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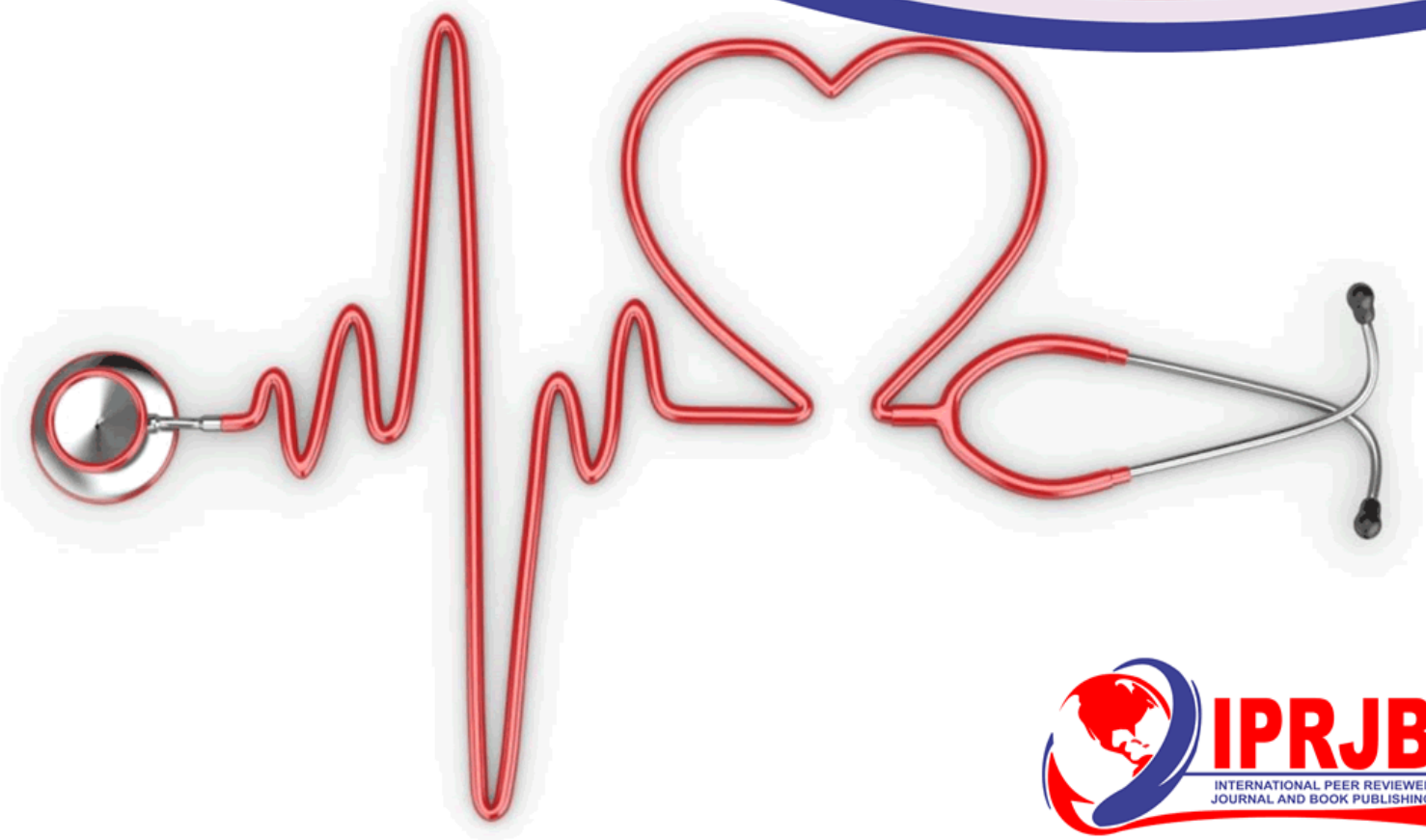

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ASSESSMENT OF THE INCIDENCE AND CONTRIBUTING FACTORS OF POST CAESAREAN SECTION WOUND SEPSIS AMONG POSTNATAL MOTHERS AT KENYATTA NATIONAL HOSPITAL, POSTNATAL WARD

[1*] Agneta Chelimo
[1*]Post Graduate Student: Kenyatta university
[*]Corresponding Author's Email: chelimoagneta120@gmail.com

[2] Dr. Washington Arodi
Lecturer: Kenyatta University

[3] Dr.Drusilla Makworo
Senior Lecturer: Jomo Kenyatta University of Agriculture and Technology

[4] Dr.Judy Mugo
Lecturer: Kenyatta University

Abstract

Purpose: The purpose of this study was to assess of the incidence and contributing factors of post caesarean section wound sepsis among postnatal mothers at Kenyatta National Hospital, postnatal ward

Methodology: This was a cross sectional descriptive survey. Systematic sampling method was used to pick 212 postnatal mothers to participate in the study whereby they were picked until full saturation was achieved. Simple random sampling method was used to select the health care workers study subjects. One hundred [100] computer generated numbers were used to pick only seventy nine [79] Health care workers. Data was then analyzed through descriptive statistics using the Statistical Package for Social Science (SPSS version 20.0).Chi-square test was used to test associations between selected independent and dependent variables.

