PREVALENCE AND FACTORS ASSOCIATED WITH PUERPERAL SEPSIS AMONG WOMEN DELIVERING AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL WESTERN CAMPUS, ISHAKA BUSHENYI

BY

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DCM/0081/143/DU

A RESEARCH DISSERTATION SUBMITTED TO THE SCHOOL OF ALLIED HEALTH SCIENCES IN PARTIAL FULFILMENT FOR THE REQUIREMENTS OF AWARD OF DIPLOMA IN CLINICAL MEDICINE AND COMMUNITY HEALTH OF KAMPALA INTERNATIONAL UNIVERSITY WESTERN CAMPUS ISHAKA BUSHENYI

JULY, 2017
DECLARATION

I SSENYONGA HARUNAH declare that this research dissertation is my original work and has never been presented either wholly or partially to any institution for any academic award.

Signature…………………………. Date……………………………...
APPROVAL

This report has been prepared under the guidance of my supervisor

<table>
<thead>
<tr>
<th>Supervisor’s name</th>
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<tr>
<td>MR. ATUHEIRE COLLINS</td>
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DEDICATION

I dedicate this research project to KIU-TH community and the staff at large for their commitment and work done to ensure the prevention and control of puerperal sepsis and the wellbeing of their patients.

MAY GOD BLESS YOU ALL.
ACKNOWLEDGMENT

This report writing has been possible due to GOD’s (ALLAH’s) mercy. Great thanks go to MR. Atuheire Collins for his complete supervision.

I also give great thanks to my God mother MRS. TUMUHAIRWE MONICA KINYAMUSI MANINGI, who has been the source of financial support in the due of writing and studies.

Special thanks go to my brother ALIMPA DICKENS for encouraging and motivating my education.

I am indebted to KAMPALA INTERNATIONAL UNIVERSITY WESTERN CAMPUS for awarding me a scholarship to pursue my Diploma in Clinical Medicine.

Thanks to my course mates for the support and sharing of knowledge they have kept me going forward.
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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ANC</td>
<td>Antenatal care</td>
</tr>
<tr>
<td>DHO</td>
<td>District health officer</td>
</tr>
<tr>
<td>DM</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>Human Immune Virus/Acquired Immune Deficiency</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive Care Unit</td>
</tr>
<tr>
<td>KIU-TH</td>
<td>Kampala International University Teaching Hospital</td>
</tr>
<tr>
<td>KIU WC</td>
<td>Kampala International University Western Campus</td>
</tr>
<tr>
<td>KMS</td>
<td>Kilometers</td>
</tr>
<tr>
<td>LC</td>
<td>Local Council</td>
</tr>
<tr>
<td>MDG5</td>
<td>Millennium Development Goal 5</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry Of Health</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organisation</td>
</tr>
<tr>
<td>PS</td>
<td>Puerperal sepsis</td>
</tr>
<tr>
<td>RTI</td>
<td>Reproductive tract infections</td>
</tr>
<tr>
<td>SVD</td>
<td>Spontaneous Vaginal Delivery</td>
</tr>
<tr>
<td>TBA</td>
<td>Traditional Birth Attendants</td>
</tr>
<tr>
<td>UTI</td>
<td>Urinary Tract Infections</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>WHO</td>
<td>World Health Organisation</td>
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</table>
OPERATIONAL DEFINITIONS

Puerperium- Is the period after delivery up to six weeks post-partum (Haas et al, 2007).

Puerperal sepsis- Is the presence of bacteria or toxins in blood after ten days of child birth by spontaneous vertex delivery, cesarean section, miscarriage or abortion characterized by lower abdominal pain, fever and ill vaginal discharge capable of ascending to the fallopian tubes and the abdomen causing peritonitis and septicemia (saunder’s Elsevier, 2007). This term puerperal sepsis involves all infections that come after ten days of delivery, such as endometritis, septic pelvic phlebitis, peritonitis, metrophlobitis, post-surgical wound infection, perineal cellulitis and mastitis (Caroline M De Costa, 2010).

Sepsis- Is basically the presence of elevated bacteria and their toxins in blood with signs and symptoms of infections.
ABSTRACT

Background;

Definition of Puerperal sepsis, these are infections after birth usually in the first 42 days following postpartum period the major cause of maternal morbidity and rendered the major cause of death worldwide.

Puerperal sepsis is second leading causes of maternal death in Africa and in sub Saharan Africa is estimated to be 19.5%. Thus in Uganda prevalence of puerperal sepsis is about 7.2% and considered as the greatest burden experienced in low income countries (WHO, 2006).

Puerperal sepsis is estimated to cause complications like obstetric shock resulting into maternal mortality. Ones’ susceptibility to infections is related to factors such as caesarean section, prolonged labour, obesity, anemia and poor nutrition.

General Objective

The aim of this study was to determine the prevalence and factors associated with puerperal sepsis. This study employed a cross section descriptive study with a sample size of 36 patients of the age ranging from 19 to 45 in KIU-TH through examining the strategies that were put into place to control these infections.

Results

Data was collected by administering questionnaires to all patients who met the inclusion criteria. The data that was collected was analyzed using Microsoft excel and then presented inform of percentages frequencies through tables, graphs and charts.

From the demographic obtained it showed that women aged between 36 to 45 years were mainly affected while the least affected age was less than 36 years. According to level of education 44.4% who attained primary level were the most affected group and the least affected were 5.6% who attended tertiary and university levels. Most affected mothers were the married by 88.9% and unmarried least affected by 11.1%. Most of the affected mothers were of high parity 50% (multi gravid), 72.2% had delivered by caesarian section and 50% had multiple vaginal examinations.

