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Knowledge Attitude and Practices of Health Workers on Puerperal Sepsis Preventions at Bundibugyo Hospital Bundibugyo District

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ABSTRACT

Globally, puerperal sepsis is estimated to account for 15% of the 500,000 maternal deaths annually. It is the third most common cause of maternal death worldwide. The purpose of the study was to assess the Knowledge, Attitude and Practices of health workers in the prevention of puerperal sepsis at Bundibugyo Hospital, Bundibugyo district. The study was a cross-sectional descriptive study design that used quantitative methods. A consecutive sampling method was used to select respondents. The sample size was 96 but 73 respondents were interviewed using self-administered questionnaires, where data was coded, entered using SPPS 20.1 and presented in tables, graphs and pie charts. The results showed that health workers had inadequate knowledge of puerperal sepsis where 30(45.5%) correctly described puerperal sepsis. 31(38.3%) and 29(35.8%) reported repeated vaginal exams and caesarean section as risk factors for puerperal sepsis, respectively. The majority of the health workers had a positive attitude towards the prevention of puerperal sepsis. Practices of health workers to prevent puerperal sepsis are hand washing 45(55.5%), wearing gloves 81(100%), screening for risk factors 76(93.6%) and use of prophylactic antibiotics. In conclusion, health workers have inadequate knowledge of puerperal sepsis prevention, a positive attitude and good practices on puerperal sepsis prevention. And the researcher recommends that all health workers on maternity wards should undergo special training on puerperal sepsis prevention methods.

Keywords: Puerperal sepsis, Maternal deaths, Health workers, Prophylactic antibiotics, Caesarean section.

INTRODUCTION

Puerperal infections date back to at least the 5th century BCE in the writings of Hippocrates [1]. These infections were a very common cause of death around the time of childbirth starting in at least the 18th century until the 1930s when antibiotics were introduced. In 1847, in Austria, Ignaz Semmelweiss through the use of hand washing with chlorine. In the 19th century, Igaz Semmelweis showed that puerperal sepsis was contagious and that it could be prevented with adequate hand hygiene. An obstetrician called Alexander Gordon was the first to prove the contagious nature of puerperal sepsis and he also advocated the need for good hygiene for its prevention in a thesis published in 1795 [2]. Puerperal sepsis is a genital tract infection occurring at any time within the rupture of extra placental membranes or labour and the 42nd day postpartum, characterized by symptoms like pelvic pain, fever (oral temperature of 38.5°C or higher on any occasion), abnormal vaginal discharge (the presence of pus and abnormal smell/foul odour), and delay in the involution of the uterus [3]. The predisposing factors to puerperal sepsis include anaemia in pregnancy, prolonged labour, frequent vaginal examination, premature rupture of membranes, and use of unsterilized or unwashed instruments during delivery [4]. A variety of bacterial pathogens has been implicated in causing puerperal sepsis including a wide range of anaerobes like peptostreptococcus, clostridia, pseudomonas and Bacteroides fragilis and facultative aerobes such as E. coli, enterococci, klebsiella spp, beta-hemolytic Streptococci and staphylococci [5]. Group A streptococcus (GAS) is the most feared pathogen and up to 30% of the

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population are asymptomatic carriers of GAS [6]. Puerperal sepsis is one of the five leading causes of maternal mortality worldwide and accounts for 15% of all maternal deaths annually [7]. Postpartum sepsis accounts for most maternal deaths between three and seven days postpartum, the rate of incidence is very high and consequently the mother and newborn have virtually higher infection risk [8]. In developed countries such as the USA, the rate of puerperal sepsis has declined significantly. For example, in the USA, puerperal sepsis occurs in only 5.5% of vaginal deliveries and 7.4% of caesarean section deliveries [9]. Low-resource countries account for 99% (286000) of global maternal mortalities with sub-Saharan Africa responsible for the bulk of the maternal deaths and accounting for 62% followed by southern Asia at 24% [10]. A study conducted in Nandi County, Kenya revealed that there was a lack of knowledge on the aetiology of infection and the healthcare facilities were short of the adequate prerequisites to perform puerperal sepsis awareness both in the clinic and community [11]. In Uganda, puerperal sepsis is the leading cause of maternal death accounting for 30.9% of the direct causes of Maternal Mortality at Mbarara RR Hospital. The current Maternal Mortality Ratio (MMR) in Uganda is 438 per 100,000 live births coming from 550 per 100,000 in 1990. Mortality rates are thought to be higher in areas that lack proper sanitation [10].

Statement of Problem

Globally, puerperal sepsis is estimated to account for 15% of the 500,000 maternal deaths annually [9]. And it is the third most common cause of maternal death worldwide after haemorrhage and abortion [12]. Despite maternal mortality decreasing by around 44% between 1990 and 2015, recent reports suggest that cases of puerperal sepsis are on arise [13]. Countries in developing regions, especially in sub-Saharan Africa still have a problem as far as reduction of maternal mortality [14]. Uganda's current maternal mortality ratio is very high with puerperal sepsis being the leading cause. At Mbarara RR Hospital, puerperal sepsis accounted for31%of maternal deaths, making it the most common cause of maternal mortality at the facility [10]. The major consequences of puerperal sepsis are pelvic inflammatory disease leading to bilateral tubal occlusion and infertility, pelvic peritonitis, wound infection, necrotizing fasciitis, anaemia, chronic pelvic pain, ectopic pregnancy, psychological morbidity and maternal mortality [15]. Puerperal sepsis is however a preventable cause of maternal death through improved hygiene, the use of low-cost novel antibiotics for prophylaxis and treatment, ensuring that births occur with the assistance of skilled health personnel, access to obstetric care and an effective referral system. The Millennium Development Goals 5 and Sustainable Development Goal 3 target improving maternal health and ensuring good health and well-being respectively, and some developed countries have made strides toward achieving these targets [16]. It's why the researcher is doing this study to give informed recommendations for corrective interventions.

Aim

To assess the Knowledge, Attitudes and Practices of health workers on the prevention of puerperal sepsis at Bundibugyo Hospital, Bundibugyo district.

Specific Objectives

- To assess the knowledge of health workers on the prevention of puerperal sepsis among mothers at Bundibugyo Hospital.
- To assess the attitude of health workers toward the prevention of puerperal sepsis mothers at Bundibugyo Hospital.
- To assess the practices of health workers in the prevention of puerperal sepsis among mothers at Bundibugyo Hospital.

Research questions

(i) What is the health workers' knowledge towards the prevention of puerperal sepsis among mothers at Bundibugyo Hospital?
(ii) What is the attitude of health workers toward the prevention of puerperal sepsis mothers at Bundibugyo Hospital?
(iii) What are the health workers' practices towards the prevention of puerperal sepsis among mothers at Bundibugyo Hospital?

METHODOLOGY

Study design

The study was a cross-sectional descriptive study that employed quantitative data collection methods. The researcher selected the above method because it allows easy collection of data at a single point in time.

Area of Study

The place of study was Bundibugyo Hospital in Bundibugyo town council, Bundibugyo district. The Hospital serves the Bundibugyo town council and the neighbouring sub-counties of Nyahuka, Kikyo, Busaru, Bukonzo, Harugale, and Ntotoro among others. The Hospital is linearly located along the Lamya-Fort portal highway in Bundibugyo

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town council, Western Uganda. The hospital has departments ranging from paediatrics, ART clinic, Maternity, antenatal services, outpatient department, inpatient departments, ophthalmology, ENT, Dental Surgery and Rehabilitation (physiotherapy). The study was conducted specifically in the maternity ward and MCH where cases of puerperal sepsis were basically found. The researcher selected this Hospital because of its status as a district hospital, acting as a referral for the health centre IVs in the whole district.

