Principal nursing officer, 2 years-service)

"...if the woman comes with let's say premature rupture of membranes. They don't understand why we keep them on admission." (Senior obstetrician & gynaecologist, 16 years-service)

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Financial constraints prevented HCPs from providing the women with the required care because they couldn't afford to buy medications and run lab tests. Some of the women also refused admission because of the cost of medical bills. There were those who were also abandoned by their relatives and left to their faith because of lack of finances.

> *"That is what I said that most of them come from poor backgrounds. They cannot afford basic labs or basic medications. They are not on the NHIS so at times it makes caring for them a little difficult. You cannot do all the things that you expect to do for them." (Resident obstetrician & gynaecologist, 6 years-service)*

> *"Particularly finance. If the woman comes with let's say premature rupture of membranes, they don't understand why we keep them on admission. They want to know "can't I go home and come for routine antenatal?" They worry about the cost of admission and then the cost of NICU is a big problem for them." (Senior resident obstetrician & gynaecologist, 16 years-service)*

> *"Depending on the patients, some of them lack finance and the drugs is not forthcoming they will just be there. Sometimes you have to talk to their relatives. Sometimes you wouldn't even get the relatives. They are all alone." (Senior staff midwife, 6 years-service)*

Medical professionals recounted that the delivery of retained placenta was one of the difficulties they encountered in the management of women with preterm birth since this could lead to bleeding. In addition, failure to abort contractions after several attempts was also another difficulty in the management of these women.

> *"Preterm birth, sometimes we get retained placenta because is not time for the placenta to detach itself from the mother. So when baby comes out it takes time for the placenta to come out and that one leads to bleeding that is PPH, postpartum hemorrhage. When it keeps long, that is when we go and do the manual removal. If we are not able to bring it out, sometimes it will come out and there is still retained product of the placenta so they have to do evacuation of the uterus." (Midwifery officer, 11 years-service)*

> *"Challenges ok, so for them (women) like I said after delivery because the pregnancy is not at term, we have challenges with delivering the placenta. You may have placenta insitu*

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for let's say one hour and you've not delivered the placenta." (Midwifery officer, 3 years-service)

"Aside that too the medical component, there are instances where trying to abate the contractions get difficult. If you give one particular group of medication, it fails to abate the contractions so you have to introduce another group so it is not exciting if you are unable to abate the contractions." (Resident obstetrician & gynaecologist, 6 months-service)

4.6.2 Challenges pediatricians encountered caring for preterm babies

Challenges pediatricians faced when it came to the care of preterm babies is a major theme that emerged from the narratives. These included lack of equipment, staff shortage, unavailability of drugs, parents' financial constraint, cumbersome lab procedures and non-compliance from parents.

Narratives from pediatricians indicated that they lacked equipment to work with and even in instances where they had the equipment some parts were missing. There were also no engineers to service the equipment and this affected the maintenance. The lack of running water for washing of hands and the unavailability of disinfectants was also worrying since these could lead to the spread of infections.

"….as I said because of our situation we have issues with logistics, equipment and all that so we don't have a ventilator at Korle-Bu currently working. Our c-pap machines are sometimes broken down, we don't have the consumables that we have to use for the c-pap and all that. Even sometimes we don't even have the equipment to work with, even the disinfectant to clean the equipment and all that. Sometimes we don't even have hand sanitizers just to use and prevent infection. Even water, sometimes the water does not run in there and so washing your hands before handling a patient becomes very difficult." (Senior resident pediatrician, 10 years-service)

"Ok here some of the specific problems we encounter, I will say is really a problem with the system where you have babies coming in and we don't have a free incubator to put them in. So unfortunately you have to put them in the court or you have to put them in a RH (radiant heater) for long. When you do that the RH is not the best when it comes to thermoregulation." (Senior resident pediatrician, 10 years-service)

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"So yes we do. Like the c-pap for preterms. Now we have c-paps for preterms but some of the parts are missing. Sometimes the c-pap is there but if you have a preterm who is in serious respiratory distress, you have to really go and look for the part and the nurse going to look for the part is almost like an hour plus for you to help. And also ventilators and monitors. All the monitors that you will use to monitor them, we don't have them. And if we have them the servicing is the issue so I believe in maintenance. Once we have it who will do the maintenance for us?" (Pediatrician specialist, 10 years-service)

The number of staff according to HCPs is woefully inadequate considering the heavy work load and the poor doctor- to- patient ratio or nurse-to- patient ratio. This hinders the staff from offering quality care to the babies. The presence of a neonatologist in addition to more nurses and pediatricians was required.

"But a few doctors on the ground in the night, I think about only 2 doctors to about 100 or 94 patients, about 4 nurses attending to all these patients. They have to feed them, change their diapers, monitor their vital signs and administer the medications for them. So you can see that one nurse cannot do all this job. It becomes very difficult to give quality care to these patients." (Senior resident pediatrician, 10 years-service)

"Errr hmm so the ideal, if you have an intensive care unit, the ideal thing is you have one nurse to two babies or three. But that doesn't happen here. In a cubicle like cubicle one, which can have… yesterday I had 18 babies. In fact, about 15 of them were all preterm babies. Some were respiratory distress and all that and there was only one nurse in there taking care of 18 babies so you can just look at the ratio. One nurse to 18 babies and cubicle one is our critical cubicle. We need a neonatologist here in this unit. There is none." (Senior resident pediatrician, 7 years-service)

"Well one thing I can say about NICU is that you can never have too many staffs in NICU right, especially with the volume of patients that we have here, you can never have too many staffs at NICU. Yes, we can do with more hands. Both nursing staff and doctors." (Pediatrician consultant, 3 years-service)

According to the respondents the unavailability of drugs makes it very difficult in caring for the babies. The shortages of drugs at the department was either due to lack of funds from the

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department or the inability of parents to replace medications given to their babies. Financial constraints also prevent parents from purchasing drugs that are needed for the care of their babies delaying the care process.

> "*…some emergency drugs sometimes get finished. They run short but when it comes to other medications that are not readily available for example the Meronem and the Vancomycin, these become very difficult to use if there is no money, readily money from the parents or the department to purchase the medications.*" *(Senior resident pediatrician, 10 years-service)*

> "*Most of them (drugs) are available and a few of them may be quiet expensive so you will expect the parents to be able to buy them. Like you are talking about Meronem, Vancomycin and co. I know plans are in place to make it more accessible so that at least if we could start it and it will be part of the bill. So that when they (babies) are ready to leave they (the parents) will pay the bill instead of having delay because they have not been able to buy.*" *(Pediatrician consultant, 3 years-service)*

> "*What we do is that we have a system where by the parents need to replace medication. So we have few drugs available so as and when you use them the parent will have to replace them. Sometimes the replacement become a problem because some cannot even afford to buy the drugs to replace them. Sometimes we do have shortages of our first line antibiotics for example and sometimes we don't even have anti-seizure medication. Is like a very big challenge.*" *(Senior resident pediatrician, 7 years-service)*

The process for carrying out lab investigations for the babies was a cumbersome one which put the mothers under a lot of stress. Parents were responsible for sending the samples to the lab and then bringing back the results. Also the unavailability of a laboratory at the NICU was a major challenge which also led to delays in carrying out lab investigations.

> "*NICU should be such that people should come in and then have their samples taken. We don't have to rely so much on parents going in for the lab of a baby who needs transfusion and until a parent shows up you cannot do that. Or a preterm needs a lab to be taken, mothers have to come for a request, walk to the lab, brings you a bottle, you take it, mother takes it back and they have to chase (the lab results), all these stuff. Meanwhile in a well-organized system, parents don't have to do all these errands. Because these are parents*

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who may have stress from having a preterm child so if you have to put this burden on them then it becomes an issue so that is some of the challenges we face." *(Senior resident pediatrician, 7 years-service)*

"*So for us here, babies are referred from the labour ward usually when mother is still at the labour ward, daddy is yet to be around, and when they (babies) come in you need to do investigations and there is nobody to even take the samples away to the lab. We do not have an in- house laboratory so that is a major problem for us.*" *(Senior resident pediatrician, 10 years-service)*

One participant recounted that another challenge they encountered during the care for preterm babies had to do with the delay in parents settling their babies' bills after they had been discharged. This led to overcrowding at the NICU.

"*….at times you have already discharged the patient and the parents have not been able to settle the bill, crowding the whole ward.*" *(Pediatrician consultant, 3 years-service)*

Getting parents to understand the condition of their babies and then cooperating with HCPs to keep their babies on admission at NICU was sometimes challenging. Pediatricians however did their best to make the parents understand the need for their babies to remain on admission.

"When people have preterm deliveries then they become stressed, you need to carry them along. So actually letting a parent understand things enough to be patient till the child goes back home can be challenging. With the babies on admission, sometimes after a few days they (mothers) want to go home. They don't understand why the child is on admission so they tell you, doctor I have been here for a month. They need to understand that you are here for a month because your child requires admission." (Senior resident pediatrician, 10 years-service)

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Getting the milk or feed that works for preterms is very challenging because they tend to develop problems with their abdomen and intestines after feeding. This therefore makes it very difficult for them to gain weight. More so predicting the outcome after feeding is uncertain, according to pediatricians.

> *".... we don't have the best milk to feed them and it becomes difficult feeding them because using the formula sometimes is challenging because they tend to develop problems in their intestines like the necrotizing enterocolitis so we go back and forth to feed the baby. You feed the baby at a point and you feel you are doing well. The next time you come the baby's abdomen has extended and you have to stop feeding and you have to wait." (Senior resident pediatrician, 10 years-service)*

> *"The most difficult aspect is when you have a baby you are taking care of and you think this preterm is doing well and an hour or two you come and they (nurses) tell you that this baby can't take the food again. The baby is vomiting and the abdomen is like a nec, (necrotizing entercolitis). So when it comes to that you become so depressed considering all that you've done. The baby was doing well and suddenly this baby is not doing well so I think when it gets to that stage it is so depressing." (Pediatrician specialist, 10 years-service)*

> *".... optimizing their feeding and making sure they gain weight while they are here, for me that is the challenging aspect." (Pediatrician consultant, 3 years-service)*

According to HCPs the tiny state of preterms makes the setting of their lines very difficult because of their delicate skin which tissues after several attempts are made in trying to set a line Furthermore controlling sepsis or infections among them is also difficult.

> "*Well for me the most difficult aspect has to do with sepsis, controlling of infection in them." (Pediatrician consultant, 3 years-service)*

> *"...and difficult lines like because they are very tinny, we set the line and it will tissue so we keep on setting. Sometimes that one will also go over and infection will come in." (Pediatrician specialist, 10 years-service)*

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> *"Sometimes even assessing their IV lines for medication becomes very difficult especially those who have stayed there for a very long time, it becomes difficult." (Senior resident pediatricians, 10 years-service)*

Another issue which made the management of preterm babies difficult was lab results not reflecting the current condition of the baby. This left pediatricians in a fix not knowing what to do because the lab investigations could not be relied on to make the right decision in treating an ill baby.

> *"Problems with the investigations not really tallying with what you are seeing in front of you. Like doing a blood culture which turns out negative yet the child in front of you is ill so you don't know what to do. You know you have to treat this child but you don't have enough help as far as the investigation is concerned to be able to take the right decisions." (Senior resident pediatricians, 7 years-service)*

The HCPs found it very difficult to meet the expectations of parents concerning the positive outcomes for their babies, especially for the extremely preterm ones. This made counselling difficult since parents wanted to hear a positive response.

> *"Managing the parents and managing their expectations can also be very challenging for us especially with the extreme preterms." (Senior resident pediatricians, 7 years-service)*
>
> *"So I think is difficult to counsel them because nobody wants to hear anything that is not positive enough. Everybody wants a good story." (Consultant obstetrics & gynaecologist, 10 years-service)*

4.7 Challenges faced by women during preterm delivery and care

The women who participated in the study were able to recount the challenges they faced concerning obstetric care offered to them. In addition, they narrated the experiences they had while getting their preterm babies admitted in the NICU.

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4.7.1 Challenges women with PTB encountered with regards to obstetric care

According to the women the challenging aspects of the care they received included delayed C/S, shortage of running water on the wards and the invasion of mosquitoes on the wards. The participants also stated that although they came in as emergencies they had to wait for long hours before they were operated upon. Some recounted that they run out of breath after having to wait for a long time.

> *"But when I went to theatre, they didn't give me any drug. I laid there for a long time and I was even running out of breath so I asked them whether they were not going to send me for the C/S because they brought me in as emergency. So I thought as an emergency by 1 or 2 hours they should have been able to take the baby out. Looking at from 10 am to 8: 30 (pm) is far apart." (Married, 38 years)*
>
> *"They made me lie down for long. I came in the morning and was operated upon around 10 something (pm)." (Married, 32 years)*

Shortage of running water on the wards made it difficult for the patients to use the washroom. Some women complained about water shortages since the day of their admission. Those who had C/S found it challenging to lift buckets of water for use because they were heavy. More so, this was strenuous for such women.

> *"Oh, the only challenging thing here is water, their pipe, ahaa. There are times when it will be off the whole day. If you've had C/S, you can't lift the bucket or heavy things. You find it difficult apart from that everything is fine." (Married, 30 years)*
>
> *"We were having water shortage when I came here. Since I came is only today that we are having water. Using the washroom was a bit difficult." (Married, 31 years)*

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The invasion of mosquitoes on the wards made it difficult for the women to sleep. This was even worse for those who had high blood pressure because the condition in itself made it difficult for

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them to sleep. Such women suggested that they should be discharged once their blood pressures returned to normal after taking the medications.

> *"Oh! The problems, so many. There are so many mosquitoes here and you can't sleep. They say you have Bp and you also cannot sleep so ask yourself how am I going to sleep? If you need to even ponder over certain issues to help with your health the mosquitoes are too many. If they can, after giving you medications when they realize that it (Bp) has come down they should allow you to go home yes." (Single, 27 years)*

The women said they were pressured to leave their rooms for another one without prior notice. They were shouted at, snapped at and in some instance ignored when they complained about the pains they were experiencing while certain procedures were being carried out on them. In addition, some midwives carried out procedures without seeking the consent of the women.