Results: The study found out making 3 antenatal visits made before coming for caesarian section was significantly associated with minimal chance of sepsis OR 0.2 [95% CI 0.1-0.8], P value 0.021**.**Also there was no significant association between the sepsis and frequency of washing before touching your wound dressing, finishing, and dose of antibiotics prescribed and whether women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise.

Unique contribution to theory, practice and policy: Health education on post caesarean section wound sepsis needs to be provided to mothers during antenatal clinic. More needs to be done to encourage mothers during post Natal period to attend antenatal clinic at Kenyatta National Hospital so that prior diagnosis and teaching of mothers who have cephalopelvic disproportion(CPD) would be done and elective surgery be planned earlier. Healthcare workers should undergo sensitization on infection prevention and control.

Key words: *Post Caesarean Section, Wound Sepsis, Post Natal Mothers, Post Natal Ward and Kenyatta National Hospital*

1.0 INTRODUCTION

1.1 Background of the study

Birth enabled through cesarean delivery is done by making an incision in the abdominal wall through to the uterine wall. This is different from rupture of uterus where the baby is already in abdominal cavity or an abdominal pregnancy. Postpartum hysterectomy is a procedure done after vaginal delivery has been performed and the mother develops postpartum hemorrhage which poses a risk to the life of the mother. Other emergency procedures done include abdominal hysterectomy which is also done following a delivery where the mother develops a risk of hemorrhage.

The harrowing death rate of deliveries done through caesarean section has continued up to the beginning of the 20th century. In 1865, 85% of maternal deaths due to caesarean deliveries were realized in Great Britain and Ireland. At the same time In Paris, during the 90 years ending in 1876, a study done showed that there was no single mother who survived cesarean delivery (Luo *et al*; 2010).Cesarean sections have been found to be increasing in an upward trend in both developed and developing countries. It is therefore assumed that the incidences of postpartum infections may continue to increase if prompt measures are not taken. Between 1990 and 2014, WHO publication reports indicates that the global average of CS rate has increased from 12.4%to 18.6 %, whereby the ranging is estimated to increase between 6 and 27.2 %, the average rate rise has been found to be4.4 % per year. In KNH an estimate of 40% of total births yearly are delivered through c/s. (WHO, 2009).

Wound healing of caesarean sections usually takes a very short time. Despite provision of modern equipment's in most facilities and the giving of prophylactic antibiotics, the surgical site infection still occur and leads to most postoperative complications. (Petroze, *et al;* 2013)

Infections occurring after caesarean section have been found to be of concern in the general health system. Prevention of these infections should be a priority in the health care especially the developing countries. Global estimates of surgical site infections (SSI) have been found to be ranging from 0.5–15 %.(Hamilton BE, *et al*; 2015). Perioperative bacterial load found in the tissue at the site of surgery can be attributed to lead to SSI and the diminished integrity of the host's defense mechanism. Risk conditions observed to increase the rate of CS wound infections are; obesity, diabetes, immunosuppressive disorders, chorioamnionitis, a previous Caesarean delivery, certain medications like steroids, the lack of pre-incision antimicrobial care, lengthy labor and longtime taken during surgery.(Stevens DL, *et al*; 2014). Strict preventative measures like antiseptic pre-operative skin preparation, reduction in the duration of surgery, minimal blood loss, the use of absorbable sutures and avoiding cross-infection during surgery should be adhered to at all times. Many studies have proved that antimicrobial prophylaxis is effective in reducing the incidence of postoperative wound infections as it reduces the risk of resident bacteria overcoming the immune system in the immediate postoperative period (Constantine MM, *et al*; 2008).

It is therefore important to implement SSI surveillance during and after surgery and make it a standardized way of prevention. This will reduce the postoperative infections which have been found to be common in both developing and developing world. The delivery of high-quality

services with early interventions to reduce wound infections is an important aspect of patient safety measures. (Nwankwo EO, et al, 2012)

In sub Saharan Africa, the average rates of infections are realized to be higher than developed countries.Many factors have been associated to this, mainly issues related to; malnutrition, anaemia, poverty and environmental pollution, (Conroy, 2012).

The risk of infection in Caesarean sections is higher than that of normal delivery.This has been attributed to postpartum maternal infection and it has been found to account for approximately 10% of pregnancy-related mortality. women from low income settings who develop a surgical site infection develop a lot of stress more often because they have very little practical experience of the wound management thus unable to cope with it on their own at home (Ezechi, et al; 2012).

