



**KNOWLEDGE, ATTITUDE, AND PRACTICE AMONG SURGICAL
TEAM MEMBERS ON BLOOD AND BODY FLUIDS EXPOSURE
PREVENTION AT UNIVERSITY TEACHING HOSPITAL OF KIGALI**

by

Eric Karera

College of Medicines and Health Sciences

School of Nursing and Midwifery in the

Master in Nursing –Peri-operative track

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Eric Karera

Student registration number: 216340837

A dissertation submitted in partial fulfillment of the requirements for the degree of

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Supervisor: Lilian A.Omondi

2017

Declaration

I declare that this dissertation titled “knowledge, attitude and practice among surgical team members on blood and body fluids exposure prevention at university teaching hospital of Kigali” contains my own work except where specifically acknowledged.

Eric Karera

Date and Signature.....

Student registration number: 216340837

Dedication

I strongly dedicate this study

To you my beloved heavenly Father, for your care and protection

To my uncle Laurent GASHONGORE for his advice, his different supports, and his encouragement during my studies.

To my wife KAMALIZA Aimee

To my lovely daughter KALIZA KARERA Ericka and LIZA KARERA Dericka

Acknowledgments

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I also want to give special thanks to my employer for providing flexible work schedule. I would like to extend my thanks to Ministry of Health and Univerisity of Rwanda.

I thank my fellow students in master's program for their encouragement.

Special thanks to my wife and my lovely daughters Ericka and Dericka for the support, motivation, patience, and understanding during the time of the study. I could not have done it without you.

Thank you University Teaching Hospital of Kigali especially the surgical team, for allowing me to proceed with this study.

Abstract

Background: Nurses, doctors and anesthetists/anesthesiologist composing the main surgical team members are at very high risk of exposure to blood borne pathogens. This is because the nature of their work which involves constant exposure to sharps and instruments used during invasive procedures in theatre, and contact with blood and body fluids. The effect of these exposures ranges from psychological trauma and stress to infection with incurable conditions. The aim of the study was to assess knowledge, attitude and practice among surgical team members on blood and body fluids exposure as a key measure towards prevention.

Methods: A non-experimental quantitative descriptive cross-sectional was used and sampling strategy was total population sampling (TPS). A self-administered questionnaire was used for gathering information from surgical team members of University Teaching Hospital of Kigali. Analysis of data was descriptive statistics to include frequency and percentage. Inferential statistics included Chi- square and regression.

Results: The findings of the study showed that out of 69 (97.2%) of participants experienced BBF in their daily activities and 48 (63.4%) of participants they did not report the incident/accident of BBF exposure according to protocol. There was statistically significant differences ($\chi^2=0.044$, $df=4$, $p=0.05$) relationship between knowledge and attitude, and practice of how often using PPE for BBF exposure prevention. The reasons given for occupational exposure to BBFs included the: the type of operation 31.5% followed by lack of protective measures 30.4 %.

Conclusion: The study revealed that participants had good knowledge and attitude PPE use as measures to prevent BBF exposure. Thirty-eight (53.5%) surgical team responded that PPEs are not available. The hospital needs to sensitize the surgical team on reporting systems to address and manage complications from BBF exposure and establish the real source of causes. More research is needed about this topic to include the health care providers working in different departments of the hospital.

Operation definitions

Attitude: a way of thinking and behaving about something

Blood: It is the red color, viscid, circulating body fluid which is concentrated with pathogens and exposed to the surgical team members.

Body fluid: It is the body fluid such as urine, vomitus, sputum, semen, vaginal secretion, pus, cerebrospinal fluid, and amniotic fluid, that body fluid can have the pathogens.

Exposure: a state of being contacted with the blood and body fluid pathogenic infection.

Knowledge: It is the information possessed by surgical team members.

Practice: It is the procedure carried out by surgical team members regarding the reduction of the blood or body fluid exposure in their daily working.

Surgical team members are the group of healthcare professional perform an operative intervention.