Study population

The study targets all qualified health workers including doctors and nurses.

Inclusion criteria

All health workers working in the maternity ward.

Exclusion criteria

All health science students and qualified health workers in other departments did not participate in this study. Health workers in other departments (e.g. Laboratory, paediatrics and medical wards Radiology and Rehabilitation departments) were excluded. Also, unwilling health workers working in the maternity ward were excluded from this study.

Sample size determination

The sample size was calculated using the Kish and Leslie formula (1965) for a single proportion as follows;

$$n = \frac{Z^2 PQ}{d^2}$$

Where;

n =sample size.

Z = the value that corresponds to the 95% confidence interval which is 1.96.

P = proportion of health care workers providing health service delivery at Bundibugyo Hospital. P was conventionally taken to be 0.5 because there was no literature.
Q = 1-0.5 =0.5

d = Precision of the study. A precision of 5% (0.05) was used as a standard

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.1)^2} = 96$$

Therefore, the sample size was 96.

Definition of variables

Dependent variable

Prevention of Puerperal sepsis at Bundibugyo Hospital, Bundibugyo district.

Independent variables

- Health workers' knowledge on prevention of puerperal sepsis at Bundibugyo Hospital, Bundibugyo district.
- Health workers' attitude on prevention of puerperal sepsis at Bundibugyo Hospital, Bundbugyo district.
- Health workers' practices to prevent puerperal sepsis at Bundibugyo Hospital, Bundibugyo district.

Sampling procedure

A consecutive sampling technique was used, where every participant meeting the inclusion criteria was selected until the required sample size was achieved, and a form of non-probability sampling method was used. This is because there was no sampling frame available for this type of study design especially for the first-time respondents. The researcher administered questionnaires to the respondents.

Data Collection

Data were collected by administering a questionnaire to a single participant. The researcher explained to the respondents the research project, the purpose, and the kind of questions that were asked. Confidentiality was assured, consent was asked for and a consent form was signed. Filling out the questionnaire could take spend 10 to 20 minutes. At the end of filling out the questionnaire by the respondent, the researcher thanked the respondent for their cooperation.

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Data management

This involved manual checking for errors and omissions in the filled tools to ensure consistency, completeness, validity, relevancy and accuracy of the data that was collected this was done every day after data collection and every respondent would be counted once.

Data analysis

Data were analyzed using Microsoft Excel, calculators and papers and also SPSS version 20.1. Data analysis started by allocating codes for each question, tallying, counting frequencies and computing percentages. Tabulation was done and data was put in their respective figures. This was done to facilitate the process for easy analysis and interpretation of the findings. The percentages were further analyzed by establishing the relationship between the independent and the dependent variables where the information obtained was presented using the cross-tabulation method (cross-tabulation analysis) and hence appropriate tables, graphs, and pie charts among others.

Quality control

The researcher trains the research assistants prior to data collection. The research questionnaires were first administered to 30 respondents prior to the date of data collection for the purpose of pretesting and ensuring validity.

Ethical considerations

All participants were informed about the nature of the study and they were given the option of withdrawing from the study or omitting answering certain questions without any negative repercussions. Anonymity and confidentiality were assured. Ethical approval was obtained from the Research and Ethics Committee of KIU-WC before data collection

RESULTS

Socio-demographics of health workers on prevention of puerperal sepsis.

Respondents were identified by gender, designation, working experience and level of education, owing to the nature of the study and interpreting data from the field regarding the knowledge and practices of health workers on the prevention of puerperal sepsis.

Table 1 shows the socio-demographics of the respondents *n=73*

VARIABLE	FREQUENCY (n)	PERCENTAGE (%)
Gender		
Male	27	37
Female	46	63
Total	**73**	**100**
Designation		
Midwife	22	30.1
Nurses	34	46.6
Clinical officer	12	16.4
Medical officers	05	6.9
Total	**73**	**100**

The results in the table above show that the majority of 46(56.8%) of the respondents were female and that 27(37%) were male. It also shows that majority 34(46.6%) of the respondents were nurses, 22(30.1%) were midwives, 05(6.9%) were medical officers and minority 12(16.4%) were clinical officers.

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Table 2: Shows the working experience and level of education of respondents

n=73

VARIABLE	FREQUENCY(n)	PERCENTAGE (%)
Working experience		
1-3 years	31	42.5
4-6 years	23	31.5
More than 6 years	19	26
Total	**73**	**100**
Level of education		
Certificate	36	49.3
Diploma	26	35.6
Bachelor's degree	10	13.7
Masters	01	1.4
Total	**73**	**100**

The table above indicates that the majority 31(42.5%) of the respondents had worked for a duration of 1-3 years, 23(31.5%) for a duration of 4-6 years and a minority of the respondents 19(26%) had worked for more than 6 years. It also shows that the majority 36(49.3) of the health workers were certificate holders, 26(35.6%) had a diploma, 10(13.7%) had a bachelor's degree and the minority 01(1.4%) of the health workers had master's degree holders.

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Health workers' knowledge of the prevention of puerperal sepsis
n=73

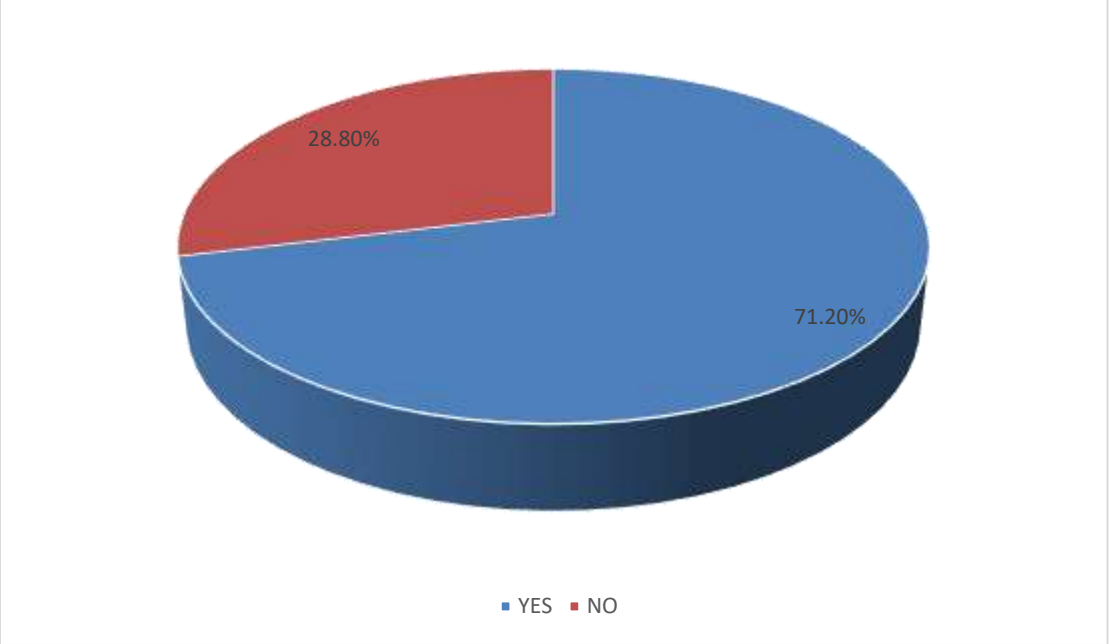

Figure 1: shows health workers' knowledge of puerperal sepsis
The figure above shows that the majority 52(71.2%) of the respondents had knowledge of puerperal sepsis and the minority 21(28.8%) of the respondents had no knowledge of puerperal sepsis.