Conclusion and recommendations

Proper nutrition showed greatest impact since some women with good nutrition could experience short durations of labour (27.8%). Chronic debilitating conditions such as HIV (44.4%) also play part in PS by immune suppression. Results showed that there is inadequate knowledge about the etiology of puerperal sepsis of which 88.9% were aware about PS existence and 11.1% did not have knowledge about it.

Therefore adequate prerequisites are required to perform PS awareness both in the hospital and the community at large. The above factors tend to underscore the need for MOH to provide funds to aid in the facilitation of campaigns to create awareness. Hygienic education in the communities and policy makers should consider integrating hygienic education and PS awareness into ANC services as a strategy to prevent and control infections.
CHAPTER ONE

1.0 INTRODUCTION.
This chapter entails the background, problem statement, purpose of the study, study objectives, research questions, justification and scope of the study.

1.1 BACKGROUND.
Puerperal sepsis has been described for many past years and one of them being that puerperal fever affecting women shortly or during child birth, miscarriage or abortion resulting into septicemia and death. Puerperal sepsis together with eclampsia, preeclampsia and obstetrical hemorrhage has caused maternal death for many years. It is the leading cause of preventable maternal morbidity and mortality not only in developing countries but also in developed counties (Shaam Shad, 2010)

From the 1600s to 1800s, the many cases of childbed fevers were caused by the doctors themselves. Doctors did not believe hand washing was needed since there was inadequate knowledge of germs. In the 1800s, investigations done showed that women giving birth at home had a much lower incidence of childbed fever than those giving birth in the doctor’s maternity ward through investigations which were done. These investigations showed that hand washing with an antiseptic solution before delivery reduced child bed fever fatalities by 90% (Blanchard, et al., 2008)

In UK a study conducted revealed that 5.5% of SVD and 7.4% of cesarean section resulted into puerperal sepsis and the total were 6.0% for endometritis counting half of the infections in mothers following cesarean section. Mastitis and Urinary Tract Infections (UTIs) accounted for 5% (Yokoe et al., 2001)

The most common causes of maternal mortality in sub-Saharan Africa include puerperal sepsis 30.9%, hemorrhage 21.6%, hypertension 44%, HIV/AIDS 6%, malaria being the most indirect cause ranked 8.92% and abortions 10.8% (Ouma, J et al., 2010)
A study was done in Maiduguri University Teaching Hospital in Nigeria and found that the major leading cause to puerperal sepsis includes perineal trauma, tears and episiotomy. Escherichia coli and staphylococcus aureus were mainly isolated for culture purposes. In Nigeria Abbottabad Hospital maternal deaths of 19.2% were by postpartum infections. It considered as the third leading cause of maternal death (Sham Shad et al., 2010). Puerperal sepsis is reported as the single most common cause of maternal death in developing, low income and middle income.

Another study done in Tanzania with a sample size of 3,262 women who were selected and only 27% (877) claimed that the birth attendant inserted his/her hands in the vagina, and 25% (830) reported that the birth attendant first did hand washing before delivering her. Of those (830) women, 98% reported that the attendant used soap and water before inserting hands, while 1.5% were attended to by birth assistants who washed hands but developed puerperal sepsis compared to two (8.0%) of the 25 women who reported that the birth attendant did not wash their hands before inserting them into the vagina (Winani, S et al., 2005).

A study done in Nairobi to find out about maternal mortality in the slum settlement centers found out that puerperal sepsis was more prevalent in these places (Makumi, 2004).

Puerperal sepsis is one of the major causes of maternal death in Uganda. Millennium Development Goal Five (MDG 5) in Uganda targets by ¾ the total number of women who die in due to birth related problems thus improving maternal health. Between 1990 to 2015 MDG 5 aimed at reducing maternal mortality by 75% (WHO, 2008).

WHO recommends that pregnant women should have a written plan for births and for dealing with unexpected adverse events such as complications or emergencies that may occur during pregnancy, child birth or the immediate post natal period, and should discuss and review this plan with a skilled attendant at each antenatal assessment and at least one month prior to the estimated date of delivery (WHO, 2006).
1.2 PROBLEM STATEMENT.

Over 70% of maternal deaths in developing countries are caused by puerperal sepsis among other causes including hemorrhage, hypertension unsafe abortion and obstructed labour (Dillen et al, 2010). The government of Uganda enforced ANC services. It has also collaborated with NGOs and partnerships with private hospitals to offer service to all pregnant women as well as abolishing TBAs so as to control infections and other complications after delivery but many mothers report back to health settings with puerperal sepsis. Locally, in Uganda and KIU-TH inclusive, mothers tend to return to Health facility a few days after delivery with complaints concerning different infections without proper origin which can however, lead to morbidity and mortality (WHO, 2006).

There are no clear reasons that explain prevalence and factors associated with puerperal sepsis in KIU-TH. Therefore this study is meant to find out prevalence and factors associated with puerperal sepsis in KIU-TH and knowing them will help reducing the complications and the incidence of puerperal sepsis in KIU-TH.

1.3 STUDY OBJECTIVES

1.3.1 GENERAL OBJECTIVE

To assess the prevalence and factors associated with puerperal sepsis among women delivering at Kampala International University Teaching Hospital?

1.3.2 SPECIFIC OBJECTIVES

1. To determine the prevalence of puerperal sepsis among women delivering at Kampala International University Teaching Hospital.

2. To assess the patient factors associated with puerperal sepsis among women delivering at Kampala International University Teaching Hospital.

3. To assess hospital factors associated with puerperal sepsis among women delivering at Kampala International University Teaching Hospital.
1.4 RESEARCH QUESTIONS

1. What is the prevalence of women that present with puerperal sepsis among women delivering at Kampala International University Teaching Hospital?