> *"Only today, just today. I think the nurse was changing our room. She said that was the staff room or so. You wanted to change our room. I wasn't in. I had gone to see the baby. When I got back they were giving us so much pressure and I had just come in and the doctor hadn't even seen me. She shouted at us to hurry up and that she was going somewhere. She was talking too much and the way she was behaving was not proper." (Married, 26 years)*

> *"Oh you will definitely get someone who will shout at you but she (nurse) won't shout at you like you are a child but when you ask her a question she will feel upset. When you ask her a question she will snap at you in a way." (Cohabiting, 28 years)*

> *"… but some of them (midwives) will just come and perform whatever has been assigned to them to do without asking for your permission. For instance, when she was coming to administer the drip, I told her I had already been given one at this hand and the place was swollen so she should insert the drip on the other hand instead but she didn't listen even though I was explaining." (Single, 22 years)*

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According to the women they were denied respectful care and made to sleep on the floor with their babies because they had not yet settled their medical bills. Furthermore, some of the women were worried their babies could get pneumonia and other conditions as a result of them lying on the

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floor. Failure to settle medical bills also attracted scolding from midwives in addition to some women not being allowed to even use the chairs in the ward.

> *"Those who have delivered and have been discharged but do not have any money to pay for their bills are lying on the floor. You know when the child is lying on the floor, pneumonia and other things. They should see to that for us because some might not have any money." (Married, 35 years)*

> *"I was discharged last week so I have been sleeping on the bed so when the madam (midwife) came today she came to scold me. She came to take the chair I was sitting on. For someone who has had an operation, she asked me to go and sit on the stairs so because of that am having waist pains." (Married, 33 years)*

4.7.2 Mothers' challenges with neonatal intensive care admission

Mothers had to wait long hours at the lab for their babies' lab results. Some also complained about the lab tests being too many. Moreover, going to visit the babies at NICU was challenging for those who had C/S because they had to walk a farther distance than was expected.

> *"It took long because they (lab technicians) said I couldn't get the results [of the baby's lab]. So I pleaded with them and told them I had been operated on so I couldn't go and come back so I had to sit. So I really kept long. I got there at 4(pm) but when I was leaving it was around 7(pm)." (Married, 37 years)*

> *"I have had C/S and having to walk up and down is very difficult for me. When the baby is on admission the labs and all that are a lot which makes the cost very high. You will be given a new lab test for the baby every day you go and visit. May be you have to go and take a scan and all that." (Married, 38 years)*

Narratives from the mothers revealed that the NHIS only gave minimal coverage for labs and drugs for their preterm babies. This was evident when they were required to pay a NICU admission fee of 405 Ghana cedis even for those who had health insurance. According to the mothers they had to pay for the expensive labs and drugs out-of-pocket as well.

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"Just the things that are not expensive. That is what the NHIS will cover." (Married, 31 years)

"Yes am paying 405 (cedis) for the baby's admission at NICU after receiving support from insurance." (Married, 31 years)

"Here in Korle-Bu, I said earlier on that the highest amount NHIS covers is 10 cedis. Even with that they will still ask you to pay another 10 cedis. Apart from that, insurance does not cover the rest. You have to go and do it (lab) outside." (Married, 38 years)

4.8 Recommendations by health care professionals

Medical professionals recommended the need for them to acquire more knowledge in the management of preterm delivery and preterm care. They also called for education of the general public concerning preterm birth and also the need to have a preterm team which is made is up of obstetricians, neonatologist and midwives who only specialize in preterm delivery and care.

"We should be very vigilant when we are taking care of people like that. We should broaden our scope. That is, we should know more, like we should learn more about this preterm labour, preterm babies and stuff like that. That way when you are well equipped you have the knowledge, you know what to do once you meet somebody with that case like a woman in preterm labour or a preterm baby, you know what to do." (Staff midwife, 4 years-service)

"Yes I think doctors will have to take the lead in educating the public about the fact that there is what we call preterm labour. If you are pregnant there is the possibility that you can deliver before your time, way before your time. Am sure there are a lot of people in Ghana who don't know that and like I said earlier, when it happens you have a whole lot of superstitious beliefs attached to this. So education is the first thing." (Resident obstetrician & gynaecologist, 6 months-service)

"Then on our part too, the preterm team; team of doctors that specialize in preterm and then neonatologist so that when we have this team, when we have a preterm, we just call this team together with their nurses. I believe they can receive these children better than leaving them to the general pool. So we need to form the preterm team that will help us improve. We will have a better outcome if we form the preterm team." (Consultant obstetrician & gynaecologist, 20 years-service)

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Medical professionals recommended that more well equipped ultra-modern NICU facilities need to be built at both the regional and district level to relieve people of the burden of having to travel long distances to seek health care for their preterm babies. Respondents also recounted that it was about time for Ghana to ensure the survival of preterm babies from 28 weeks and below. A wider NHIS coverage for all labs and medications was recommended for better outcomes.

> *"Hmm government should resource more facilities in the regions to take care of premature babies. People are referred from Volta region; I mean very faraway places because there is no facility to take care of preterm babies and this adds to the stress. People are referred from Techiman to Accra. They have no relations here. How to eat, where to sleep is a problem so at least if regional hospitals could have well-resourced NICU facilities I think it could help and also if many district hospitals have incubators and so on it will help." (Senior resident obstetrician & gynaecologist, 16 years-service)*

> *"I think they also need to strengthen our NICU services ok. Because for a very long time now babies at 28 weeks in Ghana do not survive and it use to be like that worldwide but in some part of the world they have been able to improve their technology to the extent that babies at 20 weeks are surviving, but we are virtually stuck at 28 weeks." (Resident obstetrician & gynaecologist, 3 years-service)*

> *"I think with the government, when it comes to the NHIS, I think they have to consider a lot of things. With the bills they should really make sure that the labs everything is covered for them and their drugs, even the ones that are very expensive that insurance doesn't cover they should be able to do part payment for them." (Midwifery officer, 10 years-service)*

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CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This study aimed to assess the quality of service delivery that is available for preterm birth and care at Korle-Bu Teaching Hospital. This chapter therefore discusses the findings of the study within the context of the four objectives outlined, and in comparison with other related studies carried out globally.

5.2 Socio-demographic characteristics of respondents

In this study among the health care professionals it was discovered that there were more midwives (62.5%) compared to obstetricians (25%) and pediatricians (12.5%). This is similar to the studied population in a study carried out in South Sudan where 33.3% were midwives, 5.6% were gynecologists and 5.6% were pediatricians (Mugo et al., 2018). Ideally there are more midwives/nurses than obstetricians and pediatricians in maternal and newborn care. This is because the job description of midwives/nurses require round the clock care of patients which includes monitoring, administering medications, checking vital signs, helping patients bath, changing diapers of babies among many others. In addition, the training of midwives/nurses takes a shorter time and is less expensive compared to that of doctors. There were also more female (77.5%) than male (22.5%) respondents among the healthcare professionals in this study with similar proportions being reported in several studies (Mahwasane, 2018; Mugo et al., 2018; Sumankuuro et al., 2018).

Among the women who experienced preterm delivery in this study, majority were between the ages of 20-39 years. The dominance of women within this age group was reported by Nnebue et

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al. (2014) and Emelumadu et al. (2014) in their studies. Women within this age group are more fertile compared to those above 39 years. Garcia et al. (2018) reported that the most fertile age for a woman is between 20-25 years. Furthermore, most women who were interviewed in this study had no history of preterm delivery (93.3%), were of the Christian faith (96.4%) and had attained secondary school level of education (80%). These social demographics were also found in studies carried out in Malawi and Nigeria (Nnebue et al., 2014; Kambala et al., 2015).

5.3 Service delivery for preterm birth and care

The care for women presenting with preterm delivery includes education on PTB, the emergency treatment of the condition, assessment to confirm the condition, and the attempt to abort contractions if possible. In cases where contractions cannot be aborted, dexamethasone, magnesium sulphate and antibiotics are administered. The care process then proceeds with monitoring of the mother and the fetal heart rate, counselling and liaising with NICU prior to the delivery. On the other hand, the care process for preterm babies includes resuscitation, checking of weight and blood sugar, and thermoregulation with kangaroo mother care. Administering of oxygen, IV fluids, antibiotics and phototherapy are also carried out.

In this study women were educated on preterm birth during their antenatal visits by the midwives. According to Renkert and Nutbeam (2001) maternal health literacy can be defined as the cognitive and social skills which determine the motivation and ability of women to gain access to, understand, and use information in ways that promote and maintain their health and that of their children. Antenatal classes are used as avenues to improve maternal health literacy. Educating the women on preterm birth will not only raise awareness of the condition but could prepare the women psychologically, emotionally and financially ahead of time in case they experience it. Secondly, knowledge about the condition could influence their early health seeking behaviour,

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improve their compliance to treatment and avert further complications (Olenja, 2003; Adams, 2010). In their study, Dyson et al. (1991) discovered that a significantly lower rate of PTB (before 36 weeks) occurred among women at high risk for preterm delivery who were enrolled in an educational program to identify preterm labour symptoms as compared to those who were not enrolled. Since health education is a health intervention (Nutbeam, 2000) , it will impact positively on the service delivery of the facility because the patients, as well as the health care professionals, will be able to achieve the desired health outcome.

Preterm delivery requires quick intervention by health care professionals to guarantee a good outcome. In the case of KBTH this condition is treated as an emergency once the case arrives. The woman is assessed to confirm the stage of her labour and if possible an attempt is made to abort the contractions by giving her tocolytics. Administering of tocolytics is part of the WHO recommendation for the management of preterm birth. Stopping the contractions will allow the fetus more time to mature in the uterus thereby increasing the chance of survival. On the other hand, some clinical conditions like abruptio and chorioamnionitis require that delivery should not be delayed since this will rather yield a bad outcome which will be harmful to the fetus (Romero et al., 2006; Simhan & Caritis, 2007). According to HCPs at KBTH tocolytics were also given to slow down contractions in some instances to allow other medications which will protect the fetus from neonatal risks associated to prematurity to take effect before delivery as corroborated by (Caritis, 2005; Smith et al., 2009). In addition, tocolysis buys some time for corticosteroids to take effect while transferring the woman to a tertiary facility for delivery (Di Renzo et al., 2006; Smith et al., 2009).

Other maternal interventions such as antenatal corticosteroid therapy, administering of magnesium sulphate and antibiotics are WHO recommendations for the management of PTB and these were

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carried out in the hospital. Healthcare professionals gave the women dexamethasone to help with the maturation of the fetal lungs to increase the babies' chances of being born without respiratory difficulty. Researchers have discovered that giving women who were at ongoing risk of PTB repeat prenatal corticosteroids reduced the chances of their neonates needing respiratory support after birth (Crowther et al., 2019). Magnesium sulphate was given to prevent the women from getting seizures and also to help with neuronal development of the unborn babies. Sheath and Chalmers (2002) came to the conclusion that magnesium sulphate could prevent and control eclamptic seizures. It also reduced the risk of a woman who had pre-eclampsia from developing eclampsia by half and in addition reduced the risk of maternal mortality (Duley et al., 2010). In the case of neuronal protection, investigators discovered that the rate of moderate to severe cerebral palsy was significantly lower in neonates whose mothers were treated with magnesium sulphate (Rouse et al., 2008; Conde-Agudelo & Romero, 2009). In this study, HCPs gave antibiotics to women who had ruptured membranes not only to prevent them from getting any infection, but also from passing it on to their unborn babies. This has been confirmed by several studies included in a systematic review (Kenyon et al., 2013).

Monitoring the labour for a woman delivering preterm is very crucial. Health workers at KBTH use the CTG machine in monitoring. This machine produces the partograph and also allows the fetal heart to be checked. Monitoring continues until the woman delivers. Evidence from a systematic review confirmed that the partograph is associated with improved perinatal outcomes and recommended its use in low middle income settings (Housseine et al., 2018).

Having PTB is unexpected and throws the woman in a state of uncertainty coupled with fear and anxiety. Findings from Payot et al. (2007) revealed that when faced with the possibility of delivering extremely preterm babies, majority of parents were full of grief, distressed and felt

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powerless. The HCPs at KBTH therefore ensure that the woman is counselled and reassured about the care available for her and her unborn baby. Counselling to some extent allays fear and anxiety which makes the woman hopeful and willing to comply. In the event that the anticipated outcome is going to be negative, the woman is also counselled and presented with the various options and allowed to make an informed decision. Some researchers believe that providing parents with accurate and consistent information when it comes to preterm delivery is very important (Royal College of Obstetricians & Gynaecologists, 2014). Not withholding information from the patient even in the event of a bad outcome makes the care process a transparent one which will be more appreciated by the patient. This will in a way help with the patient's recovery over her loss as revealed by other studies (Scheibler et al., 2003; Suh & Lee, 2010; Caeymaex et al., 2013).

The care process for a woman having PTB is a multidisciplinary one which requires consultation and communication between the obstetrics team and the neonatal team. In this study HCPs from the maternity inform those at NICU about the delivery of a preterm prior to delivery. In some instances, pediatricians are present at the labour ward during delivery so that they can start with the care of the preterm baby right after birth. In instances where there is no pediatrician present, the midwives begin with the initial care which involves resuscitation and keeping the baby warm before transferring to NICU for further management. Such team work is more likely to guarantee a better outcome. Some researchers are of the notion that collaborations between several specialties when it comes to preterm delivery promotes consistency and adherence to the care plan (Royal College of Obstetricians & Gynaecologists, 2014).

According to the health workers in this study the difficult aspect in the management of women with PTB was retained placenta. Endler et al. (2014) reported that the risk of retained placenta was increased for women with spontaneous preterm birth and the risk increased further for women with

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preterm small for gestational age. Failure to abort the contraction was another difficulty health workers in this study faced during the management of women with preterm birth. This finding is in agreement with results from a study carried out by Goldenberg (2002).

The WHO recommendation for the care of preterm babies includes: resuscitation, thermoregulation, checking of weight and sugar level, oxygen therapy, administering of antibiotics and phototherapy (WHO, 2015b). All these were carried out by HCPs at KBTH. Resuscitation is carried out on babies who need it right after delivery at the labour ward. It is estimated that resuscitation can prevent 10% of preterm deaths within the first 28 days of the baby's life (Wall et al., 2009). Since babies born before term cannot regulate their body temperature, keeping them warm is an important aspect of their care. They are kept in the incubator or radiant warmers for thermoregulation and the opportunity is given to mothers to carry out kangaroo mother care. Besides keeping their babies warm, KMC promotes bonding and also gives the mothers hands on experience on how to handle their tiny neonates. It has also been proven that KMC reduces maternal postpartum depression and enhances infant physiological stability (Nyqvist et al., 2010). Oxygen therapy was given to those who needed it while phototherapy was offered for those with jaundice. Preterm babies don't tend to feed properly at the beginning so IV fluids are given until they are able to feed on their own.