Table 3: Shows the description of puerperal sepsis by health workers with knowledge of puerperal sepsis
n=66

Variable	**Frequency (n)**	**Percentage (%)**
Description of puerperal sepsis		
Bacterial infection of the female reproductive tract after childbirth/miscarriage in 6 weeks	30	45.4
Infection of mother after delivery in 6 weeks	20	30.3
Infection after delivery by caesarian section in 6 weeks	12	18.2
Infection of newborn baby in 6 weeks	04	6.1
Total	**66**	**100**
Correct description	30	45.5
Incorrect description	36	54.5
Total	**66**	**100**

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The table shows that most 30(45.5%) of health workers described puerperal sepsis as bacterial infection of the female reproductive tract after childbirth in 6 weeks, 20(30.5%) described it as an infection of the mother after childbirth in 6 weeks, 12(18.2%) described it as infection of a mother after delivery by caesarian section in 6weeks and least 4(6.1%) of the respondents described puerperal sepsis as the infection of the newborn baby within 6 weeks. The table also shows that the majority 36(54.5%) of the respondents described puerperal sepsis incorrectly and that a significant number 30(45.5%) of the respondents described puerperal sepsis correctly.

Table 4: shows the knowledge of the signs and symptoms of puerperal sepsis

n=73

Variable	Frequency(n)	Percentage (%)
Knowledge of signs and symptoms of puerperal sepsis		
Yes	58	79.5
No	15	20.5
Total	**73**	**100**
Identifying signs and symptoms of puerperal sepsis		
Able to identify signs and symptoms of puerperal sepsis as fever, abdominal pain and bad smelling per vaginal discharge	51	69.9
Unable to identify signs and symptoms of puerperal sepsis	22	30.1
Total	**73**	**100**

The table above shows that the majority 58(79.5%) of the respondents indicated that they knew the signs and symptoms of puerperal sepsis while the minority 15(20.5%) did not. It also shows that the majority 51(69.9%) of the respondents were able to identify correctly the signs and symptoms of puerperal sepsis while the minority 22(30.1%) were unable.

n=73

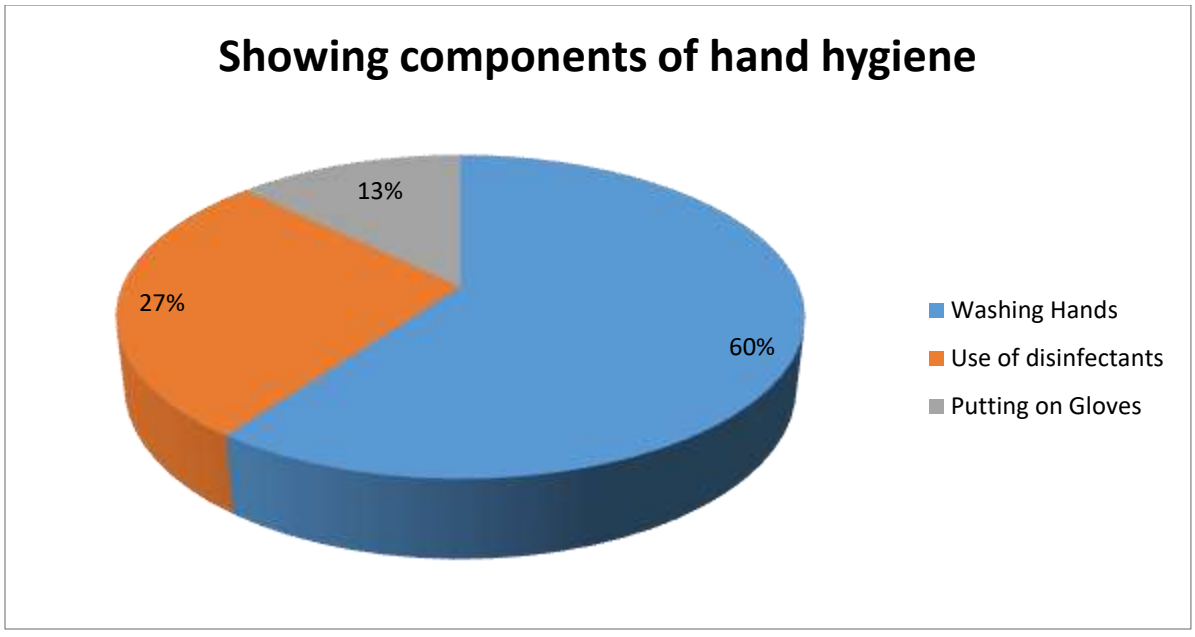

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Figure 2: Shows components of hand hygiene suggested by health workers

The figure above shows that the majority 33(45.2%) of the respondents mentioned washing hands while the minority 15(20.5%) of the respondents mentioned the use of disinfectants. 18(24.7%) mentioned putting on gloves while 7(9.6%) did not respond.

Table 5 shows health workers' responses on the role of hand hygiene in the prevention of puerperal sepsis

n=73

Variable	Frequency(n)	Percentage (%)
Whether hand hygiene is important in puerperal sepsis prevention		
Yes	55	75.3
No	18	24.7
Total	**73**	**100**
How hand hygiene prevents puerperal sepsis		
Eradicates bacteria	15	20.5
Reduces infection spread	38	52.1
Unresponsive	20	27.4
Total	**73**	**100**

The table above shows that the majority 55(75.3%) of the health workers accepted that hand hygiene is important in the prevention of puerperal sepsis while the minority 18(24.7%) did not accept. It also shows that the majority 38(52.1) of the respondents suggested that hand hygiene prevents puerperal sepsis by reducing the spread of infection/microorganisms while the minority 15(20.5%) of the respondents suggested that hand hygiene prevents puerperal sepsis by eradicating the bacteria. 20(27.4%) of health workers did not suggest anything.

Table 6: showing suggested risk factors for puerperal sepsis
n=73

Risks to puerperal sepsis	Frequency (n)	Percentage (%)
Anaemia/malnutrition	37	50.7
Early rupture of membrane/ Prolonged labour	49	67.1
Repeated vaginal Examinations	31	42.5
Caesarian section delivery	29	39.7
Urinary tract infections	39	53.4
Chronic illnesses e.g. DM, HIV	41	56.2
Retained products of conception/manual removal of placenta	17	23.3

The table above shows that most 49(67.1%) responses indicated early rupture of membranes and prolonged labour as a risk factor of puerperal sepsis while retained products of conception and manual removal of the placenta as the

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least 17(23.3%) risk factors. A significant number of 41(56.2%) responses indicated chronic illnesses like HIV/AIDS and DM, Urinary Tract Infection 39(53.4%), caesarian section 29(39.7%), repeated vaginal examinations 31(42.5%) and anaemia/malnutrition 37(50.7%).