2. What are the patient factors that are associated with puerperal sepsis among women delivering at Kampala International University Teaching Hospital?

3. What are the hospital factors that are associated with puerperal sepsis among women delivering at Kampala International University Teaching Hospital?

1.5 JUSTIFICATION

Uganda being a developing country, information obtained from this research will help health personnel particularly in KIU-TH to sensitise women on the dangers and causes of puerperal sepsis. The findings will act as an important tool by availing knowledge of risk factors to inform public interventions for puerperal sepsis control and to the clinicians, identifying risk factors in Antenatal Care (ANC) and intra partum periods may provide an opportunity for timely interventions to prevent puerperal sepsis. From this study stake holders and other concerned shall use the knowledge of the objectives to improve on the safe motherhood and pregnancy status there by meeting one of the pillar of Millennium Development Goal.

Knowing the patient factors that predispose mothers to puerperal sepsis will create an alarm to health person to carryout community out reaches and health education talks via mass media.

This study has also come up with hospital factors that predispose mothers to puerperal sepsis so as to upgrade and improve on the working environmental and evaluating their skills.

This information will be disseminated to the local authorities; District Health Officer DHOs, Health Inspectors, LCs, NGOs and In-charges of Health Centers around the town with a hope that they will take up their role towards implementation of the recommendations herein

The purpose of this study was therefore aimed at providing detailed information on puerperal sepsis in KIU-TH, determine the prevalence and factors associated with puerperal sepsis, establish the knowledge on puerperal sepsis and determine the preventive measures in order to
form the basis for decision making, policy formulation and planning towards the management of morbidities resulting from puerperal sepsis in KIU-TH. Kampala International University Teaching Hospital, the fact that it’s one big facility in Ishaka region catering for a larger population, there is need to minimize on the prevalence of puerperal sepsis.

The information obtained from this research will help the health personnel to conduct seminars to sensitize the whole population (particularly women) on the dangers of puerperal sepsis. The findings herein will be an important tool in achieving Millennium Development Goal 5 by providing baseline data for further researches. This report will be disseminated to the local authorities; District Health Officer, Health Inspectors, LCs, NGOs and In-charges of Health Centers and KIU-TH in particular with a hope that they will take up information elicited within this research.
1.6 CONCEPTUAL FRAME WORK

FIGURE 1: A drawing by the researcher showing factors influencing puerperal sepsis.

INDEPENDENT VARIABLE

<table>
<thead>
<tr>
<th>HOSPITAL FACTORS</th>
<th>□ Place of delivery</th>
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<tbody>
<tr>
<td></td>
<td>□ Mode of delivery</td>
</tr>
<tr>
<td></td>
<td>□ Assistant during labour</td>
</tr>
<tr>
<td></td>
<td>□ Number of vaginal examinations</td>
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</table>

PATIENT FACTORS

| □ Underlying medical conditions like Diabetes mellitus, HIV status, |
| □ Dietary (malnutrition), |
| □ Prolonged labour |
| □ Parity of mothers |
| □ Attitude/ knowledge |

SOCIODEMOGRAPHIC FACTOR

| □ Age |
| □ Religion |
| □ Tribe |
| □ Occupation |
| □ Educational level |
1.7 SCOPE OF THE STUDY

1.7.1 TIME SCOPE
Information was collected during the time of ward rotations in KIU-TH from 21ST/APRIL/2017 to 4TH/JUNE/2017.

1.7.2. GEOGRAPHICAL SCOPE
The study was conducted in Kampala International University Teaching Hospital Ishaka Bushenyi district, located along Mbarara-Ishaka road in south western Uganda- a landlocked country in Africa, lies along equator bordered by Congo in the west, Tanzania in the south and Rwanda in the south west.

1.7.3. CONTENT SCOPE
The research was limited to the study topic which is prevalence and factors associated with Puerperal sepsis among women delivering at Kampala International University Teaching hospital Ishaka Bushenyi.
CHAPTER TWO
LITERATURE REVIEW

2.0 INTRODUCTION
This chapter discusses the literature done by earlier researchers about the prevalence of puerperal sepsis, patient and hospital factors associated with puerperal sepsis.

2.1 THE PREVALENCE OF PUERPERAL SEPSIS.
Puerperal sepsis refers to the genital urinary infections that occurs following child birth. It in most cases occurs after 24hours delivery in which signs and symptoms occur. Scientifically it is defined as a polymicrobial infections manifesting as endometritis, endomyometritis and endoparametritis caused by anaerobes such as Escherichia coli and staphylococcus aureus (WHO, 2008).

In Africa, studies that have been documented by WHO clearly show an approximation of more than 500,000 women dying of pregnancy related condition and estimate seven hundred million women who survive child birth suffer from serious health problems (WHO, 2008).

In a study about conducted in the states of Gombe in Nigeria puerperal sepsis was found to be the major cause of maternal mortality. According to WHO (2008) it states that puerperal sepsis is the leading and major 2nd cause of maternal mortality in developing countries, accounting for about 10% in Africa and Asia with an estimated ratio of 900/100,000 live births in sub Saharan Africa (Utoo et al., 2012)

In Nigeria earlier studies showed an incidence of puerperal sepsis of 1.49% and 1.36% (Ouma., et al., 2010). A study done in Maiduguri University Teaching Hospital in Nigeria, it was found that the major leading cause to the development of puerperal sepsis, perineal trauma, tears and episiotomy. Escherichia coli and staphylococcus aureus were mainly isolated for culture purposes. In Nigeria Abbottabad Hospital maternal deaths of 19.2% were by postpartum infections, the third leading cause of maternal death (Shaam Shad, 2010).
A study that was carried out in South Africa about maternal deaths revealed that puerperal sepsis being the major cause of deaths accounting for 8.3% (274) in (2002 to 2004). In South Africa puerperal sepsis is considered as the 4th leading cause of maternal mortality (Bauer, et al., 2013).