Finding the right formula that worked for preterms was very challenging because they set off responding well to feeding and then tend to react or develop necrotizing enterocolitis. Controlling infection was another difficult aspect in their management. More so, as a result of their thin skin setting of lines was challenging. There were reports of occasions where lab results did not reflect the current condition of the baby, for instance, the incidence of a very ill baby whose blood culture was negative. This put pediatricians in a very difficult position because they couldn't rely on the

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results of the lab investigations to make a decision. Having a lab solely for NICU with skillful expertise and liaising with another lab for a second opinion might help resolve this challenge.

5.4 Service delivery compliance with WHO framework

With regards to service delivery in line with WHO guidelines, evidence-based practices for routine care and management of complications, and competent human resources were domains that were well executed at the hospital. Actionable information system, effective communication, respect and preservation of dignity and emotional support were fairly implemented. Motivated human resources, essential physical resources available and functional referral system were however poorly implemented.

On the whole, evidence-based practices for routine care and management of complications for newborns and mother was sufficiently implemented in the hospital. There were protocols pasted on the walls to guide health professionals on what to do with regards to a particular complication. Graham et al. (2015) revealed that doctors hardly consulted guidelines in clinical settings although they found the guidelines to be very important. This was because they did not want to be perceived as being less knowledgeable by patients if they were seen consulting guidelines while working. However, in the same study doctors and midwives used clinical guidelines more often when they were available as wall charts.

Accessing patients' data received mixed responses from HCPs. There were those who said data on patients were not readily available referring to instances of missing folders and poor recording of information. On the other hand, some thought otherwise referring to the patients' folders as the source for data. Poor records keeping which included missing folders and failure to record time from diagnosis to treatment were reported by studies carried out in Nigeria (Kalu & Umeora, 2011;

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Lawani et al., 2013). Computerizing all the information in a data base will resolve the issue of missing folders and missing pages in the folder. This way proper diagnosis could be made based on up-to-date information. Researchers have revealed that 83% of medical records of patients diagnosis could be retrieved using a computerized information retrieval system (Biron et al., 2014).

Currently, the existing referral system is poor. A lot of effort is needed to get a referral to KBTH and in some cases there is the need to depend on a prior personal relationship to get referred. In addition, some referring facilities failed to call ahead of time before bringing their cases. Poorly managed obstetrics emergencies before referrals and delays from general practitioners and unregulated medical providers like those who run traditional maternity homes, faith clinics and churches contributed to adverse obstetric outcomes (Osaikhuwuomwan & Ande, 2011; Ande et al., 2012). Ambulances were also not readily available for transferring cases outside the facility. Lack of transport especially at night, poor transportation between health facilities and inefficient ambulance services were reported by several studies as factors that contribute to delayed referrals (Omo-Aghoja et al., 2010; Adeoye et al., 2013). There should be a proper functional referral system which allows effective communication between the referring facility and the receiving facility.

There were also mixed findings for effective communication between HCPs and patients. There were those who said the patients understood whatever they told them. On the other hand, HCPs' inability to speak the patient's local dialect was a barrier which could delay the care process because the patient might not comply due to lack of understanding. More so getting a history from such a patient will be challenging. A past study conducted to determine the quality of antenatal care in Ghana revealed that pleasant interactions with providers was significantly associated with good quality of care (Atinga & Baku, 2013).

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Patients were fairly treated with respect and dignity according to HCPs. The women however gave reports of disrespectful care such as being snapped at, shouted at and ignored. Those who couldn't settle their bills after discharge were treated without dignity as they were denied the right to sleep on the bed and made to sleep on the floor. Considering the overwhelming number of cases that are received by the maternity, including cases that are referred without prior notice to the facility, women who are yet to settle their bills after discharge are asked to vacate their beds for new patients. HCPs explained that some of these new patients are brought in critical conditions and cannot be cared for on the floor. The pressure on HCPs who are already outnumbered by existing patients, with more coming in as emergencies does not provide room for them to be polite sometimes. Heavy work load has been reported to account for negative attitudes and behaviours of health workers (Mannava et al., 2015). Additionally, the labour ward on the first floor did not provide laboring women with privacy because they were lying next to each other without blinds. Privacy during consultation has been associated with good quality of care (Atinga & Baku, 2013).

Due to the heavy work load, HCPs were not able to offer emotional support to the women as they ought to and the services of clinical psychologists were requested on some occasions. Poor attention to patients was associated to heavy work load of health care providers by a study in Nigeria (Ogu et al., 2017).

According to HCPs, they had the requisite skills and were very competent in caring for patients. However, they were demotivated by the lack of the availability of essential physical resources. Lack of running water, soap for handwashing, drinking water and the unavailability of equipment made the whole environment unconducive for good practice. Their only motivation was having to safely deliver a mother of a healthy baby. Evidence from several studies have revealed that lack of potable water, electricity, poor working environment, no building to operate from and lack of

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equipment demotivated health workers (Hsia et al., 2012; Essendi et al., 2015; Nguyen et al., 2017).

5.5 Challenges that health care professionals face when it comes to service delivery for preterm birth and care

Health care professionals are faced with several challenges in the care and management of women with preterm delivery, and their babies. Challenges ranged from unavailability of instruments, poor staff strength and delays with the transportation of babies to NICU. In addition, the distressed emotional disposition of women, illiteracy and financial constraints on the part of the women were also encountered. Health care professionals responsible for the care of preterm babies also had their share of challenges which include lack of equipment, poor staff strength, unavailability of drugs, delays with lab investigations and overcrowding at the NICU. Health workers at NICU were also faced with some difficulties in the management of the babies because of their preterm state. These difficulties were problems with feeding, difficulty in setting lines and dealing with infections.

KBTH is the largest referral tertiary hospital in Ghana receiving cases from all the regions in the nation. The hospital is faced with having to deal with overwhelming number of patients. Poor staff strength is one of the major challenges that HCPs faced during the care of women with PTB and the care of preterm babies. During the care of the women, some health workers have to work for 24 hours in some instances because they lack the adequate number of staff for an effective shift system. Women with PTB need to be monitored during labour till they deliver. Inadequate staff to patient ratio will make it difficult for proper monitoring which will affect the quality of care. In the NICU, the numbers were also woefully inadequate with few nurses having to feed, change the diapers, check the vital signs and administer medications to a lot of babies. Considering the fact

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that preterm babies also require constant monitoring, 2 pediatricians to about 94 or 100 babies is insufficient to achieve the best of care. Similarly, a study in South Africa revealed that poor staff strength did not allow constant monitoring of neonates because HCPs could not spend enough time on one baby to pick up any changes or complications that might have set in (Mahwasane, 2018).

The unavailability of instruments is a major challenge in the care of women with PTB and preterm babies. Both cases require monitoring however the hospital has not got enough CTG machines and monitors at NICU making monitoring substandard and thus impeding on the quality of care. In instances where some of these equipment were available, the missing parts rendered them unfit for use. In addition, those that were faulty could not function up to standard. For instance, the faulty incubators were reduced to only keeping the preterms warm although there were other functions they could perform. Pediatricians resorted to putting babies under the radiant heater as a substitute for incubator care because incubators were not available. Putting pressure on the limited equipment contributed to them breaking down easily reducing their availability further as it took a long time for broken down equipment to be fixed. Substandard care has been attributed to the unavailability of equipment by investigators (Nyamtema et al., 2012; Moxon et al., 2015). Health care professionals also spent time which they could have used to take care of patients looking for missing parts of equipment or moving from one ward to the next to get basic consumables. Furnishing the maternity and NICU with more equipment and putting in place a good maintenance culture will improve upon the quality of care tremendously. HCPs will also have more time at hand to take care of patients. Lack of running water, soap, sanitizers and disinfectants for cleaning the equipment also came up as challenges. The availability of these are crucial for preventing the spread of infections especially at the NICU since preterm babies are prone to infections. Several studies have also attributed difficulties in infection control to the unavailability of infection control

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items such as hand gloves, disinfectants and facilities for handwashing including potable water and soap (Nguyen et al., 2017; Mugo et al., 2018; Sumankuuro et al., 2018).

Financial constraint was a major barrier to the delivery of quality of care with some patient even refusing to be admitted due to lack of funds. Patients not having enough money to buy the medications and run lab investigations delayed the care process which complicated their condition and that of their babies. Despite the enrollment of all pregnant women on the National Health Insurance Scheme in Ghana (Odeyemi & Nixon, 2013), findings from participants in this study revealed that a larger proportion of the medical bills were paid out-of-pocket. More so parents' inability to replace the drugs which were given to their babies contributed to the shortage of drugs at the NICU. In addition, failure of parents in settling the medical bill at the NICU also contributes to overcrowding when such families are detained. A recent study carried out to determine parental costs for in-patient neonatal services in Ghana reported that although mothers had insurance, 66% of the medical bill was out-of-pocket payment (Enweronu-Laryea et al., 2018). Families abandoning women at the hospital due to lack of funds does not only affect their care but also their psychological well- being because they become depressed and feel unwanted. This in turn could negatively affect how they relate with their preterm babies. The NHIS should have a wider coverage for pregnant women and babies to help alleviate the cost of having a preterm baby.

The distressed emotional disposition of the women was also a barrier to their care because they were non-compliant in their emotional state even though they received counselling from HCPs. This made it very difficult for the HCPs to offer them the required care. Significant association between antenatal depression and spontaneous preterm birth was reported by (Dayan et al., 2006) More support from family and clinical psychologists should be made available to encourage these women during the process.

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Although antenatal classes are organized by the hospital, some women were not complaint with the HCPs when it came to their care because of their low educational status. This could lead to them not attending the classes or not understanding what was taught during the educational sessions. On the other hand, others were superstitious and only heeded to the instructions from their pastors even if it meant refusing care at the hospital. These were barriers to receiving appropriate care at the health care facility. Dako- Gyeke et al. (2013) in their study revealed that in some instances pregnant women were kept in prayer camps or churches throughout their entire period of pregnancy until delivery. This was to offer pregnant women spiritual protection. A decision commonly expressed by care providers and the pregnant women.

Transporting preterm babies from labour ward to NICU should be done without delay because of the delicate condition of the babies. However, at KBTH there were delays with the transportation because either the elevators were broken down or delayed in coming because so many people were waiting to use the elevator. Midwives had to run while carrying the babies up the stairs which exposes the baby to potential trauma or fatality in the event of a fall.

Shortage of drugs at NICU also impedes the care of neonates. There were shortages of Meronem, Vancomycin and anti-seizure medications. This was attributed to lack of funds from the department to purchase the drugs. In addition, parents who could not replace those given to their babies also contributed to the shortages. Delays in the administering of these drugs could further complicate the condition of the neonates. It has been proven that early treatment of sepsis which includes the initiation of timely antibiotics therapy results in improved outcomes. However, delays may result in the disease rapidly progressing to organ failure, shock and death among neonates (Plunkett & Tong, 2015). All medications for the care of preterm babies should be made accessible and covered for by the NHIS as recommended by (Gondwe, 2018).

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The whole process of running lab investigation for preterm babies was very cumbersome besides the delays in receiving the results. Samples can only be sent to the lab by the parents or relatives so in instances where mothers have had C/S and were at the recovery and relatives were yet to visit the labs could not be run. The NICU is also faced with the challenge of not having an inside laboratory. All samples have to be sent to the central lab which deals with a huge number of samples from the entire hospital. Delays in lab investigations could also delay the care and hence complicate the condition. Mochama et al. (2020) in their study in a teaching and referral hospital in South Kenya, revealed that the inability to access laboratory results immediately was a challenge nurses who cared for preterm babies faced. Also in the same study the hospital had only one laboratory that served all the departments. Lab technicians being able to pick up samples from the NICU and then return with the results will help facilitate care of the newborns, as will a well-equipped laboratory constructed solely for the NICU.

5.6 Challenges experienced by women with preterm birth with regards to care provided to them

The women who experienced preterm delivery were faced with delays in C/S, lack of running water and invasion of mosquitoes in the wards. They also experienced rude attitudes and mistreatment from health workers. In addition, the women were faced with the stress of getting their babies' labs run and this was especially inconvenient for those who had undergone C/S. The NHIS coverage for their babies NICU stay was minimal thus adding to their financial burden.

Delays in carrying out C/S were reported by the women as they had to wait for long hours to be operated upon. These delays could introduce other complications and also result in bad outcomes for the babies. Researchers revealed that delays in conducting C/S in Nigerian tertiary hospitals were attributed to lack of anaesthetic drugs and skilled anaesthetists (Ozumba & Nwogu-Ikojo,

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2008; Omo-Aghoja et al., 2010). Equipping the referring facilities within the periphery with ultra-modern theatres and NICU, coupled with skilled expertise will ease the pressure on KBTH since the facility has only two theatres. Omo-Aghoja et al. (2010) in their study reported that delays in carrying out C/S were due to insufficient availability of operating theatres. There were complaints of the wards not being conducive for patients' stay. According to the women the wards had swarms of mosquitoes and this made it very difficult for them to sleep especially at night. The women also recounted shortages of running water in the ward making it very difficult for them to use the washrooms. Moreover, those who have had C/S found it very challenging since they could not carry buckets of water into the washrooms. Shortages of water in health facilities was also reported in Northern Ghana. Expectant and postnatal mothers were required to draw water for nurses whenever they sought care at the health facilities (Sumankuuro et al., 2018).

There were also instances of mistreatment that were reported by the women. They were snapped at, shouted at and ignored when they complained about pains with the setting of the lines. Those who could not settle their bills were denied the right to lie on the bed or sit on the chair in the ward. Mistreatment is a violation of their fundamental human right and can lead to some women refusing to seek facility based delivery or care during pregnancy as reported by many others (Bower & Hill, 2010; McMahon et al., 2014; Maya et al., 2018).

5.7 Health care professionals' recommendations

HCPs recommended the need for them to be abreast with current knowledge in the management of PTB and care as in the case of several others (Ashton et al., 2009; Horvath et al., 2017) . They also called for a preterm team made up of the various specialties who will be solely responsible for preterm delivery and care of preterm babies. According to them public education of preterm

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delivery cannot be over emphasized. Similarly, public education on preterm birth was recommended by other studies (Ashton et al., 2009; Horvath et al., 2017)

In addition, health workers also emphasized the need for the nation to ensure the survival of preterm babies from 28 weeks and below since it is achievable. A decade ago worldwide estimates of preterm birth rates revealed that 90% of babies born before 28 weeks of gestation survive in high income countries (Blencowe et al., 2012).