Table 7 showing suggested ways of reducing puerperal sepsis

n=73

Variable	Frequency (n)	Percentage (%)
During Antenatal		
Health Education of mothers during antenatal	54	74.0
Treatment of risk factors e.g. UTI, anaemia, DM	39	53.4
Regular antenatal visits to identify mothers at risk	28	38.4
Good nutrition	26	35.6
Hand hygiene	12	16.4
During Intrapartum/postpartum		
Prophylactic antibiotics	27	37
Hygienic environment	11	15
Minimal vaginal examinations	15	21.9
Aseptic procedures	31	42.5
Identification and treatment of mothers at risk	25	34.2

The table above shows suggested ways of preventing puerperal sepsis during antenatal and the majority 54(74.0%) of the respondents indicated health education of the mother while the minority 12(16.4%) of respondents indicated hand hygiene. A significant number of 39(53.4%) respondents mentioned treatment of risk factors while 28(38.4%) respondents suggested regular antenatal visits and 26(35.6%) suggested good nutrition. The table also shows the prevention of puerperal sepsis during the intrapartum/postpartum period, and the majority 31(42.5%) of respondents suggested aseptic procedures while a minority 11(15%) suggested a hygienic environment. 27(37%) suggested the use of prophylactic antibiotics and 28(%) suggested the identification and treatment of mothers at risk of puerperal sepsis.

n=73

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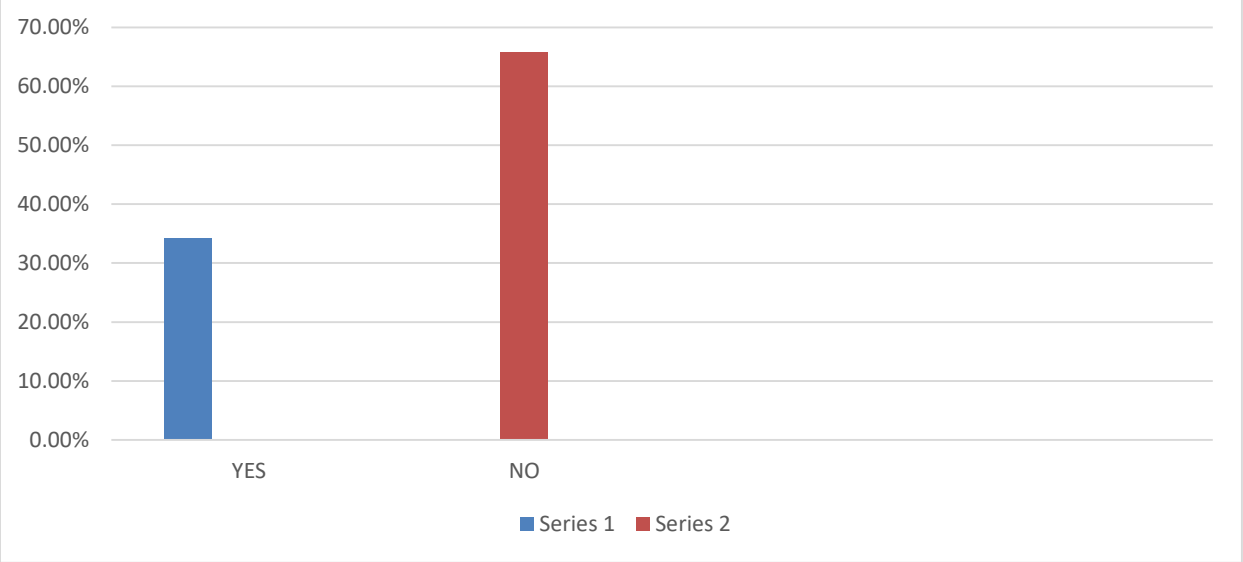

Figure 3: Shows whether respondents have ever heard about GAS guidelines recommended by CDC

The figure above shows that the majority 48(65.8%) of the respondents did not know GAS guidelines while the minority 25(34.2%) of the respondents had heard about the GAS guidelines

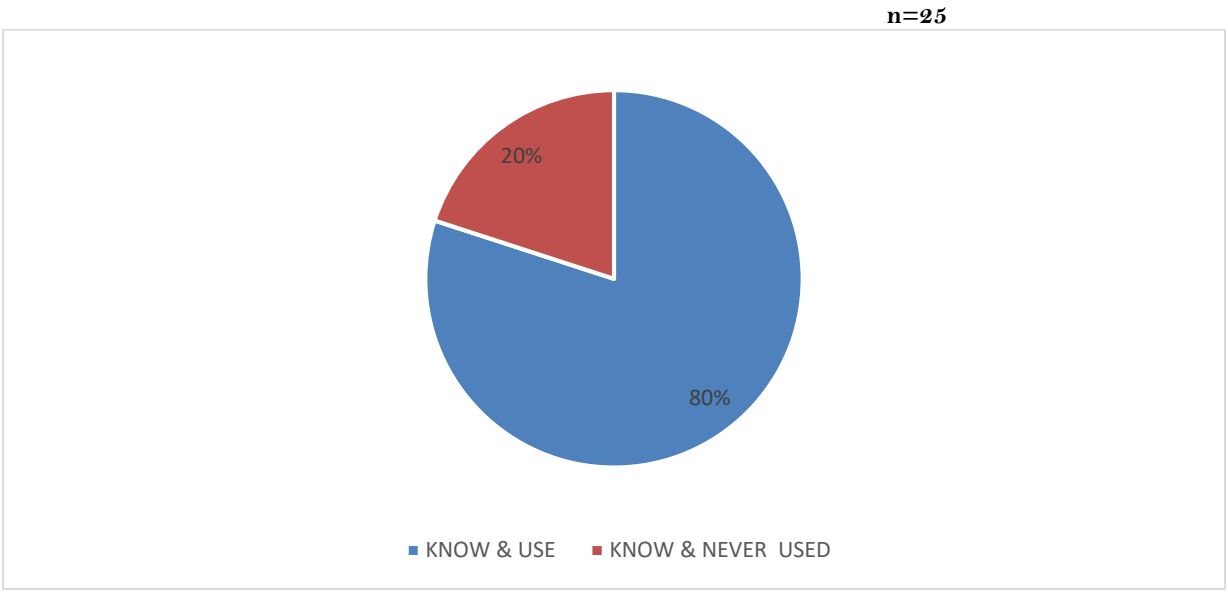

Figure 4: Shows respondents who ever heard about GAS guidelines and used it

The figure above shows that most 20(80%) of the respondents have ever used the GAS guidelines while the minority 5(20%) of the respondents have never.

Health worker's attitude on prevention of puerperal sepsis

Table 8: showing the attitudes of health workers on the prevention of puerperal sepsis

Variable	Strongly Agree (%)	Agree	Neutral	Disagree	Strongly Disagree	Total (%)

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		(%)	(%)	(%)	(%)	
Frequent vaginal examinations can lead to puerperal sepsis	84.9	15.1				100
Hand hygiene is very important in the prevention of puerperal sepsis	46.6		32.9		20.5	100
Adherence to standard precautions is a healthcare worker's responsibility	79.5	20.5				100
The use of gloves while attending to a patient helps in reducing the risk of transmission of infection	89	11				100
Damp dusting is vital in preventing infections like puerperal sepsis	67.1	13.7			19.2	100
Puerperal sepsis can be prevented/detected early	63	37				100

The table above shows that most (84.9%) respondents strongly agreed that frequent vaginal examinations can lead to puerperal sepsis while 15.1% agreed to the same fact. It also shows that most (46.6%) strongly agreed that hand hygiene is very important in preventing puerperal sepsis, a significant number 32.9% were in a neutral position regarding hand hygiene and puerperal sepsis prevention and 20.5% strongly disagreed that hand hygiene is important in prevention of puerperal sepsis. The table also shows that the majority (79.5%) strongly agreed that adherence to standard precautions is a healthcare worker's responsibility while the minority (20.5%) agreed. It also showed that most (89%) respondents strongly agreed that the use of gloves reduces the risk of infection transmission. It also shows that the majority (67.1%) of the respondents strongly agreed that damp dusting is vital in preventing infections like puerperal sepsis while 19.2 % strongly disagreed. The table also shows that the majority of the respondents strongly agreed that puerperal sepsis can be prevented and detected early while 37% simply agreed to the fact.