**In other countries,** puerperal fever was first diagnosed at the Hotel-Dicude in Paris in 1646. After this incidence, Hospitals in Europe and America started monitoring and they reported an increase in maternal mortality due to puerperal sepsis. Estimation of puerperal sepsis in Africa is a problem because of differing definition of puerperal sepsis and lack of post natal follow up (Husein, et al., 2012).

In Pakistan, research studies that have been documented show that puerperal sepsis among the three leading causes of maternal death. In Norway puerperal sepsis is the third leading cause of death accounting for 10% of all deaths, in Poland it accounted for 27.3% of the direct maternal deaths in a 10 year period time. The United States Joint Commission on Maternal Welfare uses a standard definition for puerperal fever used for reporting puerperal morbidity as an oral temperature of 38°C or more on any two of the first ten days postpartum (Spaans, 2004).

In New Zealand studies reported a rate of 10.9% which were attributed to puerperal sepsis but in one study in the United States where the study population showed a high incidence rate of about 6.18% of cases of puerperal sepsis among women from low social economic backgrounds (Husein, J. and Walker, 2012).

A study done in Mexico revealed that 84% of deliveries that are conducted in health facilities tend to arise into complications one being puerperal sepsis accounting for 5 to 10%. Study in U.S.A reported that about 3 women die from puerperal sepsis for every 100,000 deliveries and that, the single most important risk factor being caesarean section not aseptic conditions (Tuladhar, H, et al., 2009).

**2.3THE PATIENT FACTORS ASSOCIATED WITH Puerperal SEPSIS.**

Women especially of reproductive age group 15-49, are physically, mentally and socially more vulnerable to infections such as puerperal sepsis. These women are more vulnerable to RTIs which increases the risk of one developing Puerperal sepsis. (Singh A et al., 2011).
To most women, poverty combined with cultural constraints that construct a social barrier around them about health services makes them ignore the utilization of health facilities thus most of the deliveries take place at home, where delivery is carried out without aseptic measures. Women cannot adopt a good health seeking behaviors even when they know that they have life threatening condition. Some mothers pose a negative attitude against some health facilities due to poor handling by midwives when they come to deliver thus resort to TBAs where they feel at home (Chisembele, et al., 2010).

Poor personal hygiene and sanitation. Behavioral theories from models developed in psychology have been used to examine infection control practices such as hand washing in health care providers, concluding that it is the interdependence of various factors including environment, organization and structure that matters, rather than individual behavior. Viable strategies are those that make changes which affect interactions between individuals and how they function within their environment and their institutions (Savita Sharma and Gupta, 2009).

Poor nutritional status to boost the immune system resulting into inability to safe guards against infection to the mother and delays wound healing emerging into PS. (Chisembele et al., 2010). Chronic illnesses such as HIV/AIDs and DM tend to reduce the mothers’ immunity making them more susceptible to infections. Noncompliance to antibiotics depending on the health workers prescriptions and laboratory results. Organizational and behavioral change underpins the success of infection control interventions (Makumi, 2004).

2.4 THE HOSPITAL FACTORS ASSOCIATED WITH PUERPERAL SEPSIS.

Poor government infrastructural development to set up health facilities that can easily be accessed and affordable. Poor partnership with most private hospitals such that services offered is affordable by all mothers who attend the facility. Reduced number of trained medical personnel recruitment as a result of seeking for other businesses predisposes mothers to different microbial capable of causing PS (WHO, 2012).

Decreased awareness to the mothers about the existence of puerperal sepsis and lack of strict laws against Traditional Birth attendants with inadequate knowledge and skills to assist mothers
during delivery which increase the risk to puerperal sepsis since mothers tend to utilize the TBAs more than the health facilities (Husein, J. and Walker, 2012).

Prolonged labour where a mother whose pregnancy is at term but with few and weak labour like contractions, this attracts increased number of vaginal examinations done to mothers during labour since with frequent examinations sterility may be broken so obstetricians tend augment labour using uterotonic agents such as Pitocin which may stimulate labour contractions more than adequate that in turn tears the uterus of some mothers (Makumi, 2004).

Over delays in the delivery room attributed to prolonged second stage of labour for which this predisposes mothers to different microbial capable of causing PS.
CHAPTER THREE
METHODOLOGY

3.0 INTRODUCTION

This chapter describes the various methods that was used during the study to collect and present information that was required as well as describing the area and population where the study was be conducted.

3.1 STUDY DESIGN

The study applied a cross sectional descriptive study design.

3.2 STUDY AREA

Kampala International University Teaching Hospital [KIU-TH] is situated on about 70 acres of land at Ishaka town in Bushenyi District, along Mbarara –Kasese Road in Western Uganda.

The presence of the university has strongly led to the development of various businesses in Ishaka town, with the students and staff of the university comprising of the major clientele of these businesses. Businesses range from boutiques, restaurants, supermarkets, bars, and night clubs. Bushenyi District lies between 0 0 N and 0 0 46’ S of the equator and 29 0 41’ East and 30 0 30’ East of Greenwich.