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CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

Based on the findings from the study with regards to the quality of service delivery for preterm birth and care from the perspectives of health care professionals and women who experienced preterm birth, the researcher summarizes the key points and proffers some recommendations which are presented in this chapter.

6.2 Conclusion

The quality of service delivery for preterm birth and care at Korle-Bu Teaching Hospital leaves room for improvement. Health system related challenges such as lack of essential physical resources, staff shortages and a poor referral system were barriers to provision of good quality service for preterm birth and care. The lack of essential physical resources led to delays in the care process. In addition, health care professionals had no option in some instances than to resort to suboptimal care such as replacing incubator care with radiant warmers as in the case of the preterm babies. Staff shortages resulted to improper monitoring of both women experiencing PTB and preterm babies. Furthermore, healthcare professionals were overworked with some having to work on a 24-hour shift because they lacked the adequate number of staff. A poor referral system resulted to overwhelming number of patients at the maternity unit. Women with PTB who needed to be operated on had to wait for long hours. Hospital policies such as parents or relatives being solely responsible for sending lab samples of their preterm babies to the lab delayed the care process which further complicated their babies conditions. Detaining patients who could not settle medical bills caused overcrowding at both the maternity ward and NICU. Being detained at the maternity attracted some forms of mistreatment from some members of staff. On the other hand,

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babies who were well could end up picking some infections at NICU due to overcrowding. These factors above contributed to most of the non-compliance with the World Health Organization framework for quality maternal and newborn care.

Patient related challenges such as financial constraint and lack of education were also identified as impediments to good quality care. Financial constraints caused delays in running lab investigations as well as in the purchase of medications for preterm birth and care. Lack of education resulted to non-compliance to treatment from patients. Improving upon the health system related challenges and patient related challenges will in turn improve the quality of service delivery for preterm birth and care.

6.3 Recommendations

Based on the findings from the study the following recommendations are proposed for consideration at the various levels of action.

6.3.1 Health facility level

1. The management of KBTH should provide the health workers at the maternity and neonatal intensive care unit with all the needed equipment and supplies to aid their work. In addition, amenities such as water and electricity should be available at all times.
2. Ghana Health Service should ensure that health facilities at the district and community levels have enough staff strength in addition to well-equipped maternity and NICU facilities to ease the pressure on the tertiary facilities.

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6.3.2 Ministry of Health level

1. Ministry of Health should recruit more health workers to the maternity and neonatal intensive care unit of KBTH to reduce the heavy work load on the existing staff.
2. The emergency lines at the tertiary facilities should have trained personnels standing by to receive incoming calls and offer prompt responses on a 24- hour basis. Ministry of Health should purchase more ambulances for transportation and the NHIS coverage needs to be extended to ambulance transportation for patients. Instituting these measures will strengthen the referral system.

6.3.3 Health policy level

1. Ministry of Health should revise the hospital policies to allow lab investigations to be carried out for preterm infants with ease. A flexible payment plan should be put in place to prevent the detention of patients who are not able to settle their hospital bills.
2. The NHIS should extend its coverage for expensive drugs and lab tests for patients.
3. A nationwide education programme on preterm delivery should be embarked on by the Ghana Health Service.

.

6.4 Strengths and limitations of the study

The study was carried out in the largest tertiary referral hospital in the country which receives cases across the different regions. The qualitative design allowed obstetricians, midwives and pediatricians to share their experiences in caring for women with PTB as well as caring for preterm babies. In addition, the design also allowed the women to share their experiences about the care they received.

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The study was carried out in one facility in one region of the country. Findings therefore cannot be generalized to the entire country. The use of one interviewer could have introduced some form of bias during the interviews. Triangulation was not employed since only one source of data collection method (in-depth-interviews) was used throughout. However, to mitigate the second and third limitations the assumptions and beliefs of the researcher about the service delivery for preterm birth and care at the facility were reflected upon and this ensured that personal biases were not introduced into the study. In addition, the researcher ensured that there were prolonged engagement with the respondents during data collection. Transcripts of the interviews were returned to the participants to confirm the accuracy of the recorded interviews. Finally, members of the research team reviewed and assessed the transcripts, emerging themes from the transcripts and the final report.

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APPENDICES

APPENDIX 1: INTERVIEW GUIDE FOR MIDWIVES AND OBSTETRICIANS

1. What is your position here?
2. How long have you worked in maternity care?
3. Do have you have maternal class here? If yes when? If no, why not?
4. Are the women usually educated on preterm birth/prematurity issues? What exactly do you tell them?
5. Could you describe your daily responsibilities and activities in taking care of pregnant women?
6. Could you describe the care process for women presenting with preterm birth starting from the moment of admission until discharge?
7. Can you share your experiences in providing care for women with preterm birth?
8. In your opinion do women with preterm birth need special clinical management?
9. What specific challenges or problems do you encounter during the care of women with preterm birth?
10. Availability of equipment? Are there enough instruments/equipment?
11. Staff strength – Are there enough doctors/ specialist? Is the specialist available all the time? Are there enough doctors, nurses/midwives/ lab technicians/ pharmacists?
12. Are drugs for managing preterm labour/births available?
13. Does the NHIS cover for all these drugs?
14. Is the care of women with preterm expensive? Please explain.
15. What is the most difficult aspect regarding the management of women with preterm labour/birth?
16. What recommendations do you suggest to help improve the quality of care of women with preterm birth? What should HCPs do? What should the government do? What should family members do?

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17. What do you think may have prevented you from or are difficulties in providing good quality care?

18. The world health organization has a framework for quality of maternal and newborn care and identifies 8 domains. So what I will do is I will run you through the 8 domains and for each one you tell me whether it has been sufficiently implemented here in Korle-bu. If it has how? If it hasn't as to why not?

    a. Evidence based practices for routine care and management of complications.

    b. Actionable information systems. (Are medical information on patients easily accessible?)

    c. Functional referral systems (Is the hospital prepared to receive referral cases/ Are cases referred from here?)

    d. Effective communication. (Is the staff able to convey information to the patients for them to understand?)

    e. Respect and preservation of dignity. (verbal/physical/emotional abuse, discrimination, privacy for patients)

    f. Emotional support. (Does the staff get time to offer emotional support, support from family)

    g. Competent motivated human resources.

    h. Essential physical resources available.

19. Which of these domains do you prioritize? Why?

APPENDIX 2: INTERVIEW GUIDE FOR PEDIATRICIANS

1. What is your position here?
2. How long have you worked in pediatric care?
3. Could you describe your daily responsibilities and activities at NICU?
4. What are some of the cases that are presented at the NICU?
5. Could you describe the care process for preterm babies starting from the moment of admission until discharge?

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6. Can you share your experiences in providing care for preterm babies?
7. What specific challenges or problems do you encounter during the care of preterm babies?
8. Availability of equipment? Are there enough instruments/equipment?
9. Staff strength – Are there enough doctors/ specialist/nurses? Is the specialist available all the time?
10. Are there drugs available? Are these drugs readily available?
11. Does the NHIS cover for the medications?
12. Does the NHIS cover the lab tests for the babies?
13. What is the most difficult aspect in the management of preterm babies?
14. Do you offer emotional support to the mothers? How?
15. Do they receive enough information concerning their babies conditions at NICU?
16. Is there any financial support for poor mothers who have their babies at NICU?
17. Are there cases of abandoned babies at NICU? If yes, how does the hospital handle such cases?
18. What recommendations do you suggest to help improve the quality of care of preterm babies? What should the doctors /nurses do? What should the government do? What should family members do?
19. What do you think may have prevented you from or are difficulties in providing good quality care?
20. The world health organization has a framework for quality of maternal and newborn care and identifies 8 domains. So what I will do is I will run you through the 8 domains and for each one you tell me whether it has been sufficiently implemented here in Korle-bu. If it has how? If it hasn't as to why not?
    a. Evidence based practices for routine care and management of complications.
    b. Actionable information systems. (Are medical information on patients easily accessible?)

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c. Functional referral systems (Is the hospital prepared to receive referral cases/ Are cases referred from here?)

d. Effective communication. (Is the staff able to convey information to the patients for them to understand?)

e. Respect and preservation of dignity (verbal/physical/emotional abuse, discrimination, privacy for patients)

f. Emotional support. (Does the staff get time to offer emotional support, support from family)

g. Competent motivated human resources.

h. Essential physical resources available.

21. Which of these domains do you prioritize? Why?

APPENDIX 3: INTERVIEW GUIDE FOR WOMEN

1. Can you tell me something about your pregnancy from the time you got pregnant to the time you came to Korle Bu?
2. Did you have any problems/complications during this pregnancy?
3. In your opinion, do you think the time you delivered was normal or you think your delivery has occurred too early. Can you explain this point?
4. Can you mention you some of the causes of preterm birth?
5. What complications of preterm birth do you know of?
6. How long did you have to wait before you were attended to?
7. Can you describe what happened after you got here?
8. Were you told what was wrong with you?
9. Did you receive any explanation as to why you had to deliver your baby preterm?
10. Did you attend antenatal? If yes, where? If no, why not?
11. Do you know of pregnancy school/ maternal class?
12. Did you attend any of the maternal classes?

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13. What topics were you educated on?
14. Were you educated on preterm birth?
15. Do you think education on preterm birth is important? If yes, why?
16. How did your admission here affect you and your family?
17. How would you describe the interaction you had with the doctors/nurses?
18. Did they seek your consent before carrying out any procedure e.g. checking vitals, injections etc.?
19. Are you registered under NHIS?
20. Did insurance cover your medications?
21. Did insurance cover your labs?
22. Is your baby at NICU?
23. How do you feel about your baby being there?
24. Do you breastfeed your baby or is your baby on artificial milk?
25. Do you know how much it cost having a baby at NICU?
26. Does the NHIS cover this cost?
27. Did you receive any emotional support from the hospital after the death of your baby?
28. What is the most difficult aspect of the care you received here?
29. Did you experience any disrespectful care, e.g. verbal abuse like shouting at you, physical abuse?
30. What challenges did you experience when you were on admission?
31. In future would you prefer to be cared for here or elsewhere? Why?
32. Do you have any recommendations (to the doctors, nurses, administrators) to improve the quality of care of women who present with similar conditions? What should the doctors do? What should the nurses do? What should the government do? What should family members do?
33. Do you think something could have been done to prevent the preterm birth you have experienced?

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APPENDIX 4: CODEBOOK FOR HEALTH CARE PROFESSIONALS IDIs

CODE	DESCRIPTION	DEFINITION	EXAMPLE OF PROPER USE
ANC_Describe	Description of antenatal care	This is a description of all that goes on at the ANC	Mention of services rendered at the ANC by health care professionals to patients R: Antenatal clinic, err is a clinic for pregnant women, during this time we educate them about what to expect during the pregnancy, about the problems that can arise during the pregnancy and the need for us to treat it early. So we encourage them to come regularly so we can fix problems, we treat inter current diseases. If there is anemia, if there is any infection.
ANC_Duration	Duration at antenatal	The length of time the women spend at the ANC	Use when the HCP gives an account of the duration of the entire ANC process that the women have to go through. R: As for the how long that will be very subjective. Sometimes it can be quite short sometimes too it can be a bit long depending on the situation available at the time but usually for the

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			normal antenatal clinic, I think that will depend on when the woman came because there is a queue. So, when the woman will see the doctor will depend on when she came or her number according to the queue that will depend.
ANC_Edu	Antenatal education	This includes all forms of education (maternal classes or pregnancy school) received by the women.	Use at the mention of accounts of maternal health/pregnancy education (whether as a group or one-on-one) offered to the woman at ANC clinics by HCPs. R: On high Bp, DM (diabetes mellitus) mothers in pregnancy, preterm, sickle cell patients, a whole lot.
ANC_Edu_Res	Response to antenatal education	The response of the women to antenatal education	This includes the turnout of the women and the various representation of the women as in whether illiterates, semi-educated or literates at the educational sessions. R: Errm they come, in their numbers because considering that Korle-Bu is a tertiary institution and its population, we see to so many people and all that, at least more pregnant women will come back but the turnout (respondent shaking her

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			head as not encouraging) is not really encouraging.
ANC_Edu_PTB	Antenatal education on preterm birth (PTB)	Antenatal education on preterm birth or prematurity.	Use when there is mention of PTB or prematurity education or not. R: Err prematurity issue, not much, a little of education. I will say is not much but err I don't think the emphasis is there. In general prematurity is not taken out as a subject they treat there. I don't think they do that. May be they have to put it as a subject and treat at the antenatal clinic. I don't think they do that enough.
Responsibility	Responsibility	This a description of the daily responsibilities of the HCP	Mention of the daily responsibilities and activities of the HCPs at the hospital**.** R: Coming to work? (I: yes). I make sure the equipment or items we need to work with is all available. Those that are not functioning we see our in-charges to make sure they are functioning. That is what we do. We make sure that in case we have an emergency, someone to deliver, we make sure that the things are set to do the delivery.

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PTB_Care_Pro	Care process of PTB	This is a description of the care process for women presenting with PTB	This includes the care process of women with PTB starting from the moment of admission until discharge R: So let's say the patient comes with premature rupture of membranes, is one of the causes of preterm birth. So we admit them to the ward, put them on antibiotics, give them steroids to mature the lungs and we hope that they will reach 34 completed weeks by which the lungs would have matured and then there is a reasonable chance of the baby coming out without respiratory difficulty. So sometimes we are not going to turn 34 weeks after the membranes have ruptured, they go on and have labour. When they are in labour, we send them to the labour ward, they are monitored on the partograph and these days we have CTG so they are put on the CTG as well. They are managed in labour as normal people. Nothing done over and above. The usual labour care so is the normal labour. So if labour is not progressing and there is the need for C-section, is done. If is progressing

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			well, they allow the normal vaginal delivery to take place and when the baby is delivered, the baby is hurried up to NICU. That is the only thing we do differently once the baby is delivered, is preterm, the weight is below 2.5 we hurry the baby to the neonatal intensive care unit. There to have an assessment and then take it from there. Err you know, it weighs if you have neonatologists on board. One of the things we've talked about and as at now, there is some move, they coming over to come and see to those high risk. Preterm is high risk. The babies turn to be not so strong unlike the term babies so we would have wished that we have neonatologist attending to every preterm birth but they attend to some but not all of them.
Care_Pro_Baby	Care process of preterm baby	This is a description of the care process for preterm babies.	This includes the care process of preterm babies starting from the moment of admission until discharge. R: Well it depends on the reason why they were admitted like I said If the baby, there are a few preterm babies that are not quite small in terms of weight, so they will

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			not need incubator care. May be they came in because they were breathing fast and all they need is really oxygen. For those that have respiratory distress syndrome, they will need oxygen, sometimes they will need antibiotics if they have infection. Those that are very small usually less than 1.5kg when they come in and they are not able to maintain their body temperature, at times they will have to go into an incubator. The incubator care is not for everybody. So incubator care, antibiotics, IV fluids because most of them can't feed at the beginning so you have to give them drips to help them until they are ready to feed. For those that developed jaundice whether at the time they came or later on, you have to put them under phototherapy. So is a whole range. What the baby gets depends on what problems the baby has.
EXP_PTB_Care	Experience in the care of women with PTB	Experiences by the HCPs in the care of women with PTB	Use when the HCP gives an account of his/her experience in providing care for women with PTB.