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Health workers' practices towards prevention of puerperal sepsis

Table 9: Shows how often respondents wash their hands during vaginal examinations n=73

Variable	Frequency	Percentage
How often hand washing is done during VE		
Very rarely	12	16.4
Each time I do VE	45	61.6
Usually forgets	06	8.3
No need to wash hands &wear gloves	10	13.7
Total	**73**	**100**

The table above shows that the majority 45(61.6%) of the respondent washed their hands each time they did a vaginal examination while the minority 10(13.7%) of the respondents did not wash their hands because they had gloves. 06(8.3%) of respondents usually forgot to wash their hands before conducting the vaginal exam and 12(16.4%) washed their hands very rarely.

n=73

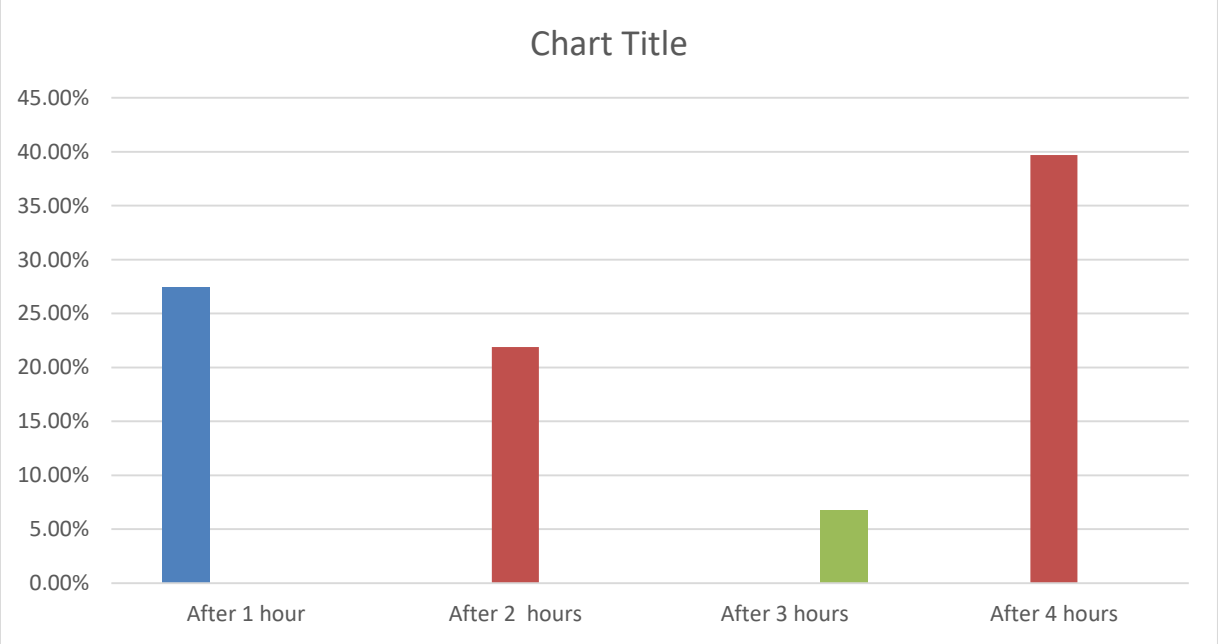

Figure 5: Shows the duration range of conducting a vaginal examination in labour

The figure above shows that the majority 29(39.7%) of the respondents conducted vaginal examinations every after four hours while the minority 08(11%) conducted vaginal examinations every after three hours. A significant number of 20(27.4%) conducted vaginal examinations every after one hour and 16(21.9%) conducted vaginal examinations after two hours.

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Table 10: Shows protective equipment/gear used during childbirth n=73

Variable	Frequency (n)	Percentage (%)
Protective equipment respondents wear		
Gloves	70	95.9
Gumboots	14	19.2
Protective aprons	35	47.9
Gowns	11	15.1
Face mask	15	20.5
Kind of gloves put on during delivery		
Surgical/sterile gloves	55	75.3
Disposable/clean gloves	18	24.7
Polythene paper (kava) sometimes	00	00
Total	**73**	**100**

The table above shows that all respondents 70(95.9%) wear gloves while conducting childbirth while a minority 11(15.1%) wear gowns. 35(47.9%) put on protective aprons, 14(19.2%) wear gum boots and only 15(20.5) put face masks. It also shows that the majority 55(75.3%) of the respondents use surgical gloves while the minority 18(24.7%) use disposable gloves.

Table 11: Shows equipment safety and treatment of mothers at risk of puerperal sepsis

n=73

Variable	Frequency(n)	Percentage (%)
Ensuring delivery sets are germ-free is by		
Autoclave sterilization	55	75.3
Disinfection with antiseptic	18	24.7
Clean with water and soap	00	00
Total	**73**	**100**
The commonest treatment was given to mothers at high risk of puerperal sepsis		
Aseptic technique	23	31.5
Broad spectrum antibiotic	39	53.4
Reassurance of the mother	11	15.1
Induction of labour	00	00
Total	73	100

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The table above shows that the majority 55(75.3%) of the respondents use the autoclave to sterilize delivery sets while the minority 18(24.7%) use disinfection with antiseptics. No respondents use soap and water. It also shows that the majority 39(53.4%) of health workers give prophylactic broad-spectrum antibiotics to mothers at risk of sepsis while the minority 11(15.1%) reassure the mother and 23(31.5%) ensure aseptic technique.

Table 12: Shows the kind of mothers given prophylactic antibiotics to prevent puerperal sepsis

n=73

Variable	**Frequency (n)**	**Percentage (%)**
Condition of mother		
Episiotomy	22	33.3
Caesarian delivery	39	56.8
Early rupture of membranes	31	42.5
Urinary tract infection	67	91.8
Malnutrition	21	25.9
Postpartum haemorrhage	16	21.9
Comorbidities e.g. DM, STD, HIV	22	28.8
All mothers onward	69	94.5

The table above shows that the majority 69(94.5%) of the respondents give prophylactic antibiotics to all mothers on the ward while a minority 16(21.9%) of the respondents give prophylactic antibiotics to mothers who develop postpartum haemorrhage. 67(91.8%) of respondents give prophylactic antibiotics to mothers with urinary tract infections, 39(56.8%) give antibiotics to mothers who deliver by caesarian section, 31(42.5%) give mothers with early rupture of membranes, 27(33.3%) give mothers done episiotomy, 21(25.9%) give mothers who are malnourished and 22(28.8%) give prophylactic antibiotics to mothers with comorbidities like HIV/AIDS, STI, diabetes mellitus.

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Table 13: Shows a list of puerperal sepsis predisposing conditions screened for in pregnant mother

n=73

Variable	Frequency(n)	Percentage (%)
Condition		
HIVAIDS	63	86.3
Anaemia	11	15.1
Urinary tract infection	44	60.3
STD	67	91.8
Diabetes mellitus	21	28.8
Malnutrition	57	78.1
Hypertensive diseases	32	43.8

The table above shows that most 63(86.3%) health workers identified HIV/AIDS as one of the puerperal sepsis predisposing conditions screened for in mothers while a minority 11(15.1%) screened for anaemia. 67(91.8%) of Respondents screen mothers for STDs, 44(60.3%) screen mothers for urinary tract infections, 57(78.1%) health workers screen mothers for malnutrition, 32(43.8%) respondents screen mothers for hypertensive diseases and 21(28.8%) of health workers screen mothers for diabetes mellitus.