Bushenyi District headquarters is located 340 kms from Kampala in the South Western part of Uganda. Bushenyi District is neighboring with the districts of Rubirizi in the North, Buhweju and Sheema in the North East, Sheema in the East, Mitooma in the South West and Sheema in the South. The district has a land area of 3’949 square kilometers and lying between 910 – 2,500 meters above sea level. The main physical features within the district include natural tropical forests of Karinzu and Imaramagambo covering an area of 784 km. Arable land covers 2,215 square kms, open water bodies cover 372 square kms and wetlands covering 183 square kms.

Bushenyi District has a population of 241,500 people and 124,000 women according to the projected population estimates of 2014 of whom KIU-TH maternity receives about 40 pregnant mothers in a month. The hospital receives about ten mothers with complaints concerning
puerperal sepsis every week where most of them are above 30 years of aged peasant farmers. These mothers most of them have multiple pregnancies with parity greater than one and have undergone caesarian section.

The economy of the district depends mainly on agriculture. Agriculture is a source of food for the population, subsistence income for most families, and provides direct employment to 86.7% of the district population, as well as supplying raw materials for industries (www.Bushenyi.Org.com).

3.3 VARIABLE; DEPENDENT AND INDEPENDENT

The prevalence and factors associated with Puerperal sepsis was the dependent variable of the study while the independent variables were: Socio-demographic factors such as: age, occupation, education, knowledge on puerperal sepsis, marital status and parity status, Obstetric factors including: mode of delivery, prolonged labour, place of delivery, vaginal examinations. Patient’s characteristics including; facility factors including availability of adequate equipment, finance, distance and hygiene.

3.4 STUDY POPULATION

The study focused on the mothers of child bearing age who presented to KIU-TH with population size of 43,210. According to the In-charge maternity ward who was also included in the study, the hospital gets about 10 mothers with puerperal sepsis in a week, which gave a reflection of PS.

3.5 SAMPLE SIZE DETERMINATION

The sample size was determined using Morgan and R. V Krejcie (1970) from the specified population and was limited to mothers diagnosed with puerperal sepsis at KIU-TH. The target population was 40 mothers who visit KIU-TH. By using the Morgan table sample size was 36.

Therefore:  \[ n = 36 \]
3.6 SAMPLING METHODS
To determine the prevalence of puerperal sepsis, a systemic sampling method using in-patient numbers was used. To determine the patient and the hospital factors a questionnaire was administered among the patients.

3.7 INCLUSION AND EXCLUSION CRITERIA
3.7.1 INCLUSION CRITERIA
Any mother diagnosed with Puerperal sepsis found in maternity ward at time of the interview was included provided she was willing to take part in the study and the procedure was explained accordingly.

3.7.2 EXCLUSION CRITERIA
Mothers who were mentally ill and critically ill were excluded; this is because they could give irrelevant information for the study subject. Also those who were not willing to take part in the study for one reason or the other were excluded.

3.8 DATA COLLECTION METHODS
The data was collected using a questionnaire, which was a mixture of structured questions. The data was collected by the researcher himself ensuring that the person who filled the questionnaire met the inclusion criteria. A record review tool was used to collect relevant information about hospital factors to determine the prevalence. Data was collected for two months since the hospital works every day.

3.9 METHODS OF DATA ANALYSIS
The data was then analyzed using Microsoft excel manually and interpreted into average and percentages and presented on tables, graphs and pie charts.

3.10 DATA QUALITY CONTROL
The questionnaire was pretested in a similar population of KIU-TH Bushenyi District Western Uganda to ensure clarity of questions. The wrongly stated question was corrected. At the end of
the interview I checked for completeness of the questionnaire and participants were selected randomly to eliminate bias.

3.11 DATA PRESENTATION METHODS
The data collected was presented in form of charts, graphs, tables and figures.

3.12 ETHICAL CONSIDERATION
I sought approval from KIU authorities and the research committee of KIU western Campus, who in turn upon approval, granted me permission to conduct the study with an introductory letter. The letter was addressed to the medical Director KIU-TH who introduced me to the in charge of the maternity. Verbal consent was sought from mothers of PS to interview them and also confidentiality was strictly observed at all stages of research.
CHAPTER FOUR: STUDY FINDINGS (RESULTS)

4.0 INTRODUCTION

This chapter presents the results of analysis of responses collected by use of questionnaires administered to patients presenting with puerperal sepsis and managers and/or supervisors in charge and interpreted inform of tables, pie charts, histograms, line graphs and simple statements. Data was analysed by use of a calculator.

4.1 RESPONDENTS DEMOGRAPHIC DATA.

Data collected in this study indicates that the most affected age group is from 36 to 45, 16 (44.4%), most of them being married 32(88.9%), majority were from Catholics religious affiliation 15(41.7%), by tribe the highest number of participants were Banyankole 22(61.1%). Furthermore most participants had attained primary level 16(44.4%) which rendered majority of them peasants 18(50%) by occupation.

A SUMMARY OF THE SOCIO DEMOGRAPHIC INFORMATION

TABLE 1: The sociodemographic characteristics of the study of mothers diagnosed of puerperal sepsis in KIU-TH (n=36)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age range (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-25</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>26-35</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>36-45</td>
<td>16</td>
<td>44.4</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>32</td>
<td>88.9</td>
</tr>
<tr>
<td>Un married</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholics</td>
<td>15</td>
<td>41.7</td>
</tr>
<tr>
<td>Protestants</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td>SDA</td>
<td>5</td>
<td>13.9</td>
</tr>
<tr>
<td>Muslims</td>
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<td>11.1</td>
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</table>
Tribes

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Frequency</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Banyankore</td>
<td>22</td>
<td>61.1</td>
</tr>
<tr>
<td>Bakiga</td>
<td>8</td>
<td>22.2</td>
</tr>
<tr>
<td>Baganda</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>5.6</td>
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</tbody>
</table>