LIST OF SYMBOLS AND ACRONYMS

BBF: blood and body fluids

CDC: Centers for Disease Control

EPINet: Exposure Prevention Information Network

KAP: Knowledge, Attitude, and Practice

OR: Operating Room

OSHA: Occupational Safety and Health Administration

PPE: personal protective equipment

SPSS: Statistical Package for the Social Science

TPS: Total population sampling

UR: Univerisity of Rwanda

UTHK: University of teaching hospital of Kigali

WHO: World Health Organization

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CHAPTER 1. INTRODUCTION

Surgical team members present special challenges in the prevention of bloodborne pathogen transported by blood and body fluids exposure for happening again (Hashemi 2014, p.173). The degree of risk for blood and body fluid (BBF) exposures in operation areas is directly associated to a number of factors such as the type of surgical works, repetitive and concentrated in the utilization of many different of sharp materials and exposure to huge amounts of blood, body fluids, and tissue during major intervention. The greatest reasons for blood and body fluid exposure among surgical team members are an absence of Protective equipment, more prominent challenges in communication among the team, limited space and visibility inside surgical fields, poor planning, diversions and loud noise may build the danger of sharps injuries during working. And among surgical team members, the nurses and medical surgeons are more affected than others remains members (Highlights 2008, p. 4).

1.1. Operational Definitions

Key Words: Knowledge, attitude, practice, occupational, Blood, body fluid, and exposure.

Attitude: a way of thinking and behaving about something

Blood: It is the red color, viscid, circulating body fluid which is concentrated with pathogens and exposed to the surgical team members.

Body fluid: It is the body fluid such as urine, vomitus, sputum, semen, vaginal secretion, pus, cerebrospinal fluid, and amniotic fluid, that body fluid can have the pathogens.

Exposure: a state of being contacted with the blood and body fluid pathogenic infection.

Knowledge: It is the information possessed by surgical team members.

Practice: It is the procedure carried out by surgical team members regarding the reduction of the blood or body fluid exposure in their daily working.

Surgical team members are the group of healthcare professional perform an operative intervention.

1.2. Background

Exposure to the blood and body fluids during operative interventions pose a significant major hazard to the health care provider, a literature review documented a total number of 60 pathogenic species infection affect health care provider after to any blood and body fluids exposures (Kanamori et al. 2016, p. 499).The studies showed that the percentage of (59%) for blood and body fluids exposure occur mostly frequent affect surgical team in the department of operating room among hospital department (Tsfay & Habtewold 2014, p. 9).

Globally, according to World Health Organization, there is an approximation of 3 million percutaneous exposures occurs which may lead to BBF exposure each year, among 35 million healthcare workers (WH0 2003). Statistics, the Centers for Disease Control (CDC) mentioned that about 385,000 sharps accident injuries happening yearly among the healthcare professionals. It has been evaluated about half (1/2) or a greater amount of sharps wounds unreported. The greatest number reported sharps injuries `include nursing staff working in operating room (CDC report, 2008, p. 1).

Occupational Safety and Health Administration (OSHA) reported around 5.6 million health care workers in the United States and that operating room (OR) team may have been exposed with BBF either on the skin or mucous membranes in numerous of 50% of operations (Herring 2010, p. 2). A study conducted in the United Kingdom in 4 teaching hospitals showed that 175 cases of

blood and body Fluids faced in doctors, out of that (46%) happened in senior doctors and 94 (54.5%) in junior specialists. Junior specialists had a higher rate of blood and another body fluid contact compared with the senior specialists (Tesfay & Habtewold 2014, p. 9).

The study conducted in Three Teaching Hospitals of Southeast Iran, revealed that a total of 236 incidents of BBF exposure were showed during the study period , the Nurses (82, 34.7%) were most frequently exposed to BBFs, followed by physicians (57, 24.2%) and surgical teams members are on the second rank for BBF exposure occurrence (Tabatabaei et al. 2016, p. 4). The study conducted on tertiary hospital employees in Rwanda, on Hepatitis B and C seroprevalence since October to December 2013 showed that (216/378) employees, equivalent to 57.1% were exposure to BBF (Kateera et al. 2015, p. 205).

The significant dangers risks postured in the theater, attitude and knowledge in wearing all appropriate personal protective equipment (PPE) among surgical team members in the operating room (OR) is viewed as poor worldwide. The deficiency of awareness and limited access to health literacy about the appropriate safeguards to avoid contact with BBF, enhance the great chance to be exposure to BBF amongst the surgical team members (Moore et al., 2014, p. 2).

An enhancement in the health safety believes in teaching hospitals can be used to reduce the increasing number of BBF exposures to the staffs, the researchers determined that exposure surveillance systems should be formed in order to monitor their occurrence and to guide the application of preventive measures by using surgical team members (Hamid et al. 2009, p. 104).

The culture of safety” is a central value in most health care institutions department including the operating room, for BBF exposure prevention (Carvalho et al. 2015, p. 3). Teamwork and good

leadership were mentioned as essential to help the professional knowledge and support to enhance the prevention of BBF in surgical team members (Moore et al., 2014, p. 2).