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			R: Yes, they do comply with everything but the issue is like as you are taking care of them they tell you “am not term so why are you delivering”? So we explain to them that pregnancy has a different course so is not their fault so when baby is coming you have no ways and means to say baby shouldn’t come. So yours is to do a skillful delivery then educate the mother after the delivery. Then reassure her. She has to get some assurance because some people they come with tension. They think they wouldn’t get the baby. Even after delivery they do ask “oh are you sure this baby will survive”? What we say is that most at times female babies survive more than males because we say that the testes have not descended into the scrotum so when the testes have not descended into the scrotum they feel much pain so most of them tend to die with that. And if the baby too is wet, hypothermia and other things could also set in. Most females survive because for them they don’t have testes or anything of that sort. Yours is to put them into

			the incubator, give them fluid and assess them from time to time. The rate of the female surviving is more than that of the male.
EXP_Baby_Care	Experience in the care of preterm babies	Experiences by the HCP in the care of preterm babies.	Use when the HCP gives an account of his/her experience in providing care for preterm babies. R: They are usually so many but the typical ones are usually the very tinny ones. Initially when they come in, the real problem will be because they are small and you want to keep an eye on them. So you set a line, give them IV fluids, put them in an incubator, start them on antibiotics whiles you investigate. So once you get your investigation results and there is nothing to show that they have an infection, you stop the antibiotics and hopefully you can translate them from IV fluids to breast milk. Either the mother feeding them directly or expressing breastmilk and feeding with cup and spoon. Once you have translated to that and the baby has gained the birth weight you can discharge. The main problem we

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			usually have is, we have challenges with doing investigations so we are not really able to decide on time with the help of the whether the baby is infected or not so we end up giving antibiotics when we shouldn't because the parents cannot afford to even buy medications for those that need it and it prolongs the baby's stay at NICU.
EDU_PTB_Enou	Enough education on PTB	The general public's knowledge with regards to PTB	This includes the HCP's opinion as to whether the general public is knowledgeable about PTB. R: Am not sure there is enough education out there. As am saying preterm delivery is most of the time emergency. Me at least I know that in November there is preterm week or days that are set aside for preterm but errr during those days we do a lot of advocacy for the premature babies and all that. So that is done for the past few years we've been doing that. So we educate the mothers and every now and then people go on air, on the screen may be in the social media you see people advocating for preterm and all that so yes

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			something is done but am not sure we are doing enough on that aspect.
HCP_Int	Health care professional's interaction	The HCP's interaction with other HCPs	This includes how the HCP relates with other health care professionals at the hospital. R: Cooperative, we do cooperative very well. Is like we are brother and sisters over here. We work hand in hand. There is nothing like subordinate or your maid or whatever. We work hand in hand and if you have any difficulty, you approach the other person and the person helps you out.
PTB_Spe_Man	Special management of PTB	The opinion of the HCP as to whether women with PTB need special clinical management	This includes the HCPs opinion as to whether or not women with PTB need special clinical management including their reasons. R: Yeah I think so. Preterm labour err I think we need to see if we can prevent the preterm birth as much as possible. Those who have had a previous history of preterm birth, since that issue can repeat itself, we single them out. We put up some measures to see if we can actually prevent the preterm delivery. That is one thing. So if we can look for the risk factors to

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			prevent those ones. Then during the preterm labour, you know if Korle-Bu here, we have NICU. We should try as much as possible those who have not been 34 weeks yet, try if we can stop those contractions and if we can delay the preterm labour for about 24 hours during which we could give the steroids to mature the fetal lungs, that will also help us.
Non_Comp_Moth	Non complying mothers	The non-complying nature of mothers or parents with regards to the care of the preterm babies.	This includes cases of non-compliance on the part of the mothers or parents and how the HCPs deal with non-complying mothers or parents. R: Ok so noncompliance, so if somebody is non complaint is because maybe there was interaction between the health worker and the mother or the parents making sure that they explain things to them to make them understand what is really happening to their baby. And so, from there they can understand and of course sometimes too you talk to them and do everything you have to do and they give you the good

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			feedback but subsequently they might default. They might not comply or they might not adhere to the medication but some of the mothers, most of the time will see these babies when the mothers breast feed the baby or feed the baby and they are not feeding well. That is at NICU and most of the time when they are discharged and they are coming for follow up, that is where you might see. A baby that you think will have to be given some medication, the mother has not been giving the medication to the baby, the feeding might not be going the way you want the mothers to feed the baby. We advocate for breastfeeding but you notice that they will come and are feeding the baby with formula and all that. The baby is not thriving and all that so these are some of the problems concerning noncompliance.
Abandon_Babies_Cases	Cases of Abandoned babies.	The cases of abandoned babies at NICU.	Use when there is mention of cases of abandoned babies at NICU by HCP and how they deal with such cases. R: Yes, recently it seems to have gone down a bit but there are times that we

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			could have 5, 6 babies usually those who have congenital conditions or those teenage mothers who don't really have good family support. Is not just preterm. We have babies that are fully formed with no problem and parents abandon them. Usually we get into contact with social workers to arrange to places where they can be transported to for care.
Parents_financial_Const	Financial constraints on the part of parents	Financial constraints on the part of parents who have their babies at NICU.	This includes how HCPs deal with parents who can't afford medications or lab tests for their babies at NICU. R: Well we counsel them and see because at times they may not do it mainly because they do not understand the importance of the test. So there are instances where after counselling they become a bit forthcoming and able to do some of the investigations. There are times that we also rely on philanthropist gestures, write letters to try and get some exemptions for certain investigations or you look at the departmental forms or sometimes some

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			philanthropists will just walk in and want to help someone so whatever they donate, we tell them what we need and they deliver. At times more often than not doctors actually put hands in their pockets to contribute money to buy those antibiotics and run investigations for patients. Is not something that is uncommon and it involves doctors and consultants too.
NICU_Infomation	NICU information	Parents receiving information about their babies conditions at NICU.	Use when there is mention of HCPs informing or not informing parents about the conditions of their babies at NICU. R: I think they do. When they come the nurses are always there to give them information, the residents are also there to give them information.
Challenge_Spec	Specific challenge	The specific challenge faced by the HCP during the care of women with PTB	This includes specific challenges or problems the HCP encounters during his/her of women with PTB. R: Challenges, the fact is, you see, we know that a baby is going to come. A baby is preterm. Especially those that are below 34 weeks, the chance of survival is an

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			issue. So psychologically we tell them that we have this risk of death is there because of the respiratory syndrome that they may have and the infection that they could pick so that risk is real. So I think is difficult to counsel them because nobody wants to hear anything that is not positive enough. Everybody wants a good story.
Preterm_Spec_Chall	Preterm specific challenge	The specific challenge faced by the HCP during the care of preterm babies.	This includes specific challenges or problems the HCP encounters during his/her care for preterm babies. R: I mentioned a lot of them already. Problems with funds from the parents not been forthcoming for the investigations or getting antibiotics when due or problems with, at times you have already discharged the patient and the parents have not been able to settle the bill, crowding the whole ward. Problems with the investigations not really tallying with what you are seeing in front of you. Like doing a blood culture and is negative but the child in front of you is ill so you don't know what to do. You know you have to treat

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			this child but you don't have enough help as far as the investigation is concerned to be able to take the right decisions.
Challenge_Inst	Instrument availability challenge	Challenge with instrument availability	This includes the unavailability of instruments, limited stock or poor working conditions of instruments. R: On the labour ward I will say that some of the items are rusted and other things. So we have few items so all the rusted ones are being thrown away so it is left with few instruments for use. But we've talked to the unit head and the matrons on the ward and we hope that something positive will come out of it.
Challenge_SS	Staff strength challenge	Challenge with staff strength	This includes the unavailability of specialists or other medical staffs, poor nurse to patient ratio or poor doctor to patient ratio. R: Oh yes. We always have challenges with staff strength. The management will say they are posting a lot of staff. On the ground, we need the numbers. We don't have the numbers.
Challenge_Drug	Drug challenge	Challenge with drugs	This includes the shortage or unavailability of drugs at the pharmacy

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			or on the ward (emergency drugs) R: Most of them are available and a few of them may be quiet expensive so you will expect the parents to be able to buy them. Like you are talking about meronym, vancomycin and co. I know plans are in place to make it more accessible so that at least if we could start it and it will be part of the bill. So that when they are ready to leave they will pay the bill instead of having delay because they have not been able to buy.
NHIS_Cov_Drug	NHIS coverage of drugs	NHIS coverage of drugs	This includes full coverage, part coverage or no coverage at all of the NHIS on the drugs. R: There are some drugs that are covered by the NHIS but not all. The exact extent, I think the pharmacists will be in the best position to know the exact percent that are covered by the NHIS. It will be very wonderful if everything that is need will be covered by the NHIS.
LAB_NHIS_Cov	NHIS coverage of labs	Mode of payment of labs (NHIS coverage or out-of	This includes full coverage, part coverage or no coverage at all of the NHIS on the labs.

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		pocket payment of labs)	R: The labs too I think is about the same. The basic ones are covered by insurance. If for some reason you have to request any special lab the patient will have to pay.
Diff_PTB_Man	Difficulty in the management of PTB	Difficulty in the management of PTB	Use when there is mention of difficulty in the management of PTB by HCP. R: The delay in coming to the facility because they think they are not term. So when they are in labour, most of them think is a normal thing since they are not term and mostly those who are at home who don't come for antenatal clinic.
Preterm_Diff_Man	Difficulty in the management of preterm babies	Difficulty in the management of preterm babies	Use when there is mention of difficulty in the management of Preterm babies by HCP. R: Well for me the most difficult aspect has to do with sepsis, controlling of infection in them, optimizing their feeding and making sure they gain weight while they are here. For me that is the challenging aspect.
PTB_Com	Complications with preterm birth	The complications associated with PTB	Use when there is mention of complications associated with PTB by HCP.

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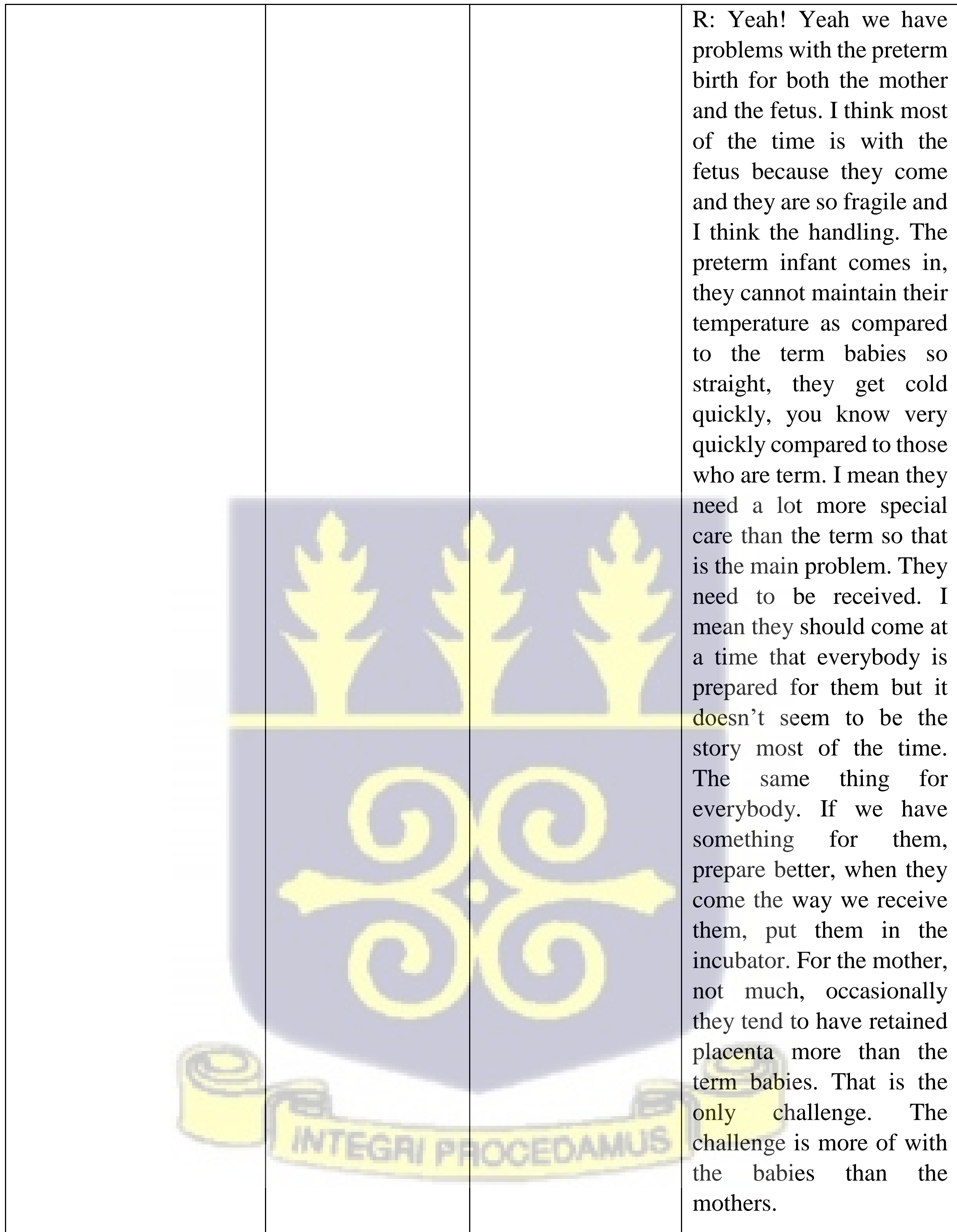

			R: Yeah! Yeah we have problems with the preterm birth for both the mother and the fetus. I think most of the time is with the fetus because they come and they are so fragile and I think the handling. The preterm infant comes in, they cannot maintain their temperature as compared to the term babies so straight, they get cold quickly, you know very quickly compared to those who are term. I mean they need a lot more special care than the term so that is the main problem. They need to be received. I mean they should come at a time that everybody is prepared for them but it doesn't seem to be the story most of the time. The same thing for everybody. If we have something for them, prepare better, when they come the way we receive them, put them in the incubator. For the mother, not much, occasionally they tend to have retained placenta more than the term babies. That is the only challenge. The challenge is more of with the babies than the mothers.