Occupation

<table>
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<tr>
<th>Occupation</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
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<tr>
<td>Peasants</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td>Teachers</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2</td>
<td>5.6</td>
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<tr>
<td>Traders</td>
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</table>

Educational level

<table>
<thead>
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<th>Frequency</th>
<th>Percentage</th>
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<tr>
<td>Nil</td>
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<td>27.8</td>
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<td>Primary</td>
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<td>44.4</td>
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<td>Secondary</td>
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<td>16.7</td>
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<td>University</td>
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</tr>
<tr>
<td>Tertiary</td>
<td>2</td>
<td>5.6</td>
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</tbody>
</table>

OBSTETRICAL DATA

4.2 PREVALENCE OF PUERPERAL SEPSIS AMONG MOTHERS DELIVERING AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL

4.2.1 PREVALENCE OF PUERPERAL SEPSIS

Majority of the mothers 32(88.9%) were positive about Puerperal Sepsis and had sought treatment while 4(11.1%) were negative about Puerperal sepsis. Health workers made the highest source of information to mothers 20(55.6%), followed by friends 5(13.9%), 5(13.9%) was through television and 6(16.7%) by radio. It’s from attendance of ANC that health workers provided information to these mothers about Puerperal sepsis.

TABLE 2: Prevalence of puerperal sepsis

<table>
<thead>
<tr>
<th>Variable</th>
<th>frequency</th>
<th>Percentage</th>
</tr>
</thead>
</table>

17
### Source of information

<table>
<thead>
<tr>
<th>Source of information</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health worker</td>
<td>20</td>
<td>55.6</td>
</tr>
<tr>
<td>Friend</td>
<td>5</td>
<td>13.9</td>
</tr>
<tr>
<td>Television</td>
<td>5</td>
<td>13.9</td>
</tr>
<tr>
<td>Radio</td>
<td>6</td>
<td>16.7</td>
</tr>
</tbody>
</table>

### Mother’s awareness of prevalence

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>32</td>
<td>88.9</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>11.1</td>
</tr>
</tbody>
</table>

### 4.3 THE HOSPITAL FACTORS ASSOCIATED WITH PUERPERAL SEPSIS AMONG MOTHERS DELIVERING IN KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL

#### 4.3.1 HOSPITAL FACTORS

Most of the respondents 30 (83.3%) of the mothers had their deliveries in health centers, 4 (11.1%) delivered at home and 2 (5.6%) in other places like with TBAs. Majority of the mothers who had developed PS had delivered through caesarian section 26 (72.2%) and rest of the mothers 10 (27.8%) had delivered spontaneously by vaginal delivery. From the table below, 16 (44.4%) of the mothers were assisted by doctors, 15 (41.7%) by midwives and 05 (13.9%) by TBAs. Most of the mothers interviewed 22 (61.1%) claimed health worker used new gloves, 12 (33.3%) claimed the assistant washed hands with soap and rest 2 (5.6%) didn’t know. Majority had had many examinations 18 (50%), 12 (33.3%) had had two examinations, those who didn’t know were 4 (11.1%) and 2 (5.6%) had no examination done onto them before delivery.

#### TABLE 3: Showing hospital factors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Place of delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health center</td>
<td>30</td>
<td>83.3</td>
</tr>
<tr>
<td>Home</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>others</td>
<td>2</td>
<td>5.6</td>
</tr>
</tbody>
</table>

<p>| <strong>Mode of delivery</strong> |
|---------------------|-----------------|
|                      | Frequency       | Percentage (%) |
|                      |                 |                |
|                      |                 |                |</p>
<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVD</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>C/S</td>
<td>26</td>
<td>72.2</td>
</tr>
</tbody>
</table>

**Assistant in delivery**

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>16</td>
<td>44.4</td>
</tr>
<tr>
<td>Midwife</td>
<td>15</td>
<td>41.7</td>
</tr>
<tr>
<td>TBA</td>
<td>5</td>
<td>13.9</td>
</tr>
</tbody>
</table>

**Hygienic practice**

<table>
<thead>
<tr>
<th>Hygienic Practice</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using new gloves on every examination</td>
<td>22</td>
<td>61.1</td>
</tr>
<tr>
<td>Washing hands with soap</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td>Don’t known</td>
<td>2</td>
<td>5.6</td>
</tr>
</tbody>
</table>

**Number of vaginal examinations**

<table>
<thead>
<tr>
<th>Number of Examinations</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two examinations</td>
<td>12</td>
<td>33.3</td>
</tr>
<tr>
<td>Many examinations</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td>Don’t know</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>5.6</td>
</tr>
</tbody>
</table>

### 4.4 THE PATIENT FACTORS ASSOCIATED WITH PUERPERAL SEPSIS AMONG MOTHERS DELIVERING AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL

**4.4.1. PATIENT FACTORS**

Majority of the mothers had had one delivery 18(50%), 10(27.8%) had four deliveries or greater, 4(11.1%) had had three deliveries and the remaining 4(11.1%) had had two deliveries. The respondents 20(55.6%) were malnourished as assess at ANC while 16(44.4%) were well-nourished. Most mothers 16(44.4%) were HIV positive; as compared to 15(41.7%) who were HIV negative and the remaining 5(13.9%) don’t know. Majority of the mothers’ duration of labour was prolonged (extended) for 26(72.2%) and least was short duration 10(27.8%).