Recovery from caesarean section has been found to be more difficult for women who develop postoperative wound sepsis. SSIs have been found to extend up to the pelvic organs, the respiratory system and the urinary tracts (Gido, 2012). Most of the patients with surgical site infections have an estimated average of between 2–11 times higher risk of mortality compared to those without surgical site infections. 77% of deaths are associated with surgical site infections which are directly related to the wound sepsis. It also leads to the increase in hospital stay thus resulting to higher cost for the patient and the hospital as well. (A.Lubega, 2016).

It is therefore essential to make a proper assessment and develop interventions to reduce the occurrence and complications brought about by the surgical site infection occurring after caesarean section.This will go a long way in helping reduce the hospital costs and length of patient stay.

1.2 Problem statement

The postnatal wards of Kenyatta National Hospital receive postnatal mothers with surgical site infections done in KNH theatres. The theatres receive quite a number of patients for re-suturing after caesarean section done; therefore sepsis after caesarean section is a major problem in the setup which increases length of hospital stay and the cost of treatment. A big percentage of this still arise despite strict adherence of infection prevention control measures. If the causes would be known and addressed it will significantly reduce rate of wound sepsis. These post caesarean section SSIs places a considerable amount of financial burden to the patient and the hospital which is a poor resource setting hence further depleting the little available resources which would have been utilized in other activities/areas

There are fewer studies at Kenyatta National hospital documenting on postcaesarean section wound sepsis despite the large patient numbers of caesarean section performed. and the many occurrence of post caesarean wound infection as per the patients registers ,the researcher was prompted to carry out this study to determine the Health care worker related factors together with patient related factors contributing to post caesarean section wound sepsis among postnatal mothers at Kenyatta National Hospital, postnatal wards.

2.0 LITERATURE REVIEW

2.1Empirical Review

Cesarean delivery is one commonest hospital based surgical procedures in obstetrics (Betrán2007).The procedure is mainly done to facilitate delivery in case where vaginal delivery is either not feasible or poses undue risk to mother, baby or both. The procedure has gone long way in reducing both maternal and fetal morbidity and mortality associated with child birth. Several types of Cesarean section exist, with the main difference being in the way the incision is made to cut through the skin and uterus.

Traditional Cesarean section**;** this is the classic Cesarean section (C-section) involves a long, vertical incision which is made in the midline of the abdomen. Once the skin has been incised, the uterus is also incised vertically, and the baby will be delivered.

Because of the size of the incision, C-section allows a large amount of space for delivering the baby. Though, the procedure is associated with post-surgical complications it is however not commonly used today. The long incision is associated with weakening of the abdominal muscles thus leading to increased risk of hernia in later years after surgery. After the C-section is performed, a vaginal birth has been found to be not safe for the delivery of future pregnancies.

The lower uterine segment Cesarean section (LUCS); Here an incision is made just above the pubic hairline above the bladder. It is a horizontal incision that cuts through the underlying uterus as well as the skin. The baby will be delivered by inserting a hand into the uterus and pulling the baby out. C- Section delivery most commonly used methods today.

After the surgery, the risk of bleeding and other complications such as hernia are minimal and the surgical wound repairs more easier done than the wound that is left after a traditional C-section. However, a woman may still choose a vaginal delivery for any future births.

A C-section that is performed due to complications such as non-progress of labor or severe pre-eclampsia, is an emergency C-section which is usually performed as a LUSCS procedure.

Caesarean hysterectomy;A Cesarean hysterectomy involves removing the uterus during the same procedure as the C-section delivery. This may be needed in cases of severe post-delivery bleeding from the placenta or when the placenta cannot be separated from the uterus walls.

Caesarean birth carries a risk factor of about five to 20 times infections compared to vaginal delivery. Post-operative infections commonly found following caesarean section also affects the neighboring organs to include urinary tract and the pelvic organs. (Varkonyi *et al*; 2011). Higher percentage of mortality and morbidity in post-operative patients has been attributed to surgical site infections. Strategies of decreasing their incidence such as compliance to infection prevention and control measures in the operating room complex (M.A Olsen *et al*; 2011).

Shetty in 2010 found that out of 200 patients who had cesarean section 30 patients (15%) developed wound sepsis.21patient had microbial culture growth where staphylococcus aureus followed by E.coli had the highest proportion of growth. Both types of bacterial showed to be sensitive to ampicillin, Augmentin, and ceftriaxone. In this study, the incidence of wound sepsis was found to be high (15%).This compares unfavorably with other institutions with higher rates of cesarean section.