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n=73

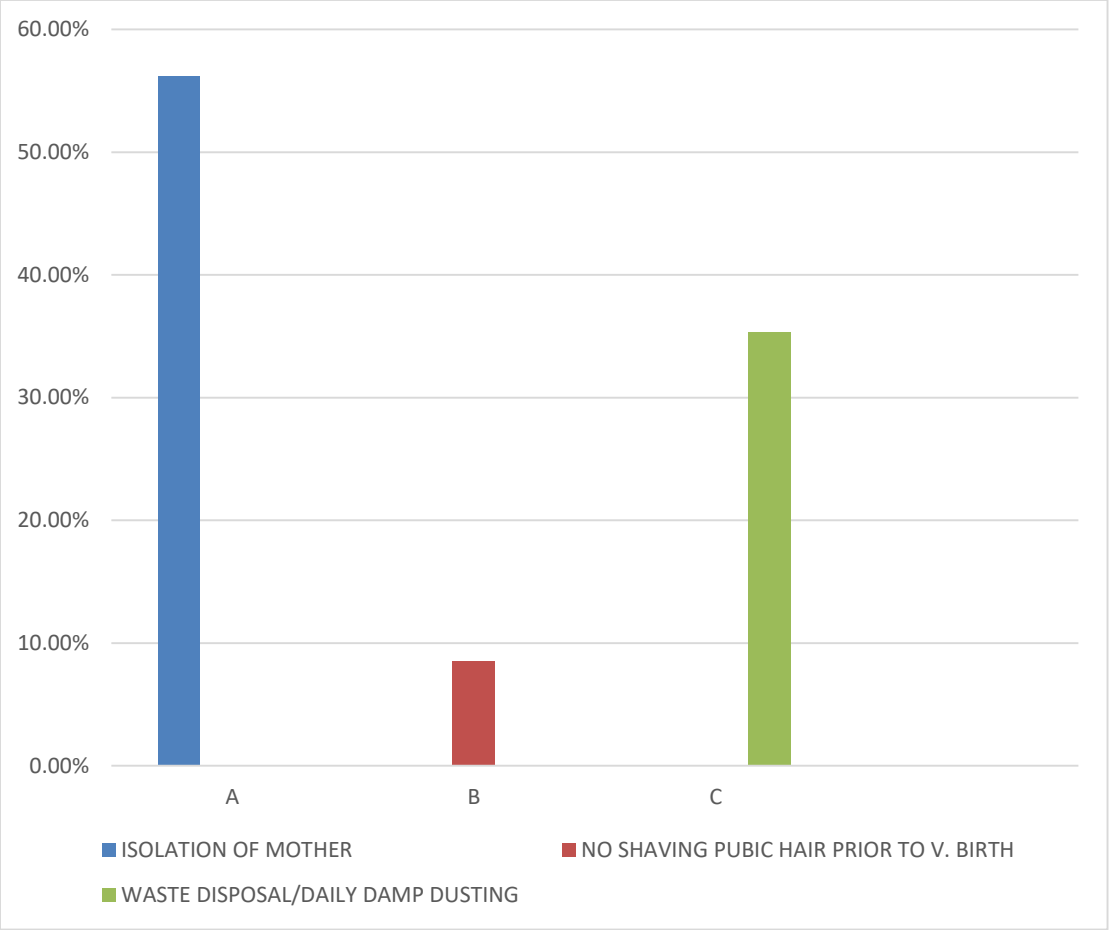

Figure 6: Shows daily activities done to prevent puerperal sepsis

The figure above shows that the majority 41(56.2%) of the health workers isolate mothers with sepsis while the minority 6(8.3%) avoided pubic hair shaving prior to vaginal birth. And 26(35.5%) of the respondents practice proper waste disposal and daily damp dusting.

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Table 14: Shows training on sepsis and its impact on health workers

n=73

Variable	Frequency (n)	Percentage (%)
Ever had training on sepsis		
YES	55	75.3
NO	18	24.7
Total	73	100
The outcome of the training		
Ability to detect early signs and symptoms	64	87.7
Improved care of my patients	49	67.1
No significant impacts	13	17.8

The table above shows that the majority 55(75.3%) of the health workers had been trained on sepsis while the minority 18(24.7%) had not. It also shows that the majority 64 (87.7%) of those who had the training on sepsis benefited from the ability to detect early signs and symptoms of sepsis, 49(67.1%) benefited from the improved care for mothers with sepsis while the minority 13(17.8%) reported that the training had no significant impact.

DISCUSSION

Knowledge of Health workers on prevention of puerperal sepsis

This showed that the majority 52(71.2%) of the respondents had knowledge of puerperal sepsis. This agrees with the study done on preventive measures of puerperal sepsis by [17], which found that most respondents (30(60%) had knowledge of puerperal sepsis and its preventive measures. The study found that the majority 36(54.5%) of the health workers described puerperal sepsis incorrectly with only 30(45.5%) describing puerperal sepsis as bacterial infection of the female reproductive tract post-delivery within 6 weeks. This finding agrees with the findings of a study done by [18], in the United Kingdom which attributed the occurrence of sepsis to limited awareness of sepsis among health personnel and poor identification with delayed intervention. This study also revealed that the majority 58(79.5%) of the health workers knew the signs and symptoms of puerperal sepsis with 51(69.9%) of the respondents identifying correctly the signs and symptoms of puerperal sepsis. This finding contradicts with a study by the World Sepsis Declaration, 2014 which concluded that there is too little knowledge in identifying sepsis signs and symptoms among physicians and nursing staff [19]. This study revealed inadequate knowledge of components of hand hygiene, one of the key measures of prevention of puerperal sepsis with 33(45.2%) of the respondents mentioning washing hands, 15(20.5%) mentioning the use of disinfectants and 18(24.7%) mentioning wearing gloves. This study contradicts with a study conducted among medical students which revealed poor knowledge of hand hygiene with more than 40% of the study participants being unaware of the importance of hand washing [20]. The study also revealed that the majority 55(75.3%) of the health workers accepted that hand hygiene is important in the prevention of puerperal sepsis, with the majority 38(52.1%) of the respondents suggesting that hand hygiene prevents puerperal sepsis by reducing the spread of infection and/or eradication of microorganisms. This study contradicts a study by [20], which found out more than 40% of the study participants were unaware of the importance of hand washing [20].In this study, it was revealed that respondents had knowledge of the risk factors of puerperal sepsis as health workers were able to mention some of the risk factors like early rupture of membranes/prolonged labour 49(67.1%), retained products of conception and manual removal of placenta 17(23.3%), chronic illnesses like HIV/AIDS and DM 41(56.2%), Urinary Tract Infection 39(53.4%), caesarian section 29(39.7%), repeated vaginal examinations 31(42.5%) and anaemia/malnutrition 37(50.7%). This study contradicts the studies that indicated that female health workers have low knowledge about emergencies to stabilize the patient prior to referral and identify and manage complications arising during pregnancy and prevention and treatment of pregnancy-related problems hence there was an urgent need to redesign the basic training of health workers working in the management of gynaecological

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problems [21]. This study revealed inadequate knowledge of important measures necessary in the prevention of puerperal sepsis in antepartum, intrapartum and postpartum as 28(38.4%) respondents suggested regular antenatal visits, 12(16.4%) suggested hand hygiene, 11(15%) suggested aseptic technique and 27(37%) suggested use of prophylactic antibiotics were necessary. This puts many mothers at a high risk of developing puerperal sepsis, thus raising its prevalence. The result of this research contradicts the study in Ghana on the knowledge and attitude of health workers and patients on sepsis which indicated that most health workers had knowledge on how to prevent sepsis postpartum with a 100% of the health workers mentioning thorough hand washing with soap as one of the methods [22]. This study is in line with a report by the International Journal of Science and Research on the use of antibiotics and the presence of skilled healthcare staff globally, aseptic precautions advance in investigation tools, improvement in MCH services, and trained birth attendants at delivery have played a major role in reducing the incidence of puerperal sepsis [23]. This research also showed that the majority 48(65.8%) of the respondents did not know GAS guidelines. This agrees with a study conducted on Provider Knowledge, Attitude and Practices regarding Obstetric and Postsurgical Gynecologic Infections Due to GAS which showed a lack of awareness of GAS guidelines among one of their targeted audiences, which was due to a lack of knowledge of the existence of these guidelines, most likely because the guidelines are published in a journal not read by these respondents [24].