19
**TABLE 4:** Showing patient factors.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration of labour</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>Extended</td>
<td>26</td>
<td>72.2</td>
</tr>
<tr>
<td><strong>HIV status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>16</td>
<td>44.4</td>
</tr>
<tr>
<td>Negative</td>
<td>15</td>
<td>41.7</td>
</tr>
<tr>
<td>Don’t know</td>
<td>5</td>
<td>13.9</td>
</tr>
<tr>
<td><strong>Nutritional status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well nourished</td>
<td>16</td>
<td>44.4</td>
</tr>
<tr>
<td>Malnourished</td>
<td>20</td>
<td>55.6</td>
</tr>
<tr>
<td><strong>Number of deliveries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>&gt;=4</td>
<td>10</td>
<td>27.8</td>
</tr>
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</table>
CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION
This chapter entails the discussion, recommendations and conclusions of the study findings collected at Kampala University International Teaching Hospital in chapter four.

5.1 DISCUSSION
A total number of 36 mothers were interviewed at KIU-TH from 21ST/APRIL/2017 to 4TH/JUNE/2017.

5.1.1 PREVALENCE FACTORS
Most mothers 32(88.9%) were positive about PS. Minority were negative about PS were 4(11.1%) (KhaskeliM, Shahla B, 2013)

5.1.2 HOSPITAL FACTORS
Those 30(83.3%) had delivered from health centers, 4(11.1%) had delivered from home and 2(5.6%) in other places like with hospitals and clinics, thus this could be due to accessibility, affordability and attendance of ANC services which differs from the previously investigated research, where 73.8% had delivered from home (KhaskeliM, Shahla B, 2013).

About vaginal examinations done, 18(50%) had many vaginal examinations followed by mother who had two vaginal examinations 12(33.3%). Those who did not know were 4(11.1%) and none 2(5.6%). The prolonged labour attracts many vaginal examinations by the assistant, hence with ruptured membranes and an open cervix that directly introduces microorganisms by ascending from the lower vaginal canal to upper parts of the reproductive organ (Seale, MwanikiM, 2009).

Majority of deliveries were done in the night and others were emergencies from which the chain of sterility could have been broken in the due course to save the mother, caesarian section accounted for 26(72.2%) done by the doctor 16(44.4%), other deliveries were by spontaneous vaginal delivery 10(27.8%) of which 15(41.7%) were assisted by mid wives and 5(13.9%) by TBAs.
5.1.3 PATIENT FACTORS
Play roles in infection upcoming such as deliveries by unskilled attendants, unhygienic practices, and late referrals to hospitals, poor social economic status of most mothers, prolonged labour, induced abortions and other underlying chronic infections like HIV that weaken the immune system. In most developed countries caesarian section is the most contributing factor to puerperal sepsis (Chandra M, Khurishid F, 2011). Most people have inadequate skills at cleaning caesarian site.

STRENGTH AND WEAKNESSES
My study was being facilitated and helped by nurses and in charge maternity to archive my goal. However the sample size was insufficient and this may affect the generalization of the findings to other settings where the patient numbers are large. However the clear outcome variables were captured from hospital records.

5.2 CONCLUSION
The prevalence of puerperal sepsis was 88.9% among women delivering at KIU-TH.

Hospital factors, most mothers who presented with PS had delivered by Caesarian section 26(72.2%) and others 10(27.8%),

Doctors assisted most in deliveries 44.4% and at health center 83.3%.

They reported frequent vaginal examinations 50% and claimed that each time the assistant could put on new gloves (61.1%).

Patient factors, mostly affected mothers had prolonged labour (72.2%), majority being HIV positive(44.4%), malnourished(55.6%) and having a low parity(50%).

5.3 RECOMMENDATIONS
From the findings of this study, the following recommendations can be drawn;

Prevalence recommendations
The need to avail knowledge on Antenatal attendance for screening and use of skilled birth attendants who observe the aseptic techniques during delivery.
There is more need to educate the community on hygienic practices especially for the post-partum mothers so as to control infections through more community outreaches by community health workers.

**Hospital factors**

Government through the Ministry Of Health should partner with hospitals creating affordable costs to mothers whenever serious conditions arise.

Also the provision of both surgical and disposable gloves to health facilities should be considered highly as this will promote hygiene.

Increase on recruitment and salary payment to health workers in time to motivate their work.

**Patient factors**

Improving on diet through a balanced diet to meet the body demands especially during pregnancy and after delivery.

Mothers’ should be advised to always go for HIV screening tests during their ANC visits.

Family planning methods should be emphasized as it give time to cater for mothers’ life and the child.
REFERENCES:


Savita Sharma and Gupta, B. P. (2009). The prevalence of reproductive Tract Infections and
Sexually Transmitted diseases Among Married Women in the reproductive Age.Journal in India.


APPENDIX A; CONSENT FORM

I am SSENYONGA HARUNAH (DCM/0081/143/DU) a third year student doing Clinical medicine and community health at KIU-WC, carrying out a study on the prevalence and factors associated with puerperal sepsis among women delivering at Kampala International university Teaching Hospital Western Campus Ishaka Bushenyi.

Your participation in this study will be completely voluntary and you should not expect any payments at the end of the exercise, you also have a right to say no or change your mind at any time and withdraw. Whether you choose to participate or not will not have any effect on the health services to be given to you.

All information that will be obtained in this study will remain confidential and will only be disclosed with your permission or as required by the Law.

I hope that this information will be used to draw intervention on the management of puerperal sepsis.

If the participant accepts will be required to sign below:

……………………………….    ……………………………….…
Name/signature of volunteer    Name and signature of Student

……………………………….    ……………………………….…
Date………………………………..