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Rec_HCP	Recommendation for health care professionals	The Recommendation for health care professionals	Use when there is mention of recommendation for HCPs that will help improve the quality of care of women with PTB. R: We should be very skillful. We should improve upon our skills a lot. I know a lot of us are doing well so that seriousness and eagerness to help protect baby and mother should be there for us so that with all these, we will have a positive outcome.
Preterm_Rec_HCP	Recommendation for health care professionals	The Recommendations for health care professionals with regards to the quality of care for preterm babies.	Use when there is mention of recommendation for HCPs that will help improve the quality of care of preterm babies. R: For preterm I think first of all, we ourselves should be knowledgeable enough to care for preterm babies and I think that I shouldn't end with the pediatricians. I think that specialized services are required. We shouldn't end as pediatricians. We need to train ourselves to get neonatologists on board in this unit. So that is one, and then with the ongoing medical education as well because

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			things change all the time. So we need to update ourselves in terms of knowledge and skills to take care of our preterm babies.
Rec_Gov	Recommendation for government	The recommendation for government.	Use when there is mention of recommendation for the government that will help improve the quality of care of women with PTB. R: There should be more education everywhere, in churches, the media, hospitals, wherever they find themselves. More education on it.
Preterm_Rec_Gov	Recommendation for government	The Recommendations for government with regards to the quality of care for preterm babies.	Use when there is mention of recommendation for the government that will help improve the quality of care of preterm babies. R: A lot of things I have said ball down to like money issues. If they could, the NHIS seems to like woefully, whatever it covers is not just adequate at all. So if they could, I mean improve the coverage of our NHIS for our preterm babies, lab investigation, buying of drugs and the staff, paying of their bills, that will go a long way to improve upon their care. And then boosting the

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			infrastructure. This place should take about 40 babies but here we are, sometimes we are filled to the brim and overflowing. This place sometimes takes 120 babies. I mean how can a 40-bed take 120 babies. Sometimes we are really, really overstretched so expansion, they should help with the training of the human resource that is here. They should provide equipment that we need. I think one of the things that this unit needs is a bigger KMC room, the kangaroo mother care room. So we need a place where we can nurse the relatively stable preterms out of the sick area.
Rec_Fam	Recommendation for family	Recommendation for family	Use when there is mention of recommendation for the family that will help improve the quality of care of women with PTB. R: There is something called birth preparedness and complication readiness. So the onus is on family members and even the community to play a key role in birth preparedness. Preterm is more like a complication. So if you are complication ready then

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			you can easily bring, once you identify with the person you can bring the person to the hospital. But if you don't know anything about how do you appreciate what is going on? So family members can also play a role and sometimes the infections, the urinary tract infection, they are some of the causes so if care of the pregnant woman is optimal in the house they may not develop some of these infections.
Preterm_Rec_Fam	Recommendation for family	The Recommendations for family with regards to the quality of care for preterm babies.	Use when there is mention of recommendation for the family that will help improve the quality of care of preterm babies. R: And families to give enough support as possible. Sometimes, I remember having a mother whose baby was on admission for a long time and she came to me wanting to be discharged because they are saying in the family that her baby is dead and she does not want to say it. So I think that if we educate people then they will be able to support.

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Important_Asp_Treat	Important aspect of treatment	The important aspect of treatment.	This includes the aspect(s) of treatment that the HCP finds important. R: Aspect of how I treat patients… well I think not the medical care itself, medical care is important but most patients want things to be explained to them better than we are doing now. There is a gap. They want things to be explained to them better than we are doing now. Spend a little more time to let them know all that is at stake. I think they want more explanation about the situation so I think this is one of the things that we need to do more than we are doing now.
Qual_Care_Good	Good quality care	Provision of good quality care by HCP	This includes the HCP's opinion about when he/she feels he/she has provided good quality care. R: Well quality is determined by the receivers. When the outcome is good the patients are happy. They are going home, then that is when I feel oh we've provided quality. Occasionally, we've had a bad outcome but the relatives or the patients still acknowledge our work that oh you have done your best. That is

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			also when we feel we've provided good quality care even though we had a bad outcome. Once in a while you have this so you know you've done your best. You know you have done your best and is the patients who when they make those comments, you know you have provided. And when there is a good outcome, mama is going home with the baby, she is happy, they come to postnatal clinic, everybody is happy, you feel that you've also provided good quality care
Qual_Care_Poor	Poor quality care	Provision of poor-quality care by HCP	This includes the HCP's opinion about when he/she feels he/she has provided poor quality care. R: When a pregnant woman's FH has not been checked and the woman is on the ward and turns to lose her baby. When the woman is on the ward and all of a sudden you see that the woman went to the labour ward and the outcome of the delivery, the baby dead or baby macerated. "When was baby dead"? In-utero that we had the macerated still birth? Is something that I keep wondering. What

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			happened? Still am yet to find out. That means as we were checking, we were checking maternal pulse not FH, the fetal heart rate. Is rather the maternal pulse so I know that when the doctor sends the woman to take scans and we turn to know that baby is alive or not and all this thing wouldn't have happened.
Qual_Care_Prev	Prevent good quality care	Impediments to the provision of good quality care	Use when there is mention of any impediments to the provision of good quality care. R: Like human resource, most at times we just run 2 nurses or 2 midwives to about 50 patients and that is a whole lot. Because going up and down, we are human, you may break down. You are checking FH, is not like you are sitting down. We give fluids, we check VE (vaginal examination), we check vitals, we go up and down until the next day. At night, is a 12 -hour duty so is a whole lot of staff so I know that if the human resource, if we turn to get a lot of more personnels to work, it will help us.

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Chall_Surg	Challenges during surgery	Challenges during surgery	Use when there is mention of challenges during surgery for women with PTB. R: Yeah. For those that need cesarean sections, yes there are challenges associated like the lower uterine section is not well formed. Especially those that need C-section for some reasons like transverse lie or breach presentation. The lower section is mostly for, so during surgery is more difficult to handle, to deliver the baby than the term people. There is also a little more bleeding because you tend to be cutting through a little bit of the upper segment which tend to bleed more than the normal. So there are challenges at delivery and then especially if it is a transverse lie or the breach, you see that the babies are small and you are handling them. So if you are delivering them by breach extraction, they are small and handling them, you know.
Chall_SVD	SVD challenges	Challenges with SVD	Use when there is mention of challenges with SVD for women HDP. R: Is the same challenge, they been given a special

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			care because they need, the moment, they shouldn't feel cold. What am saying is that, babies generally when they come we should quickly wrap them. They need warmth. The preterm people cannot tolerate any temperature issues. We really need to have people ready to deliver them and protect them but we don't really have.
Man_Diff_Cases	Management of difficult cases	The management of difficult cases.	This includes the management of difficult cases such as renal failure or any case the doctor will refer to as difficult with regards to the mother. R: It depends on what is happening. Some difficult cases require multi-disciplinary team like you mentioned if somebody has a renal failure and is preterm, we need to look at the renal function, get the physician also involved so that he can manage that. So is just getting the other specialties to get involved.
PTB_Expen	Expensive PTB	The expensive care of women with PTB.	This includes the opinion of the HCPs are to whether PTB is expensive or not.

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			R: I should think so. Is expensive. Is the NICU cost which is the main thing because if is premature rupture of membranes, you are coming to stay in the hospital for some time until such a time that you go into labour or at such a time that you reach 34 weeks such that we deliver you. Already, you are coming to stay in the hospital for some weeks plus the cost then your baby goes to NICU. NICU has its own cost so is expensive compared to other people. If your baby spends about one month in NICU, you are going to pay huge bills.
Domain_EBP	Domain evidence-based practices for routine care and management of complications	Evidence-based practices for routine care and management of complications	Use when there is mention of how evidence-based practices for routine care and management of complications has been sufficiently implemented or not in the hospital. R: I will say to some extent. To some extent evidence-based practice is what we are practicing here ha-ha because some time ago we came out with the package for cord care. Previously, we were using this chlorophyll but

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			now they stopped it. WHO recommendation is what we are doing now.
Domain_AIS	Domain actionable information systems	Actionable information systems.	Use when there is mention of how actionable information systems has been sufficiently implemented or not in the hospital. R: I don't think is that optimal because there are times that you cannot find the folder occasionally. So maybe if we computerize the system which corrects that situation then maybe that will be a thing of the past.
Domain_FRS	Domain functional referral system	Functional referral system	Use when there is mention of how functional referral system has been sufficiently implemented or not in the hospital. R: Well they usually call but most times majority of our patients are from Korle-bu. Most times they call. There is a limit to, I think is 20-48 hours after birth if you have not been immunized. So is not just every baby who can come to NICU. So if you meet the admission criteria and there is available bed

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			space then you can be admitted.
Domain_EC	Domain effective communication	Effective communication	Use when there is mention of how effective communication has been sufficiently implemented or not in the hospital. R: Am not sure we are doing well with that regard. Some of the patients don't understand what we are saying because maybe we are not communicating effectively. You've asked somebody to come for admission at this time and the person didn't understand. She didn't know. In terms of communication we have a lot to do. They don't understand us.
Domain_Res	Domain respect and preservation of dignity	Respect and preservation of dignity	Use when there is mention of how respect and preservation of dignity has been sufficiently implemented or not in the hospital. R: Definitely the answer will be, for all, I will say no ha-ha. We try. There is still more room for improvement because judging from what the patients say, some of them will tell you that you have

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			not showed them enough respect. Am talking generally. Personally on my own personal level, I try and show a lot of respect for the patients but I can't speak for the whole Korle-Bu environment.
Privacy	Privacy	Privacy of patients	This includes whether the pregnant women have privacy or not in the hospital. R: Privacy is also very poor especially if you come to the labour ward, look at the space where we are operating. Labour ward 1 is all-play-all. Is a big space, no privacy. Labour ward 2 is cubicles so there is some form of privacy. So the privacy, I won't give us the mark. The infrastructure must change. They should allow some space for some patients' partners or something, a partner or a relative. When you go somewhere during labour, you have a partner or a relative to stay by because patients want that kind of companionship during difficult times in their lives but we don't have the set up to allow for that kind of thing.
Abuse_Verb	Verbal abuse	Verbal abuse	Use when there is mention of instances of

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			verbal abuse from the staff to patient. R: That was what I was saying that sometimes is not like insulting the person." Do you want to kill the baby"! (respondent using a strict tone). Let me examine then you try to like ha-ha close the thighs. So where will the baby pass so you have to shout so that the person will be frightened and then open the legs but we are not abusing. "You are squatting; can't you see that the baby will fall on the bed pan"? (respondent using a strict tone) so something like that. You try to threaten them a bit so that the person will get up and climb on the bed. Other than that if you keep quiet and you don't say something, the head of the baby will be on the floor so sometime we try to "huna womu style bi" (scare them in a way) but the assault and abuse no.
Abuse_Phy	Physical abuse	Physical abuse	Use when there is mention of instances of physical abuse from the staff to patient. R: Ok I have heard of some but I haven't seen

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			some here. I have heard that some misbehave so you have to part the legs but I haven't seen. I have heard.
Domain_ES	Domain emotional support	Emotional support	Use when there is mention of how emotional support has been sufficiently implemented or not in the hospital. R: I don't think so. I don't think we have time. Occasionally we do that but is low because most of the time we are busy. With the clinical psychologists coming on board, they can do that because most of the time people are busy. The few that we do, those are very bad outcomes that we go and talk to them. We are not doing it as well as we ought to.
Avail_Psy	Availability of psychologist	Availability of psychologist	This includes the availability or non-availability of clinical psychologist in the hospital. R: Yes. Is like when they come, they tend to go. I don't know whether they are rotating or whatever. We use to have somebody posted to the ward so if we get somebody who didn't

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			have the baby or IUFD (intrauterine fetal death) or delivered and the baby died, we call them and they talk to them and other things.
Domain_CHR	Domain competent human resource	Competent human resource	Use when there is mention of competent HCPs in the hospital. R: I will say yes we have competent staff.
Domain_MHR	Domain motivated human resource	Motivated human resource	This includes all forms of motivation such as self, monetary, acknowledgment of good work etc. R: Oh I don't think we have motivated staff here. A lot of them are demotivated.
Mot_Forms	Forms of motivation	This includes ways by which the HCPs can be motivated by the hospital.	Use when there is mention of ways by which the HCPs can be motivated by the hospital. R: A lot of things. I think one of them is, recognition. People are burnt out because they are not recognized you see. Occasionally some staff have worked so hard. They have saved some patients lives. Nobody even recognizes it so they cannot continue the, when someone has done something, and is recognized the person is stimulated to do more.