3.0 RESEARCH METHODOLOGY

This study used descriptive cross sectional survey design. The study populations comprised of all post caesarean section mothers admitted in Kenyatta National Hospital and sampled health care workers who had worked in maternity theatre and post-natal wards for more than 6months. Systematic sampling method was used to pick 212 postnatal mothers to participate in the study while computer generated numbers were used to pick only seventy nine [79] Health care workers. The research data was collected by use of questionnaire developed by the researcher. Pilot testing of questions was carried out in GFB with 10% of the study sample size and necessary adjustments was made accordingly.

The data collected was verified, sorted and entered in a Statistical Package for Social Sciences (SPPS) version 20. Thereafter, was analyzed using chi square, odds ratio and descriptive analysis then presented and tabulated in pie- charts, percentages/proportions and tables.

To protect the privacy of the individual patients and health care workers, the questionnaire was designed to be anonymous and formal consent was obtained from all the subjects prior to their participation in the study.

4.0 RESULTS

4.1 Socio economic and demographic characteristics of respondents.

A total of 212 participants were interviewed during the one-month study at KNH reproductive health department. The clients' mean ages in years was 28.0 [SD = 5.0] for participants with sepsis and 27.2 [SD = 5.0] for participants without sepsis. Participants with sepsis were generally older than those without sepsis females (28.0 [SD =5.0] vs 27.2[SD =5.0]), (P= 0.477). (Table 1).

Table 1: Mean distribution of the respondents

Variable	Sepsis	No sepsis	P value
Mean age (SD)	28.0 (5.0)	27.2 (5.0)	0.477

4.2: Socio economic and demographic characteristics of respondents.

Significant majority (88.6%) of the respondents were married, 7.4% were single while 4.0% were widowed. Most of the respondents (31.2%) were para 1, 31.2% were para 2, 23.8% were para 3. The mean age of the respondents at menarche was 13.8 [SD = 1.6]. Most of the respondents (47.5%) had secondary education, 36.6% had primary education while the rest (15.8%) had post-secondary education. In terms of employment (55.9%) were not employed while the rest (44.1%) had employment. The median monthly income of the respondents was 10000 [IQR 2000-45000] (Table 2).

Table 2: Socio economic and demographic characteristics of respondents.

Variable	Frequency (%)
Mean age (SD)	27.3 (5.0)
15-20 years	9 (4.5)
21-25 years	79 (39.1)
26-30 years	64 (31.7)
31-35 years	36 (17.8)
36-40 years	12 (5.9)
41-45 years	2 (1.0)
Marital status	
Married	179 (88.6)
Single	15 (7.4)
Widowed/separated	8 (4.0)
Parity	
0	9 (4.5)
1	63 (31.2)
2	63 (31.2)
3	48 (23.8)
4	14 (6.9)
5	4 (2.0)
8	1 (0.5)
Mean age at menarche (SD)	13.8 (1.6)
Level of education	
Primary	74 (36.6)
Secondary	96 (47.5)
Post-secondary	32 (15.8)
Employed	
Yes	89 (44.1)
No	113 (55.9)
Median monthly income (IQR)	10000 (2000-45000)

4.2 Postnatal mother's knowledge on post caesarean section wound sepsis

Among the 212 respondents 64.4% had not heard of post caesarean section wound sepsis while the rest (35.6%) had knowledge or heard of post caesarean section wound sepsis. Most of the respondents (40.5%) had attended 3 antenatal visits (FANC) before coming for caesarian section, 38% of the respondents had attended 4 antenatal visits (FANC) before coming for caesarian section, and 13% had attended more than 4 antenatal visits (FANC) before coming for caesarian section. Significant majority (82.9%) of the respondents were term during the caesarian section, 4.7% were at 42 weeks gestation period while the rest 12.4% were below 36 weeks gestation. In terms of what prompted the respondents to go for caesarian section, most (54.5%) was cephalopelvic disproportion, 36.4% was due to delayed second stage. 11.9% of the respondents were clinic attendants at KNH, while the rest (88.1%) of the respondents were not attending clinic at KNH. Significant majority (91.5%) of the respondents were done operation as emergency procedure while the rest (8.5%) were done as elective procedure. (Table 3).