APPENDIX B: QUESTIONNAIRE

INTRODUCTION

I SSENYONGA HARUNAH a student of KIU-WC pursuing a Diploma in Clinical Medicine and Community Health. I am doing a research. I am carrying out a research on prevalence and factors associated with puerperal sepsis among women delivering at Kampala International University Teaching Hospital Western Campus Ishaka Bushenyi this will be submitted for partial fulfillment of the requirement for the award of above mentioned Diploma.

You are kindly requested to fill the questionnaire below.

Your cooperation will be highly appreciated

INSTRUCTIONS TO BE FOLLOWED BY THE PARTICIPANTS

Do not write your name on this questionnaire.

Tick the most correct answer in the boxes provided.

Fill in the blank spaces where necessary.

A. RESPONDENTS SOCIAL DEMOGRAPHIC DATA

1. AGE (YEARS)
   a. 19-25 [ ]                  c. 36-45 [ ]
   b. 26-35 [ ]

2. EDUCATIONAL LEVEL
   a. Primary [ ]                 c. Tertiary institutions [ ]
   b. Secondary [ ]               d. University [ ]
   e. Never went to school [ ]

3. OCCUPATION
   a. Traders [ ]                  c. Un employed
   b. Teachers [ ]                 d. Peasants [ ]

4. TRIBE
   a. Banyankole [ ]              c. Bakiga [ ]
   b. Baganda [ ]                 d. Others [ ]

5. RELIGION
a. Catholics [ ]
   c. Muslims [ ]

b. Protestants [ ]
   d. SDA [ ]

e. Other specifics [ ]

6. MARITAL STATUS
a. Married [ ]

b. Un married [ ]

B. OBSTETRICS DATA

7. How many deliveries have you had before?
   a. 1 []
   b. 2 []
   c. 3 []
   d. >=4 []

8. Where do you normally deliver from?
   a. Health Center facility[]
   b. Home []
   c. Others []

9. By what mode of delivery was your last delivery?
   a. Spontaneous vaginal delivery []
   b. Cesarean section []
   c. Others []

10. Where you assisted during delivery? if yes, who assisted you.
    a. Doctor []
    b. Mid wife/ Nurse []
    c. Traditional Birth Attendant []
    d. Others []

11. Which hygienic practice did you observer being done by the person who assisted you during delivery?
    a. Washing hands with soap []
    b. Using new gloves on every examination []
    c. None []
    d. Don’t know []

12. Do you know about the existence of puerperal sepsis?
a. Yes [ ] b. No [ ]

13. Tick any of the following signs that you have observed having developed.
   a. Fever [ ]
   b. Pelvic pain [ ]
   c. Abnormal vaginal Discharge [ ]
   d. Never suffered from any [ ]

14. Before delivery, how many vaginal examinations did the assistant do?
   a. Two [ ]
   b. Many [ ]
   c. None [ ]
   d. Don’t know [ ]

15. For how long did you last in labour?
   a. Short (within 24 hours) [ ]
   b. Extended (greater than 24 hours) [ ]

16. What is your HIV status?
   a. Positive [ ]
   b. Negative [ ]
   c. Don’t know [ ]
## APPENDIX C: WORK PLAN

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APRIL</th>
<th>MAY</th>
<th>JUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choosing and presentation of research topic for approval</td>
<td></td>
<td></td>
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<tr>
<td><strong>Proposal writing</strong>, typing and binding the proposal and handing the proposal to the supervisor.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Data collection</strong>, distribution of data collection tools.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Data analysis and project writing</strong>, compiling the analysed information, results, discussion, conclusion and recommendations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td><strong>Dissemination</strong>, copies of dissertation presented to University.</td>
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</tbody>
</table>
APPENDIX D: A MAP OF UGANDA
APPENDIX E: A MAP OF BUSHENYI.
OFFICE OF THE ADMINISTRATOR – SAHS

19th April 2017

The Executive Director KIUTH

Dear Professor,

SUBJECT: DATA COLLECTION
Academic research project is an Academic requirement of every student pursuing a 3 year Diploma in Clinical Medicine & Community Health (DCM) of Kampala International University- Western Campus (KIU-WC). DCM program is housed in the School of Allied Health Sciences (SAHS).

The students have so far obtained skills in Proposal writing especially chapter one, Three & Questionnaire design. The student’s topic has been approved by SAHS Research Unit and is therefore permitted to go for data collection alongside full proposal & dissertation writing. As you may discover the student is in the process of full proposal development. However, the student MUST present to you his questionnaire and his research specific objectives that he wishes to address. We as academic staff of Allied Health Sciences are extremely grateful for your support in training the young generation of Health Professionals. I therefore humbly request you to receive and allow the student SSENYONGA HARUNAH Reg.No. DCM/0081/143/DU in your hospital to carry out his research. His topic is hereby attached. Again we are very grateful for your matchless support and cooperation.

Topic: PREVALENCE AND FACTORS ASSOCIATED WITH PUERPERAL SEPSIS AMONG WOMEN DELIVERING AT KIUTH-WESTERN CAMPUS ISHAKA BUSHENYI.

Sincerely yours,

Christine Kyobuuhire, Administrator- SAHS

CC: Dean SAHS
CC: Associate Dean SAHS
CC: Coordinator, Research Unit- SAHS
CC: H.O.D Dept. Public Health
CC: H.O.D Laboratory Sciences
CC: Coordinators; TLC & DEC

“Exploring the Heights”
APPENDIX G: MORGAN AND KREJCIE TABLE

<table>
<thead>
<tr>
<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
<th>N</th>
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<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
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</thead>
<tbody>
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<td>10</td>
<td>10</td>
<td>100</td>
<td>80</td>
<td>260</td>
<td>162</td>
<td>800</td>
<td>260</td>
<td>2800</td>
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Note:  
"N" is population size  
"S" is sample size.