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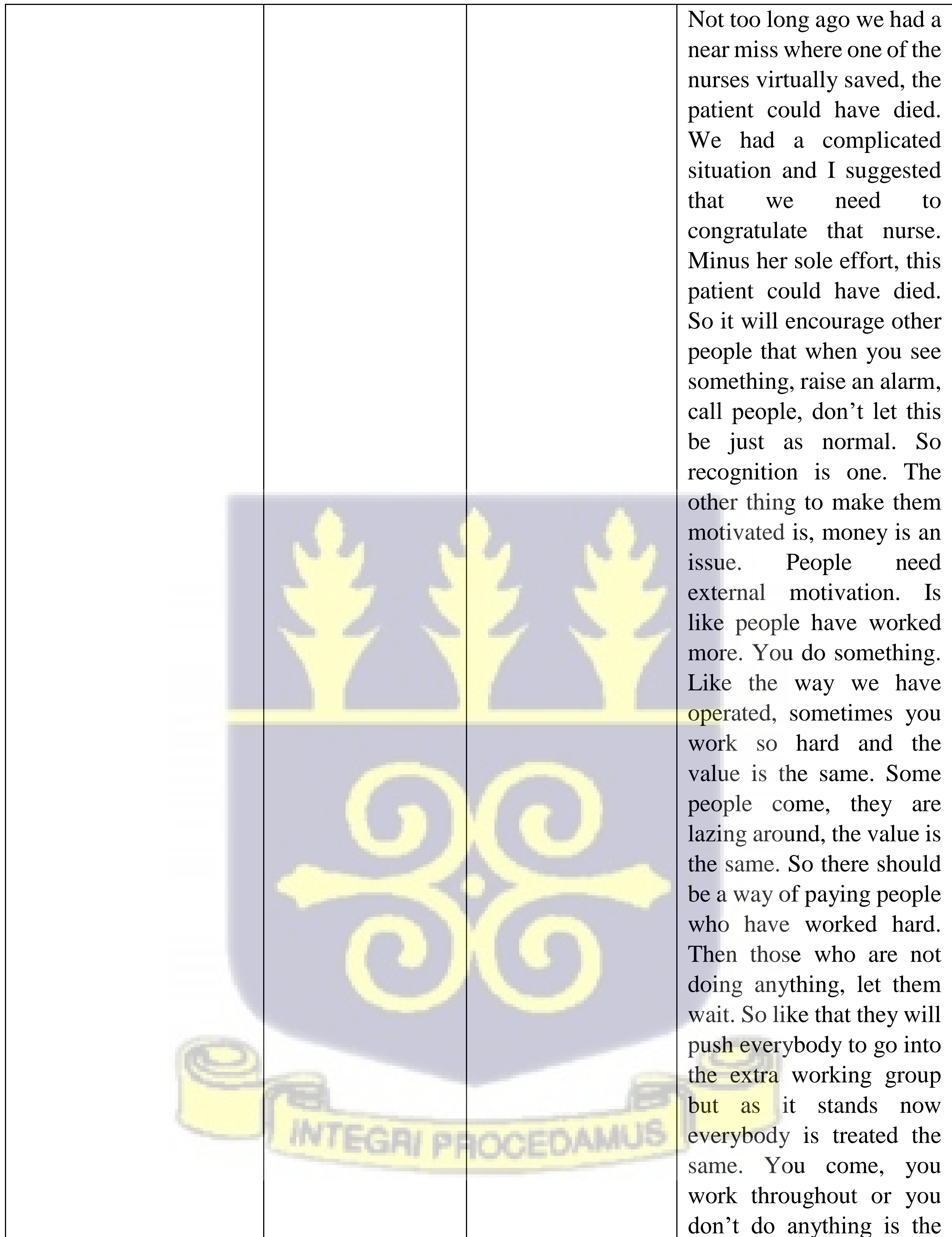

			Not too long ago we had a near miss where one of the nurses virtually saved, the patient could have died. We had a complicated situation and I suggested that we need to congratulate that nurse. Minus her sole effort, this patient could have died. So it will encourage other people that when you see something, raise an alarm, call people, don't let this be just as normal. So recognition is one. The other thing to make them motivated is, money is an issue. People need external motivation. Is like people have worked more. You do something. Like the way we have operated, sometimes you work so hard and the value is the same. Some people come, they are lazing around, the value is the same. So there should be a way of paying people who have worked hard. Then those who are not doing anything, let them wait. So like that they will push everybody to go into the extra working group but as it stands now everybody is treated the same. You come, you work throughout or you don't do anything is the

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			same. No recognition, no extra allowance.
Domain_EPR	Domain essential physical resources available	Essential physical resources available	Use when there is mention of how essential physical resources has been sufficiently implemented or not in the hospital. R: We don't have all the logistics. Even the theatres, we don't have enough theatres for the load that we pick, we don't have enough. Yes, the staff, we in obs and gyne the numbers are fine but when it comes to let's say some of the nursing staff, scrub nurses, anesthetists, other people who will help you, they will tell you "is only me who has come for night", that kind of thing. "We are only two today", is annoying. They should work on it. They should make sure they provide us with the category of staff to work well. I still think we need more training devices.
Domain_Prior	Priority of domain	Prioritized domain by HCP	This includes the domain(s) which the HCP will like to prioritize and the reason for doing so. R: I think that the essential physical resources because this place we need the physical resources, we need more

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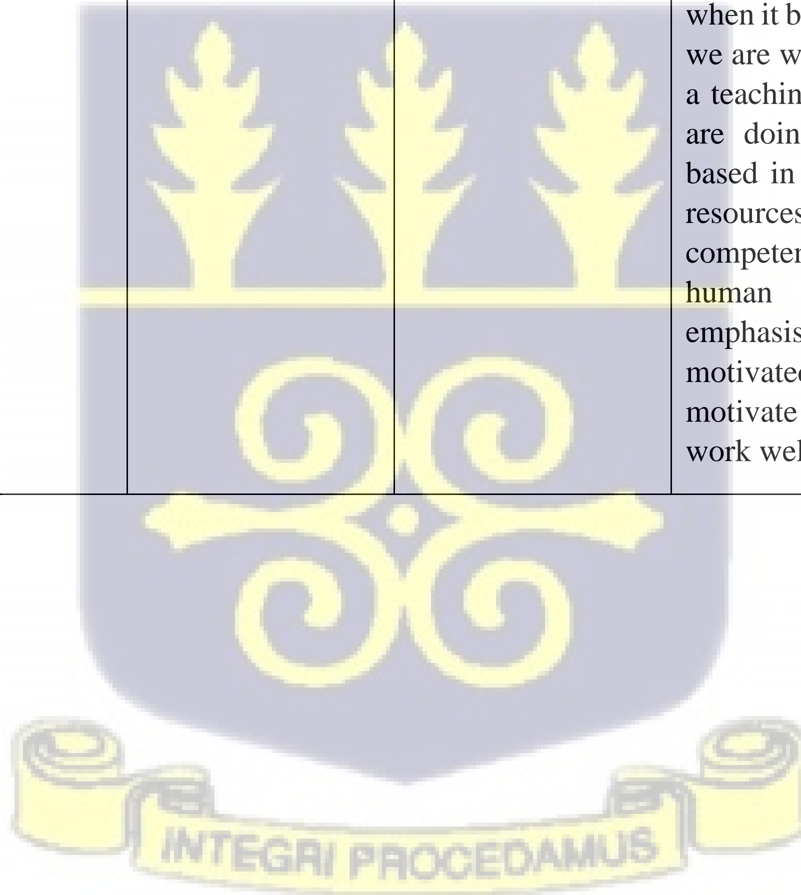
			theatres, we need an intensive care, we need HDU, we need the NICU to be well equipped with ventilators, that is one. Then before we talk about the competent motivated human resources. So we need a motivated, there should be a way we can design to motivate because our staff are burnt out. So motivated human resource ahaa. Before, as for evidence-based practices for routine care, when it becomes available we are working on it. It is a teaching hospital so we are doing the evidence-based in Ghana. Physical resources available, competent motivated human resources. My emphasis is on the motivated. Let us motivate our people to work well.



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APPENDIX 5: CODE BOOK FOR WOMEN'S IDIs

CODE	DESCRIPTION	DEFINITION	EXAMPLE OF PROPER USE
Exp_W_Preg	Pregnancy experience of women	Experiences that recount whether the pregnancy was wanted or not	Use when the participant mentions if her pregnancy was planned or unwanted, and events that surround the realization of her condition. R: Oh when I discovered I was pregnant, I was a bit surprised but I was happy because I have advanced in age and don't have any child and now pregnant.
Exp_W_Preg Comp	Pregnancy experience of women with complications	Complications or problems that were pregnancy-related	Use when participants mention any complications or problems that arose while they were pregnant. R: I wasn't thinking about anything but I don't know why anytime I reported my Bp was high. But one thing I observed was that during the night I could not sleep unless I go and shower before I could sleep. So anytime I went for antenatal, I complained and during the night too I urinated frequently. So one of the nurses told me not to drink too much water so that I wouldn't have to wake up at night because when I wake up, that contributes to me not being able to sleep at night. My head also ached a lot and I had to pour water on my head over and over again in addition to me taking paracetamol.
Exp_W_Preg Chall	Challenges experienced by	Socio-economic challenges faced by the	Use when challenges mentioned include financial, marital, living conditions or any issue that was

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	women during pregnancy	women during their pregnancies	stressful and got the women worried. R: With my work, it got to a time when I was not getting any business coming in when I was pregnant. So that made me think a bit.
Disc_Chall	Discuss challenges	Discussion of the aforementioned challenges with a friend/family member/other	Use when the participant gives account of discussing or not discussing her challenges with other individuals. R: I hid it for too long. If not, things wouldn't have gotten to this point.
ANC_Att	Antenatal attendance	Accounts of visits paid to the ANC clinics	This includes antenatal visits at any health facility. R: At Kaneshie polyclinic but at the beginning I didn't know I was pregnant. I was experiencing stomach pains. So I visited the hospital because of that. I bought the thing (kit) for testing and when I checked, it confirmed that I was pregnant. So because I was sick I started antenatal when I wasn't even 3 months and I visited on my booked date and even when I was sick. If I don't go there, I visit a hospital close by.
ANC_Att Reg	Regular ANC attendance	Regular ANC visits	Mention of regular attendance at the ANC clinics R: I was regular.
ANC_Att Por	Poor ANC attendance	Irregular or none attendance of ANC clinics	This includes those who visited the ANC clinic occasionally and those who never visited during pregnancy. R: I went for antenatal only once.

Rea_ ANC_Att Por	Reason for poor ANC attendance	Reasons for poor ANC attendance.	Use when there is a mention of the reason why ANC attendance was poor/non-existent R: When I went the first day they asked me to go for a scan which I did. After that they prescribed some drugs for me which was 20 cedis and after buying the drugs they asked me to go and collect another paper for the scan the following week. So when I went for the paper I didn't get money for the scan the following week. I was supposed to have done some labs in addition and when I went the nurse asked me whether I was not going to do the labs. I didn't go back afterwards because I didn't have money to go and do the labs.
ANC_Edu	ANC education	This includes all forms of education (maternal classes or pregnancy school) received by the women.	Use at the mention of accounts of maternal health/pregnancy education received at ANC clinics. R: When we attend they educate us on what you have to do as a pregnant woman. Sometimes we are educated on malaria; how to protect ourselves from malaria. How to keep our surroundings clean. We shouldn't produce any stagnant water, we shouldn't leave water uncovered and they also educated us on hypertension in pregnancy. They said somebody might not have Bp but when she gets pregnant she could get Bp and that they don't know the cause of it. They are now carrying out

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			research into that. They told us that if your pressure goes up whiles pregnant, anything could happen to the baby. You could have the baby before term and you don't have to do certain things whiles pregnant. You have to take good care of yourself so that the baby can get energy to be delivered.
Exp_W_ANC	Women's ANC experience	This is a description of all that goes on during the ANC visit	Mention of services rendered during ANC visits R: When you arrive you are asked whether you are fine. What is wrong with you? You are given drugs. You will be asked whether your drugs are finished or not. How do you feel after taking the drugs? Some people react to some of the drugs so when you are given paracetamol and the you still experience headache after taking it, you will be stopped from taking the paracetamol. Like when I said I was given the malaria drug and I reacted so they stopped. From there your blood is checked (interruptions from the background) and then you are taken to the room and the baby is examined.
Exp_W_ANC Pos	Positive experiences of women during ANC	Experiences that participants were satisfied with during ANC.	Mention of aspects of the service delivery that the participants were pleased with. R: As soon as you go you are told if you need something then is given to you as in take. May be you are told to eat something and if there is something wrong with you, they will give you medicine.

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			They do very well. They do very well. They take good care of people. The nurses also have time for people. They do very well.
Exp_W_ANC Neg	Negative experiences of women during ANC	Experiences the women were not satisfied with during their ANC visits.	Mention of aspects of the service delivery that the participants were not pleased with. R: When you are asked to report, they will take care of you but they scold you sometimes. Go here! Do this! and all that.
ANC_Pay	Antenatal care payment	Mode of payment for the services delivered at the ANC clinic (NHIS or OOP)	Mention of if the NHIS covers the ANC bills (labs/scans/medication) or the women have to pay themselves R: Insurance paid for some but I paid for the majority. When they write the lab for you and you present it, they tell you insurance doesn't cover. What the insurance is able to cover is 20 cedis, 10 cedis, 15 cedis but above these like maybe 50 Ghana the insurance doesn't cover.
Preterm_Know	Knowledge about preterm delivery	The women's knowledge with regards to preterm delivery	Responses given by participants regarding their knowledge of preterm delivery (including causes and complications associated with it) R: No please I don't know.
Preterm_education	Education on preterm delivery	This include education on preterm delivery at the facility.	Use when the participant gives an account about having received or not having received any form of education on preterm delivery at the facility. R: They said a woman could deliver before her time and that could be as a result of Bp, or if the

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			baby is not well positioned that could also make the baby come before the time and the medications you are suppose to take also helps.
Early_delivery	Early delivery	This is when the participant delivers before 37 weeks.	Use when participant mentions that she delivered early, before 37 weeks or before her expected date of delivery. R: I have delivered too early because the baby's time is not yet up.
Education_importance	Importance of education on preterm delivery	This includes the woman's opinion about the importance of educating women on preterm delivery.	Use when there is the mention of the importance of educating women on preterm delivery. R: The baby was not matured before it came so maybe the baby might be lacking certain things. So if they are able to educate those of us who delivered before 9 months that we should feed the baby these kinds of foods, how to take care of the baby for the baby to grow well, will also really help.
Adm_Reason	Reason for admission	Reason why women were admitted at the health facility	Mention of the various reasons why the women were admitted in the hospital R: So the doctor told me that the pressure had gone up and I am 36 weeks so if I agree he wants to take the baby out so that the pressure will be ok. That was what he told me and I said ok and he said I have had 3 previous CS and I had filled the form that after the CS they should perform tubal ligation and he asked me whether I was aware and I said yes. So he gave me a

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			form to sign indicating that after delivery my tubes should be tied. So I signed that form and he put it in the folder.
Adm_Comp	Admission companion	People who accompanied the women to the hospital for admission	This includes anybody who accompanied the woman to the hospital R: I came with my mother.
Delayed_ Attn_Arrv	Delayed Attention upon arrival	Delayed attention upon arrival.	Use when there is mention of having to wait for long hours before been attended to by a HCP upon arrival at the facility or any actions the woman considers as delay on the part of the HCP. R: It took long. I came here in the morning.
Adm_Pro	Admission process	A description of all that went on when the woman got to the facility.	This includes services and treatment offered to the women when they were admitted at the facility. R: When I got here they asked my husband to go and do a file for me. They put me on the bed and the doctors started checking on me; taking my Bp, taking my urine, asking me different kinds of questions, that's all.
Adm_Effect	Effect of admission	The effect of the admission on the woman and her family	Mention of consequences of being admitted where the woman and her family members are concerned R: I told you earlier that I attended antenatal at Kumasi and I decided to come and deliver at my mum's end at Teshie. So when I was admitted she had to come all the way from Teshie to see me in the

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			morning and evening. So many things. Our finances have been messed up.
Nurses_ Inte	Interaction with nurses	Any form of interaction between the women and nurses/midwives including any misunderstanding	Positive and negative interactions between the women admitted in the hospital and the nurses/midwives R: Some are nice others are also not nice. Some are not able to relate nicely with you when they come. Some are also patient when she comes she will greet you and ask you how you doing, whether you have taken your medication but when somebody comes "have you taken your medicine" and the way she will even ask you is not friendly.
Nurse_Pat_Rat	Nurse patient ratio	Are there adequate number of nurses taking care of women and other patients?	Participants opinion on the adequacy of the nursing staff to cater for the patients R: It seems the nurses are rather not too many. They are sometimes 2. When one attends to those on this side the other nurse also attends to those on the other side.
Doc_Inte	Interaction with doctors	Any form of interaction between the women and the doctors including any misunderstanding	Positive and negative interactions between the women admitted in the hospital and the doctors R: Oh as for the doctors they are very good. When they come they are free. They are able to explain what ever question you ask. Their services are good.