Table 3: Postnatal mother's knowledge on post caesarean section wound sepsis

Variable	Frequency (%)
Heard of post caesarean section wound sepsis	
Yes	72 (35.6)
No	130 (64.4)
Number of antenatal visits (FANC) made before coming for c/s	
One	2 (1.0)
Two	15 (7.5)
Three	81 (40.5)
Four	76 (38.0)
More than 4	26 (13.0)
Gestation period at c/s	
Term	160 (82.9)
Below 36 weeks	24 (12.4)
42 weeks	9 (4.7)
Prompt for c/s	
Immunosuppressive disorders	5 (9.1)
Delayed second stage	20 (36.4)
Cephalopelvic disproportion	30 (54.5)
Clinic attendant at KNH	
Yes	24 (11.9)
No	178 (88.1)
Operation done as	
Elective	17 (8.5)
Emergency	184 (91.5)

4.3: Postnatal mothers' practice on post cesarean section wound sepsis

Most of the respondents (72.1%) reported that they always wash hands before touching wound dressing, 22.9% said that they rarely wash hands before touching wound dressing, 2% reported that they wash hands before touching wound dressing once, while the rest (3%) said that they do not at all wash hands before touching wound dressing. Significant majority (96.5%) of the respondents finished dose of antibiotics prescribed while 3.5% did not. 93% of the respondents reported that women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise. (Table 4).

Table 2: Postnatal mothers' practice on post cesarean section wound sepsis

Variable	Frequency (%)
Frequency of washing hands before touching wound dressing	
Not at all	6 (3.0)
Rarely	46 (22.9)
Always	145 (72.1)
Once	4 (2.0)
Finished dose of antibiotics prescribed	
Yes	194 (96.5)
No	7 (3.5)
Women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise	
Yes	185 (93.0)
No	14 (7.0)

4.4: Post caesarean section wound sepsis

Majority of the participants 89.6% had no wound sepsis while 10.4% had wound sepsis (Figure 1).

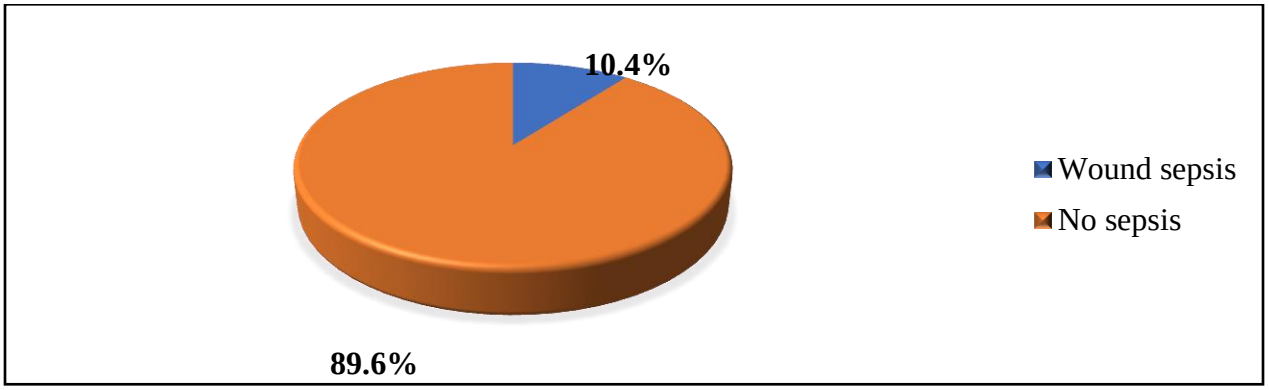

Figure 1: Post caesarean section wound sepsis

4.5 Sepsis associated with demographic characteristics – Bivariate Analysis

4.5.1 Sepsis associated with demographic characteristics

Five socio-demographic factors namely; marital status, parity, level of education, employed and income were not significantly associated with sepsis ($P > 0.05$) as shown in Table 5.

Table 5: Sepsis associated with demographic characteristics

Variable	Sepsis	No sepsis	OR (95% CI)	P value
Mean age (SD)	28.0 (5.0)	27.2 (5.0)	-	0.477
Marital status				
Married	19 (10.6)	160 (89.4)	0.6 (0.1-4.8)	0.633
Single	1 (6.7)	14 (93.3)	1.2 (0.1-10.3)	0.866
Widowed/separated	1 (12.5)	7 (87.5)	1.0	
Parity				
Primi gravida	6 (8.3)	66 (91.7)	0.7 (0.3-1.9)	0.477
Multiparous	15 (11.5)	115 (88.5)	1.0	
Mean age at menarche (SD)	14.2 (1.20)	13.8 (1.6)		0.287
Level of education				
Primary	8 (10.8)	66 (89.2)	1.2 (0.3-4.7)	0.824
Secondary	10 (10.4)	86 (89.6)	1.1 (0.3-4.4)	0.866
Post-secondary	3 (9.4)	29 (90.6)	1.0	
Are you employed				
Yes	6 (6.7)	83 (93.3)	0.5 (0.2-1.3)	0.138
No	15 (13.3)	98 (86.7)	1.0	
Income				
<10000	2 (5.9)	32 (94.1)	1.3 (0.1-15.4)	0.829
10000-19000	3 (7.9)	35 (92.1)	1.8 (0.2-18.4)	0.621
>=20000	1 (4.5)	21 (95.5)	1.0	

CI, confidence interval; OR, odds ratio

4.5.2 Association between Sepsis and postnatal mother's knowledge on post caesarean section wound sepsis

Making 3 antenatal visits made before coming for caesarian section was significantly associated with minimal chance of sepsis OR 0.2 [95% CI 0.1-0.8], P value 0.021. Heard of post caesarean section wound, gestation period when taken for caesarian section, factor that prompted respondent to be taken for caesarian section, clinic attendance at KNH and the nature of operation were not associated with sepsis (P>0.05) (Table 6).