Health Workers' Attitudes on Prevention of puerperal sepsis

This research study revealed that most (84.9%) respondents strongly agreed that frequent vaginal examinations can lead to puerperal sepsis. This agrees with the study by [25]. which found that 82% of the respondents strongly agreed that frequent vaginal examinations can lead to the development of puerperal sepsis. The table also shows that the majority (79.5%) strongly agreed that adherence to standard precautions is a healthcare worker's responsibility. This research study agrees with the study on KAP of midwives on the prevention of puerperal sepsis more than 80% of the respondents strongly agreed that following standard precautions was their responsibility as far as prevention of hospital-acquired infections is concerned, puerperal sepsis inclusive. This research showed that the majority (67.1%) of the respondents strongly agreed that damp dusting is vital in preventing infections like puerperal sepsis. This correlates to a study on infection control practices associated with puerperal sepsis, where over 90% of healthcare providers strongly agreed that damp dusting is a very important measure in preventing infection and that puerperal sepsis can be prevented and detected earlier [26].

Practices of Health Workers on Prevention of puerperal sepsis

The research found that the majority 45(61.6%) of the respondent washed their hands each time they conducted a vaginal examination. This study finding contradicts [27]finding that compliance among health workers in regard to regular and frequent hand washings is typically below 40%. The same research finding also disagrees with the statement by [28], that there is a vast amount of evidence that shows there is low compliance to hand washing by health workers, with hands being washed either infrequently or inadequately as only 12(16.4%) of the respondents washed their hands very rarely. This research showed that the majority 44(60.3%) of the respondents did not conduct a vaginal examination every after four hours as it is recommended, with a significant number of 20(27.4%) of health workers conducting vaginal examination every after one hour. This finding was practised against the study recommendations by [29], that limiting digital vaginal examination at the interval of four hours is an important consideration in the prevention of puerperal sepsis. The study also found out that 41(56.2%) of the health workers isolate mothers with sepsis, 06(8.3%) avoided pubic hair shaving prior to vaginal birth and 26(35.5%) of the respondents practised proper waste disposal and daily damp dusting, which indicated inadequate practice to prevent puerperal sepsis. This is contradicting the founding of [29], that general improvement of hospital sanitation like appropriate waste disposal, isolation of patients with sepsis, and avoiding routine perineal/pubic shaving prior to vaginal birth are key health workers' practices for the prevention of puerperal sepsis. However, this study did not consider the relationship between waste disposal, isolation of patients with sepsis and avoiding routine perineal/pubic shaving prior to vaginal birth and the occurrence of puerperal sepsis. The research also revealed that all respondents 70(95.9%) wear gloves while conducting child birth, 11(15.1%) wear gowns, 35(49.7%) put on protective aprons, 14(19.2%) wear gum boots and 15(20.5%) wear face masks. This agrees with a Kenyan study by [30]. on the use of protective gear, where findings revealed that most health workers conducted deliveries using gloves, aprons, headgear and gumboots. The research also showed that the majority 55(75.3%) of the respondents use surgical gloves while performing vaginal examination as a means of preventing puerperal sepsis. This agrees with [29], that using clean equipment such as surgical gloves during vaginal examination is recommended for preventing puerperal infections. The study revealed that the majority 55(75.3%) of the respondents use the autoclave to sterilize delivery sets as one way practised so as to prevent puerperal sepsis. This agrees with the statement that the use of pre-packed sterilized delivery kits is a recommended practice in the prevention of puerperal infections [29]. This study also showed that the majority 39(53.4%) of health workers give prophylactic broad-spectrum antibiotics to mothers at risk of sepsis. This is in line with the statement that the most common intervention for

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reducing morbidity and mortality related to maternal infection globally is the use of antibiotics for prophylaxis and treatment [31]. The research revealed that the majority 69(94.5%) of the respondents give prophylactic antibiotics to all mothers on the ward irrespective of whether there is a need or not. This to some extent agrees with the WHO, 2015 report that many low-income countries use broad-spectrum antibiotics without confirmation of the infective bacterial agent. The study also revealed that health workers administer prophylactic antibiotics to mothers with risks of puerperal sepsis such as postpartum haemorrhage 16(21.9%), urinary tract infection 67(91.8%), caesarian section 39(56.8%), early rupture of membranes 31(42.5%), malnourished mothers 21(25.9%), and comorbidities like HIV/AIDS, STI, diabetes mellitus 22(28.8%) This agrees with the findings of [32-35], that antibiotics are widely used (and misused) for obstetric conditions and procedures that are thought to carry substantial risks of infection to the mother. The research also indicated that most health workers screened mothers for conditions that predispose them to puerperal sepsis such as identified HIV/AIDS 63(86.3%), STDs 67(91.8%), urinary tract infections 44(60.3%), malnutrition 32(43.8%) and diabetes mellitus 21(28.8%) this agrees with a statement that conditions such as diabetes mellitus, urinary tract infections, anaemia, malnutrition and HIV/AIDS are a risk factor to puerperal sepsis and therefore diagnosis and treatment of such conditions during antenatal visits is a key practice in the prevention of puerperal sepsis [29]. The research above showed that the majority 43 (58.9%) of those who had training on sepsis benefited from the ability to detect early signs and symptoms of sepsis and improved care for mothers with sepsis. This agrees with the statement that the need for education and training of healthcare staff helps health workers in the early identification of subtle signs of developing sepsis [33, 36].

CONCLUSION

Knowledge of Health workers on prevention of puerperal sepsis

- Health workers have inadequate knowledge of the prevention of puerperal sepsis.
- Low social class mothers are at risk of developing postpartum sepsis, puerperal sepsis inclusive and low hygienic settings like labour suites and habits of mothers and health workers increase risks of puerperal sepsis.
- Health education of mothers and health workers' training on puerperal sepsis is an important pillar in the prevention and treatment of postpartum sepsis.

Health Workers' Attitudes on Prevention of puerperal sepsis

- Health workers have a fairly good attitude toward the prevention of puerperal

Practices of Health Workers on Prevention of puerperal sepsis

- Health workers have generally good practices in the prevention of puerperal sepsis.
- Puerperal sepsis cases can be greatly reduced through timely screening and timely and appropriate treatment as well as prevention of prenatal risk factors to the disease like antepartum haemorrhage, urinary tract infection, and early rupture of membranes, malnutrition, anaemia and comorbidities like HIV/AIDS, STI, and diabetes mellitus.
- Conduction of clean and safe deliveries through practices like the use of protective gear, thorough hand washing with soap and avoidance of frequent vaginal examination during labour and provision of prophylactic antibiotics can reduce the incidence of puerperal sepsis.

RECOMMENDATIONS

Knowledge of Health workers on prevention of puerperal sepsis

- All health workers should undergo special training on puerperal sepsis pointing out its prevention methods, identification of signs and symptoms and management of the disease.
- Pregnant mothers should also have health education sessions when they come for antenatal care so that risks like poor hygiene which is common among the low social class predisposing mothers to postpartum sepsis can be overcome.
- Follow-up teams should be created at health centres to adequately provide appropriate care for all pregnant mothers with puerperal sepsis risks.
- Refresher courses on clean and safe deliveries should be provided to all midwives, nurses and general practitioners.
- Conduct more research on the association between hand washing and puerperal sepsis.

REFERENCES

1. Walvekar and Vandana (2005). Manual of perinatal infections New Delhi: Jaypee Bros.p.153. ISBN9788180614729.
2. Balbaldeep and Paramjit K (2016). Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health. 2014. Feb 25; 13:16. [2]. Bamfo JEAK. Managing the risks of sepsis in pregnancy. Best Pract Res ClinObstetGynaecol. 2013.