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Doc_Pat_Rat	Doctor patient ratio	Are there adequate number of doctors taking care of women and other patients?	Participants opinion on the adequacy of the number of doctors available to cater for the patients R: They are many. When they come they are so many. With regards to where my bed is, when the doctors come and they are many they are able to stand one (doctor) behind each bed.
Care_Diff	Care difficulty	Difficult aspect of the care the women received	Mention of any aspects of the services received that were difficult for the patient to deal with. R: The care is ok but the labs are many. Any complain you make is accompanied by a lab test. Any complain you make was accompanied by a lab test. So I feel if the person will be asked to go for a lab test after complaining then the person will not say it ahaa. So if there is something bothering her she will not say it because if she says it, they will ask her to go for a lab test and she might not have money.
Care_Pos	Positive care received	All that the women were satisfied with about the care they received whiles on admission at the facility.	This includes all positive accounts of the care received while on admission. R: For what I have seen here they are really doing their best. They are doing their best because if nurse is not there, a doctor is there. If nurse is not there, sometimes the nurse and the doctor they are all working

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			together inside the ward at that moment, yes.
Prom_Attn_Arrv	Prompt attention upon arrival	Prompt attention upon arrival	Use when there is mention of receiving prompt attention or not having to wait for long hours before being attended to by a HCP upon arrival at the facility. R: No it didn't take long. It was emergency so pa, pa, pa (meaning very fast).
Care_Neg	Negative care received	This includes any disrespectful care experienced by the women during their hospital stay.	This includes all negative accounts of the care received while on admission such as verbal abuse, physical abuse, discrimination, neglect, lack of privacy, unlawful demand of money and any other incidents the women were not pleased with while on admission at the facility. R: I went to theatre in the evening at 8 something. After taking the baby out when I checked the time it was 8: 30. But when I went to theatre, they didn't give me any drug. I laid there for a long time and I was even running out of breath so I asked them whether they were not going to send me for the CS because they brought me in as emergency. So I thought as emergency by 1 or 2 hours they should have been able to take the baby out. Looking at from 10 am to 8: 30 pm is far apart.
Comm_Poor	Poor communication	Poor communication	This includes the HCPs inability to convey information which is well understood by the

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			woman/relative or the woman having no idea about her condition and not knowing why she is on admission. When no permission was sort from the woman before any procedure such as vital signs, injections, physical examinations or surgeries were carried out. R: They don't tell you. You are just lying on your bed then they come. When they are coming to give you injection they don't tell you.
Comm_Effect	Effective communication	Effective communication	This includes the HCPs ability to convey information which is well understood by the woman/relative, the woman/relative having an idea about her condition and permission sort from her before any procedure such as vital signs, injections, physical examinations or surgeries were carried out. R: They told me because the Bp is high, I can faint at any time, I can convulse, convulsion can come at any time and during convulsion, my baby may lose blood and I will lose the baby or I will lose my life. So the proper thing is to operate and remove the baby.
Reaction_NICU	Reaction to NICU admission	Respondent's reaction about her baby's admission at NICU and its impact.	Various accounts of how the baby's admission at NICU has affected the participant and family. The impact could be financial, emotional, stress etc. R: I said earlier on that I have never experienced this (preterm delivery). I have had 3 previous

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			deliveries by CS and even with that the babies were big. I have never been to NICU. This is my first time. After CS, if you have to get down and go and see the baby it is very difficult going up and down. The lift doesn't work sometimes and you have to descend the stairs with CS. It is very difficult. It is very difficult.
Reason_NICU	Reason for NICU admission	This includes the reason(s) why the baby was admitted at NICU.	Use when there is mention of the reason(s) why baby was admitted at NICU. R: Yeah because I didn't deliver at 40 weeks.
NICU_Care	Care at NICU	A description of the care process at NICU.	This includes services and treatment offered (oxygen/incubator/feeding/cleanin g/medication) to the babies when they were admitted at NICU. R: He is lying in the thing (court) with a drip on him.
NICU_bill	NICU bill	Mode of payment for NICU bill (NHIS cover or OOP)	Mention of if the NHIS covers the NICU bills (bed/incubator/oxygen/labs/scans/ food/medication) or the parents have to pay themselves. R: I can't tell. I really don't know so I asked a lady and she said yes if you even have the insurance. So when I went there the nurse told me 405, you see. So I don't know if you have to pay more if you don't have insurance or this. So when I asked she (nurse) told me my bill but the two people (mothers) I met told me that. I am a visitor here so I can't pry too much to find out how much you will have to pay if you don't have

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			insurance. I have insurance so I needed to ask in relation to my situation and she told me.
NICU_feedback	Feedback from NICU	This includes both poor communication and effective communication by the NICU staff.	Use when there is mention of the staffs' ability or inability to convey information about the health or condition of the baby to the parents or relatives for them to understand. R: The doctor (pediatrician) called me today and said she needed to see me. She said the baby has not been given breastmilk there so I should do my best to try and produce breastmilk for the baby. The drip he has been given is food and water (I: ok). She said they haven't fed him yet and nothing will happen to him.
Care_Exp	Care expectation	Did the patient receive the expected care from the facility?	This includes accounts of satisfaction or dissatisfaction with care received, in accordance with patient expectations R: On the part of the doctors I will say they met my expectation but on the part of the nurses sometimes when she comes to check the Bp, she will sit down and then call out to us saying "come and let me check your Bp". "If you don't come am leaving" but with some others they will come to your bed and check. If somebody has high Bp, when you shout the Bp can go up. So if they can speak to the nurses so that they can lower their voice when addressing us.

INTEGRI PROCEDAMUS

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Future_Pref	Future preference of facility	Patient preference to be cared for in the same facility in future	Mention of whether the participant will be willing to receive care in the future in the same facility or not. R: Ha-ha please I will come here.
Future_Pref_Rea	Reason for future preference	The reason why the patient will prefer to visit the facility in future	All reasons proffered by participants with regards to facility preference R: I believe if I go to a private hospital, with my first born I was visiting a private hospital. I kept on attending antenatal. When it was time for me to deliver they said the baby was big so he was referring me to Korle-bu. So when you go to the private hospital and things get complicated, their last stop is Korle-bu so that is why I will come to Korle-bu.
Future_Dec_Rea	Reason for future decline	The reason why the patient will not prefer to visit the facility in future	All reasons proffered by participants with regards to non-preference of facility R: This place is too far. I will go to polyclinic.
Facility_Bill	Facility bill	Mode of payment for hospital bill (NHIS cover or OOP)	Mention of if the NHIS covers the facility bills (bed/labs/scans/food/medication) or the women have to pay themselves R: Here in Korle-bu I said earlier on that the highest amount NHIS covers is 10 cedis. Even with that they will still ask you to pay another 10 cedis. Apart from that, insurance does not cover the rest you have to go and do it (lab) outside.

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Rec_Hcp	Recommendations for health care professionals	What the health care professionals (doctors/nurses/ midwives) can do to improve the quality of care given to pregnant women who deliver their babies preterm.	This includes all suggestions made by the women with regards to what the HCPs can do to ensure that the quality of care delivered to the women is improved upon. R: The nurses should exercise patience because their work involves people. If a patient doesn't address you well, you should be able to exercise patience because it is your job. She (patient) might not address you well and if you decided to react in anger it will result to exchange of words so I will like to plead with the nurses to exercise patience. When we (patients) are also on the ward we should exercise patience with the nurses because they are here because of us.
Rec_Gov	Recommendations for government	What the government can do to help improve the quality of care of pregnant women who deliver their babies preterm.	This includes all suggestions made by the women with regards to what the government can do to ensure that the quality of care delivered to the women is improved upon. R: What I want the government to do is, the insurance is widely used. Even here in Korle-bu if you come without the insurance the nurses and doctors will tell you to do your best to get the insurance. So we can see that the insurance will help. The insurance should be able to cover majority of the cost. When you are going to be discharged you will have to pay a lot and the insurance only covers a small portion which isn't much. So if the insurance has come to stay, then the government should

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			ensure that it will cover majority of the labs for us. Not just 10 cedis or 20 cedis. It should be able to cover the expensive labs for us.
Rec_Fam	Recommendations for family members	What the family members (husband/siblings/parents) can do to help improve the care of women who experience preterm delivery.	This includes all suggestions made by the women with regards to what the family members can do to ensure that the quality of care delivered to the women is improved upon. R: Ok with the family members, let me come back to this question. With the family members, you know with these things we are all women. What your sister has been through, you could also experience the same one day. So we should have some sort of sympathy, you see. Because you don't know what could happen tomorrow. It could be that mine could be better than yours so when it gets to this stage, there should be care so that we can use it to release some tension off us. You see.
Treat_Import	Important aspect of treatment	The important aspect of treatment according to the woman	Mention of any aspects of the services received that were most satisfactory for the patient. R: After the CS when the doctors come round and they ask you whether you have any complains, they do it in such a way that when there is something wrong with you, you are free to tell them. So that made me very pleased with the care the doctors offered.
QOC_Good	Good quality care	Moments when the woman felt she had received good quality	Participants' mention of what constitutes good quality care

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		care or the woman's definition of good quality care	R: When I make any complain and I get a doctor to take care of me or a nurse to take care of me or maybe when I recover from the problem which I brought, then I will say they have taken good care of me.
QOC_Poor	Poor quality care	Moments when the woman felt she did not received good quality care or the woman's definition of poor quality care	Participants' mention of what constitutes poor quality care R: I will say at Ejisu government hospital. I will say they didn't take good care of me because when the pressure went up they should have given me medicine but when I came here the doctors made me aware that they should have put me on medication. So during that time if they had given me medicine the pressure wouldn't have gone up for the baby to come that early.
Prevent_Preterm	Prevention of preterm delivery	Prevention of preterm delivery by doctors.	Participants opinion about whether or not the doctors could have prevented them from delivering preterm. R: What I was thinking, because I didn't want to come to Korle-bu, I thought there was some drug that they could have given me to make my Bp, because that was the only problem I had. My baby was fine. It was only the Bp that was high, so I wished they could have given me something that could make the Bp come down, then I will carry my baby to 9 months and give birth but they said there was nothing unless they operate.

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Reaction_Loss	Reaction to loss	Respondents' reaction to the loss of her baby	Various accounts of the impact of the loss of a baby on the participants R: Oh the doctor told me before the operation that it was two in one (either the baby will die or live) so when I saw the baby, this has never happened to me. I felt either she will live or God will take what belongs to Him so I already knew she was premature. Her time wasn't yet up.
Couns_Loss	Counselling after loss	Counselling after loss of baby	Use when there was mention of having received or not receiving any form of counselling from the HCP (doctors/nurses/ psychologist /counsellors) after the loss of baby. R: The doctor who took care of me spoke to us and patiently explained things. He told us everything as to what caused it to happen. He told us everything and my mother-in-law also said is something that happens often and that they have experienced it before but today because of God they are still alive so it is ok. They encouraged me a lot.

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APPENDIX 6: ETHICAL CLEARANCE

UNIVERSITY **OF GHANA**

COLLEGE OF HEALTH SCIENCES

ETHICAL AND PROTOCOL REVIEW COMMITIEE

Ref. No.: EPRC/JUNE/2019 June 25,2019.

Dr Kwame Adu-Bonsaffoh
Department of Obstetrics and Gynaecology
School of Medicine and Dentistry
Korle-Bu

ETHICAL CLEARANCE

Protocol Identification Number: ***CHS-Et/M10-9.2/2018-2019***

FWA: 00015779 **IORG: 0005170** **IRB: 00006220**

The College of Health Sciences Ethical and Protocol Review Committee (EPRC) at its June 25, 2019 full board meeting reviewed and approved your re-submitted research protocol.

Title of Protocol: **"Prematurity in Ghana: Determinants, Clinical Course and Outcomes of PreTerm Births in Tertiary Hospitals in Accra (PETITE study)**

Principal Investigator: Dr. Kwame Adu-Bonsaffoh

This approval requires that you submit six-monthly review report(s) of the study to the Committee and a final full review report to the EPRC at the completion of the study. The Committee may observe, or cause to be observed,procedures and records of the study before, during and after

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implementation.

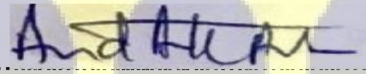
Please note that any significant modification(s) to this project/study must be submitted to the Committee for review and approval before its implementation.

You are required to report all serious adverse events related to this study to the EPRC within seven (7) days verbally and fourteen (14) days in writing.

As part of the review process, it is the Committee's duty to review the ethical aspects of any manuscript that may be produced from this study. You will therefore be required to furnish the Committee with any manuscript for publication.

This ethical clearance is valid till June 25, 2020.

Please always quote the protocol identification number in all future correspondence in relation to this protocol.

Signed: 

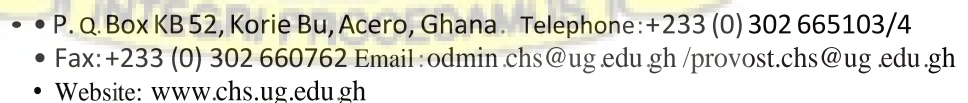
Professor Andrew Anthony Adjei

Chair, Ethical and Protocol Review Committee

cc: Provost, CHS

Dean, SMD

Head, Department of Obstetrics and Gynaecology



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