Table 6: Association between Sepsis and postnatal mother's knowledge on post caesarean section wound sepsis

	Sepsis	No sepsis	OR (95% CI)	P value
Heard of post caesarean section wound sepsis	8 (11.1)	64 (88.9)	1.1 (0.4-2.9)	0.804
Yes	13 (10.0)	117 (90.)	1.0	
No				
Antenatal visits made before coming for c/s				
One	0	2 (100.0)	-	0.999
Two	3 (20.0)	12 (80.0)	0.8 (0.2-4.0)	0.819
Three	5 (6.2)	76 (93.8)	0.2 (0.1-0.8)	0.021
Four	7 (9.2)	69 (90.8)	0.3 (0.1-1.1)	0.076
More than 4	6 (23.1)	20 (76.9)	1.0	
Gestation period when taken for cs				
Term	20 (12.5)	140 (87.5)	1.0	
Below 36 weeks	1 (4.2)	23 (95.8)	0.3 (0-2.4)	0.257
42 weeks	0	9 (100.0)	-	0.999
What prompted you being taken for c/s				
Immunosuppressive disorders	1 (20.0)	4 (80.0)	1.0	
Delayed second stage	6 (30.0)	14 (70.0)	1.7 (0.2-18.7)	0.659
Cephalopelvic disproportion	0	30 (100.0)	-	0.998
Clinic attendant at KNH				
Yes	3 (12.5)	21 (87.5)	1.3 (0.4-4.7)	0.720
No	18 (10.1)	160 (89.9)	1.0	
Was the operation done as				
Elective	1 (5.9)	16 (94.1)	0.5 (0.1-4.1)	0.527
Emergency	20 (10.9)	164 (89.1)	1.0	

OR, odds ratio; CI, confidence interval;

4.5.3 Incidence Level of sepsis in different post-natal wards

There was a high incidences of sepsis (14.5%) in ward 1A as compared to ward GFA (4.8%) and GFB (13.2%).

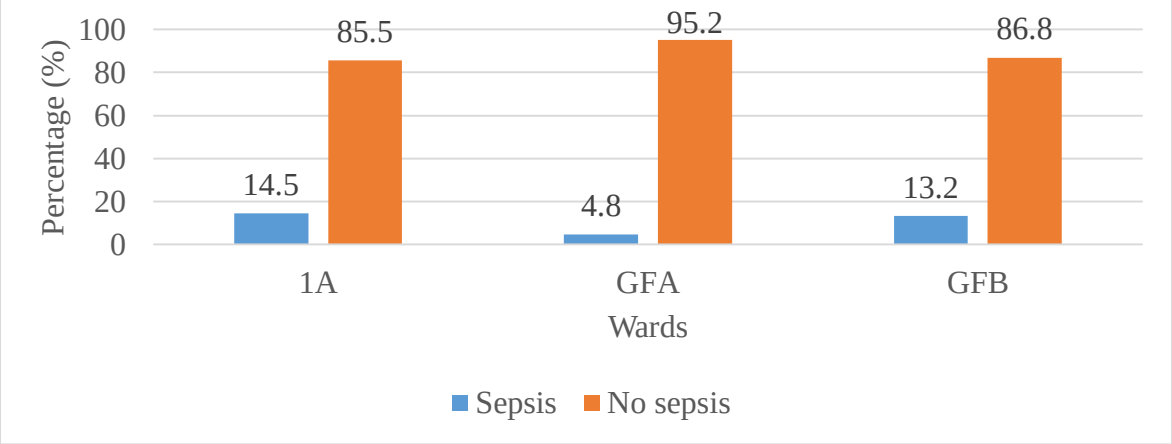

Figure 2: Incidence Level of sepsis

4.5.4 Association between sepsis postnatal mothers' practice on post caesarean section wound sepsis

There was no significant association between the sepsis and frequency of washing before touching the wound dressing, finishing , dose of antibiotics prescribed and whether women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise (P>0.05). This is shown in Table 7.