Open Access
ONLINE ISSN: 2992-5819
PRINT ISSN: 2992-6149

3. WHO (2015). Trends in Maternal Mortality: 1990 To 2013. Estimates by WHO, UNICEF, UNFBA, The World Bank and The United Nations Population Division. Geneva: (WHO; 2008/2014).
4. Raymond K, Belinda B and Mecky M (2019). Laboratory confirmed puerperal sepsis in a national referral hospital in Tanzania: etiological agents and their susceptibility to commonly prescribed antibiotics. BMC Infectious Diseases 19: 690 (2019).
5. Tamoli SS, Musa J, Karshima JA, and Ifenne D.I (2017). Effects of puerperal sepsis on early neonatal mortality. PLoS One. 2017; 12(2): e0170856. Doi: 10. 1371/journal pone0170856. Medline.
6. Anderson BL (2014). Puerperal group A streptococcal infection: beyond Semmelweis. Obstetrics and gynaecology 123(4): 874-82.
7. Wynne A and Bigna SB (2015). Puerperal sepsis in the 21st century: progress, new challenges and the situation worldwide. Postgraduate Medical Journal vol 91, 2015.
8. Bartlett LA, LeFevre A.E., Soofi, Arif S, Mitra D.K, Quaiyum MA, Shakoor S, Islam MS, Connor NE, Winch PJ, Reller ME, Shah R, E Arifeen S, Baqui AH, Bhutta ZA, Zaidi A, Saha S, Ahmed SA; and ANISA (2016) Postpartum Sepsis Study Group. The development and evaluation of a community-based clinical diagnosis tool and treatment regimen for postpartum sepsis in Bangladesh and Pakistan. Reprod Health.
9. WHO (2015). World Health Organization recommendations for prevention and treatment of maternal peripartum infections.
10. Ngonzi J (2016). Effectiveness of structured teaching program on prevention of puerperal infection among primi postnatal mothers at Mbarara Regional Hospital. [PhD Thesis]. Mbarara, Uganda: Mbarar University of Science and Technology.
11. Martin V C, Jackim N, and M (2017). Associated factors with Puerperal Sepsis among Reproductive Age Women in Nandi County, Kenya, Journal of Midwifery Reproductive Health.
12. Dr Aruna R (2016). Puerperal sepsis. National Health Portal, India
13. FIGO (2018). Sepsis and its Impact on maternal mortality.
14. Sustainable Development Solutions Network (2014). Indicators for Sustainable Development Goals. United Nations. http://doi.org/10.3390/su5072840.
15. Yahaya SJ and Bukar (2018). Knowledge of symptoms and signs of puerperal sepsis in a community in north-eastern Nigeria: A cross-sectional study. Journal of Obstetrics and Gynaecology 33(2), 152-154, 2018.
16. United Nations (2015). Sustainable Development Goals.
17. Ambrose B.M,Iwueke A. Vivien, Miriam N., Shimwela. D. M., R. Deshpande and G. R. Neel (2016). Factors contributing to puerperal sepsis at Kampala International University Teaching Hospital- Ishaka Bushenyi-Uganda.
18. McClelland H and Moxon A, (2014). Early Identification and Treatment of Sepsis. Nursing Times, 16. Available on http//web.b.ebscohost.com.
19. World Sepsis Declaration Report, 2014.
20. Hannah W. Muiru (2018). Knowledge, attitude and barriers to hands hygiene practice: a study of Kampala International University undergraduate medical students. Int J Community Med Public Health 2018;5:3782-7.
21. Fatusi A. O, O.N. Makinde b, A. B Adeyemi b, E.O.Orji b, and U. Onwudiegwu B (2017). Evaluation of health workers' training in the use of the partogram. International Journal of Gynecology Obstetrics; 20: 30-30.
22. Irene O, Daniel N.A and Tagoe, (2014). Knowledge and attitude of health workers and patients on sepsis. Asian Pacific Journal of Tropical Disease.v.4 (2).
23. Rajwant K and Reena J (2014). Enhancement of Knowledge Regarding Puerperal Sepsis among Female Health Workers. International Journal of Science and Research.
24. Chris A, Lauri A.H, Lauri E.R, and Jay S (2015). Provider KAP regarding Obstetric and Postsurgical Gynecologic Infections Due to Group A Streptococcus and Other Infectious Agents. Advanced Journal List- Infectious Disease in Obstetrics and Gynecology.
25. Christovam B.P, Khurshid F, and Sirichand P (2014). Maternal morbidity and mortality associated with puerperal sepsis. Journal of Liaquat University of Medical and Health Sciences.
26. Richard KM, Jane MS, Tonny S, Moses N, David S and Solomon TW (2021). Impact of health messages and environmental cues on hand hygiene practice among healthcare workers in greater Kampala metropolitan area, Uganda: study protocol for a cluster randomized trial.BMC Health Serv Res 21, 88(2021). https://doi.org/10.1186/s12913-021-06082-3.Athula F, Silva DY, Gange VP, Uduwerella SB,

Open Access
ONLINE ISSN: 2992-5819
PRINT ISSN: 2992-6149

Rathnayake C, Gayan DS and Ruwan WP (2019). Management of Puerperal Sepsis. General National Guidelines SLCOG.
27. Howard M (2015). Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health.
28. Rick Fentiman (2019). Hand hygiene effectiveness in hospitals infection control. https://inivos.com/blog/hhand-hygiene-effectiveness-in-hospital-infection-control/
29. Desai M, Phillips-Howard PA, Odhiambo FO, Katana A, Ouma P, and Hamel M.J. (2013). An analysis of pregnancy-related mortality in the KEMRI/CDC health and demographic surveillance system in western Kenya. PLoS One.
30. Duarte M, Chrizostimo M, and Christovam B (2014). Nursing Practice on Puerperal Infection Control: Integrative Review. J Nurs UFPE online.
31. Dr Indra V (2015). Assessment of the Knowledge and Practice on Prevention of Puerperal Sepsis among Mothers in Selected Hospitals. International Journal of Nursing Education and Research 4(3).
32. Smail FM and Gyten GM (2010). Antibiotic prophylaxis versus no prophylaxis for preventing infection after cesarean section. Cochrane Database Syst Rev.
33. Prof. Ged B and Screaton J (2016). The current state of sepsis education and training for healthcare Staff across England.
34. Mulegi Tom. (2022). An Overview of Performance of Health Workers in Uganda. IDOSR JOURNAL OF HUMANITIES AND SOCIAL SCIENCES. 7(1), 113-124.
35. Harunah Ssenyonga. (2023). Assessments of Puerperal Sepsis in Women at Kampala International University Teaching Hospital Western Campus, Uganda. IDOSR JOURNAL OF BIOCHEMISTRY, BIOTECHNOLOGY AND ALLIED FIELDS. 8(1), 42-52.
36. Emmanuel Ifeanyi Obeagu, Benjamin Kigabo Ndakize, Okechukwu Paul-Chima Obeagu, Getrude Uzoma, Ugwu, Kazibwe Sophia. (2023). Neonatal Sepsis: Haematological Perspectives. IDOSR JOURNAL OF SCIENTIFIC RESEARCH. 8(2), 161-166.

Muhindo Emmanuel (2023). Knowledge Attitude and Practices of Health Workers on Puerperal Sepsis Preventions at Bundibugyo Hospital Bundibugyo District. NEWPORT INTERNATIONAL JOURNAL OF SCIENTIFIC AND EXPERIMENTAL SCIENCES (NIJSES) 3(3): 68-88.