Table 7: Association between sepsis postnatal mothers' practice on post cesarean section wound sepsis

Variable	Sepsis	No sepsis	OR (95% CI)	P value
Hands washing frequency before touching your wound dressing				
Not at all	2 (33.3)	4 (66.7)	1.0	
Rarely	5 (10.9)	41 (89.1)	0.2 (0-1.7)	0.153
Always	14 (9.7)	131 (90.3)	0.2 (0-1.3)	0.090
Once	0	4 (100.0)	-	0.999
Finished dose of antibiotics prescribed				
Yes	21 (10.8)	173 (89.2)	-	0.999
No	0	7 (100.0)		
Women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise				
Yes	19 (10.3)	166 (89.7)	0.7 (0.1-3.3)	0.639
No	2 (14.3)	12 (85.7)	1.0	

OR, odds ratio; CI, confidence interval;

4.6 Demographic characteristics of the healthcare workers

Most (21.4%) of the participants were of the age range between 31-35 years, 21.4% had age range between 26-35 years. 1.2% of the respondents was below 25 years while 4.8% of the respondents were the oldest above 50 years. Majority (66.7%) of the respondents were married, 26.2% were single while the rest 7.1% were widowed. The medial years of work was 10.0 (IQR 5.0-20.0). Most (47.6%) of the respondents were nurses, 20.2% were surgeons, 16.7% were anaesthetists, 8.3% were TSA while the rest 7.1% were SSS (Table 8).

Table 8 Demographic characteristics of the healthcare workers

Variable	Frequency (%)
Age in years	
≤25	1 (1.2)
26-30	18 (21.4)
31-35	18 (21.4)
36-40	15 (17.9)
41-45	15 (17.9)
46-50	13 (15.5)
>50	4 (4.8)
Marital status	
Married	56 (66.7)
Single	22 (26.2)
Widowed	6 (7.1)
Median years of work (IQR)	10.0 (5.0-20.0)
Cadre	
Nurse	40 (47.6)
Anaesthetist	14 (16.7)
Surgeon	17 (20.2)
TSA	7 (8.3)
SSS	6 (7.1)

4.7 Infection control practices

Significant majority (94%) of the respondents reported that all patients coming for caesarian section were given prophylactic antibiotics. Most (56.6%) reported that PPE are excellently effective barriers to infection control, 38.6% said PPE are good barriers to infection control. In terms of using PPE's, Majority (88%) of the respondents reported that they always use PPEs, 10.8% said that they occasionally use the PPEs, while the rest (1.2%) said that they rarely use PPEs. 36.9% of the respondents sometimes follow the five moments of hand washing, 26.2% frequently follow the five moments of hand washing while 36.9% always follow the five moments of hand washing. Most of the respondents (54.8%) agreed that guidelines in wound care practices are available in the ward, 25% strongly agreed that guidelines in wound care practices are available in the ward while the rest (20.2%) disagreed that guidelines in wound care practices are available in the ward. Significant majority (78.6%) of the respondents reported that surgical scrubs are readily available in working areas while 21.4% said that surgical scrubs are not readily available in working areas. Most (57.1%) of the respondents have attended training

program in infection prevention and control while 42.9% have not attended training program in infection prevention and control (Table 9).

Table 9: Infection control practices

Variable	Frequency (%)
All patients coming for c/s given prophylactic antibiotics	
Yes	79 (94.0)
No	5 (6.0)
PPE effective barriers to infection control	
Good	32 (38.6)
Excellent	47 (56.6)
Okay	4 (4.8)
Use PPEs	
Always	73 (88.0)
Rarely	1 (1.2)
Occasionally	9 (10.8)
Follow the five moments of hand washing	
Sometimes	31 (36.9)
Frequently	22 (26.2)
Always	31 (36.9)
Guidelines in wound care practices available in the ward	
Strongly agree	21 (25.0)
Agree	46 (54.8)
Disagree	17 (20.2)
Surgical scrubs readily available in working areas	
Yes	66 (78.6)
No	18 (21.4)
Attended training program in infection prevention and control	
Yes	48 (57.1)
No	36 (42.9)

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1Discussions

5.1.1 The incidence of post caesarean wound sepsis

The incidence of SSI was found to be 10.4% (95% CI 6.4–14.4)

An incidence of 16.5% was found in a study done at Mbarare regional Hospital in Uganda in a sample size of 114 emergency patients.

5.1.2 Patient related factors contributing to post caesarian wound sepsis.

During the one-month study to assess the determinants of post caesarean section wound sepsis among postnatal mothers at Kenyatta national hospital, the clients' mean ages in years of participants with sepsis was 28.0 [SD = 5.0] and 27.2 [SD = 5.0]. Participants without sepsis. Participants with sepsis were slightly older than those with sepsis. This was cited by Kabau

(2014) who found in his study that the mean age of the participants was 27.43 years (SD-5.652) with a range of 16 to 46 years.

Significant majority of the respondents were married. Most of the respondents were para 1. The mean age of the respondents at menarche was 13.8 [SD = 1.6]. In terms of education, most of the respondents had secondary education while others had primary education. In terms of employment, most of the respondents were not employed. The median monthly income of the respondents was 10000 [IQR 2000-45000].

Majority of the respondents had not heard of post caesarean section wound sepsis while the rest had knowledge on heard of post caesarean section wound sepsis. Most of the respondents had attended 3 antenatal visits (FANC) before coming for caesarian section, while others had attended 4 antenatal visits (FANC) before coming for caesarian section. Significant majority of the respondents were term during the caesarian section. In terms of what prompted the respondents to go for caesarian section, most was because of cephalopelvic disproportion, others were due to delayed second stage. Surapanthapisit and Thitadilok (2006) identified in their study that cephalopelvic disproportion is an indication for caesarian section. Majority of the respondents were not attending clinic at KNH while a small proportion attended clinic at KNH. Significant majority of the respondents were done operation as emergency procedure while the rest were done as elective procedure. Emergency caesarian section is associated with surgical site infection because of the nature of preparation.

Most of the respondents reported that they always wash hands before touching wound dressing, others rarely washed hands before touching wound dressing, while some said that they do not at all wash hands before touching wound dressing. Significant majority of the respondents finished dose of antibiotics prescribed. Most of the respondents reported that women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise.

Majority of the participants had no wound sepsis while the rest had wound sepsis.

Five socio-demographic factors namely; marital status, parity, level of education, employed and income were not significantly associated with sepsis.

On bivariate analysis, respondents who attended 3 antenatal visits before coming for caesarian section was significantly associated with minimal chance of sepsis. Respondents who had heard of post caesarean section wound, gestational period, factors that prompted respondent to be taken for caesarian section, clinic attendance at KNH and the nature of operation were not associated with sepsis.

There was no significant association between the sepsis and frequency of washing before touching your wound dressing, finishing, and dose of antibiotics prescribed and whether women of reproductive age group should be encouraged to have a well balance diet and take adequate exercise.

5.1.3 Hospital and health care workers related factors contributing to post caesarian wound sepsis

The demographic characteristics of the health care workers showed that most of the respondents were having age range between 31-35 years with the youngest having 25 years while the oldest was above 50 years. Majority of the respondents were married and the median years of work was

10.0 (IQR 5.0-20.0). Most of the respondents were nurses, others were surgeons, and some were anesthetists, while the rest were theatre service assistants (TSA) and senior subordinate staff (SSS).

Significant majority of the respondents reported that all patients coming for caesarian section were given prophylactic antibiotics. In terms of effectiveness of PPEs as barriers to infection control, most of the respondents reported that PPE are excellent and effective barriers to infection control. Majority of the respondents reported that they always use PPEs. Most of the respondents reported that they always follow the five moments of hand washing. Most of the respondents agreed that guidelines in wound care practices are available in the ward while others strongly agreed that guidelines in wound care practices are available in the ward while some disagreed that guidelines in wound care practices are available in the ward. Significant majority of the respondents reported that surgical scrubs are readily available in working areas while some of them said that surgical scrubs are not readily available in working areas. Most of the respondents have attended training program in infection prevention and control while almost half have not attended training program in infection prevention and control.

5.2 Conclusion

Majority of the participants 89.6% had no wound sepsis while 10.4% had wound sepsis only 1% out of this came back from home.

The mean ages in years of the participants with sepsis was 28.0 [SD = 5.0] and 27.2 [SD = 5.0] for participants without sepsis. Participants with sepsis were slightly older than those without sepsis.

Majority of the respondents (64.6%) had not heard of post caesarean section wound sepsis. Cephalopelvic disproportion and delayed second stage prompted the respondents to go for caesarian section.

Significant majority of the respondents (91.1%) were done operation as emergency procedure while the rest were done as elective procedure.

Respondents who attended 3 antenatal visits or more before coming for caesarian section was significantly associated with minimal chance of sepsis

Having heard of post caesarean section wound, gestational period, factors that prompted respondent to be taken for caesarian section, clinic attendance at KNH and the nature of operation were not associated with sepsis.

Significant majority (94%) of the respondents reported that all patients coming for caesarian section were given prophylactic antibiotics.

Most of the respondents (57.1%) have attended training program in infection prevention and control while almost half have not attended training program in infection prevention and control.

5.3 Recommendations

Health education on post caesarean section wound sepsis needs to be provided to mothers during antenatal clinic. More needs to be done to encourage mothers during post Natal period to attend antenatal clinic at Kenyatta National Hospital so that prior diagnosis and teaching of mothers

who have cephalopelvic disproportion(CPD) would be done and elective surgery be planned earlier.

Healthcare workers to undergo sensitization on infection prevention and control.

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