1.3. Problem Statement

The surgical team is still recognized for the high frequency of blood and body fluid exposure, these BBF exposure that occur there due to frequent manipulation of sharp instruments, prolonged contact of surgical personnel with open surgical sites, the presence of relatively large quantities of BBF, and lack of enough and knowledge of wearing of person protective equipment during surgical operation (Jagger et al. 2008, p. 2).

As per World Health Organization (WHO) in 2003, Among the 35 million health workers around the world, around 3 million get percutaneous exposures to bloodborne pathogens every year. More than 90% of these bloodborne pathogens happen in developing countries, BBF exposures seem to be a big problem related to bloodborne pathogens, and some data are unreported in those countries where Rwanda is among of them. However, the results from the study done in Rwanda showed a significantly high number of 57.1% of BBF exposure to the employees, as well as many health setting, have the policy of antiretroviral prophylaxis after being exposed to BBF.

According to the Exposure Prevention Information Network (EPINet), almost 50% of all sharps injuries accident happened during utilization of the sharp equipment in theatre, which may cause the blood and body fluids exposure happened on the surgical teams. Sharps accident can cause a number of direct or indirect costs of the health care facility, the stress, and anxiety on the affected workers and their family.

The KAP among surgical team members on blood and body fluids exposures prevention at university teaching hospital of Kigali (UTHK) has never been assessed sufficiently among surgical team at Rwanda Hospitals, therefore, there is a possibility that the majority of BBF exposure among surgical team members are not reported, the findings from the study will be used to increase the substitute with prevention strategies blood and body fluid exposure among surgical team members. The despite the existence of universal standard precautions that was established in the 1980s, regarding preventing BBF exposure from injuries caused by needles, scalpels, and other sharp instruments during procedures, exposures to BBF are still happening (Quan et al. 2015, p. 1).

1.4. Objectives

1.4.1. Main Objective

The aim of the study will be to assess knowledge, attitude, and practice among surgical team members on blood and body fluids exposures prevention.

1.4.2. Specific Objectives

1. To assess the knowledge and attitude regarding BBF exposure prevention among surgical team members.
2. To determine the practice of the surgical team members on BBF exposure prevention.
3. To determine the relationship between the practice of BBF exposure prevention and respondents demographics knowledge, attitude and practice.

1.5. Research Questions

What are the knowledge and the attitude of surgical team members to prevent BBF exposures?

What are the practices of surgical team members in UTHK for BBF exposure preventions?

What is the relationship between the practice of BBF exposure prevention and respondent's demographics knowledge, attitude and practice?

1.6. Significance of the Study

After identifying existing problems and barriers for BBF exposure prevention, the findings from this study will contribute to correct the gaps and it will also serve as baseline document for those, who are interested in future research undertaking area.

Many studies documented that there is the negative impact of BBF exposure such as direct or indirect costs for the health settings, the stress, and anxiety of employees. Information from this study will be used by educators and managers of healthcare made and develop some training and policies of practice that improve the KAP of the surgical team about BBF prevention, which will help the health system to prevent the negative impact of BBF exposure.

CHAPTER 2. LITERATURE REVIEW

2.1. Introduction

Chapter two presents the theoretical framework of the study, the related study done on another place, a conceptual framework that shows the relationship between variables and critical review and gap identification.

2.2. Theoretical concept of the study dressing TRA

The theory of reasoned action provides a model that has possible benefits for predicting the purpose of executing a behavior based on an individual's attitude and normative beliefs.

This theory offers a structure to study attitudes concerning behaviors. According to the theory, the most important determinant of a person's behavior is behavior committed. The individual's attitude toward the behavior includes behavioral belief, evaluations of the outcome, normative beliefs, and the motivation to comply (Kashimaa et al, cited in Miller, Katherine 2015, p. 126).

The Theory of Reasoned Action (TRA) was chosen for this study as it is the theory most cited in social sciences and in bloodborne pathogen like HIV/AIDS studies, and have been found to be better interpreters of the bloodborne pathogen (HIV/AIDS) health behavior than other models. According to the literature, the Surgical team members present special challenges in the prevention of bloodborne pathogen transported by blood and body fluids exposure for happening again (Hashemi 2014, p.173).

An attitude of any individual concerning thing is associated with his or her beliefs about the thing rather than to any general belief (Fishbeinn & Ajzeen, 1975, p. 260).

As a theory concerned in expecting human behavior, the TRA in the context of the study, it is possible to guess that the surgical team members could be influenced by knowledge and attitude to perform the action of preventing the BBF exposure in working area.

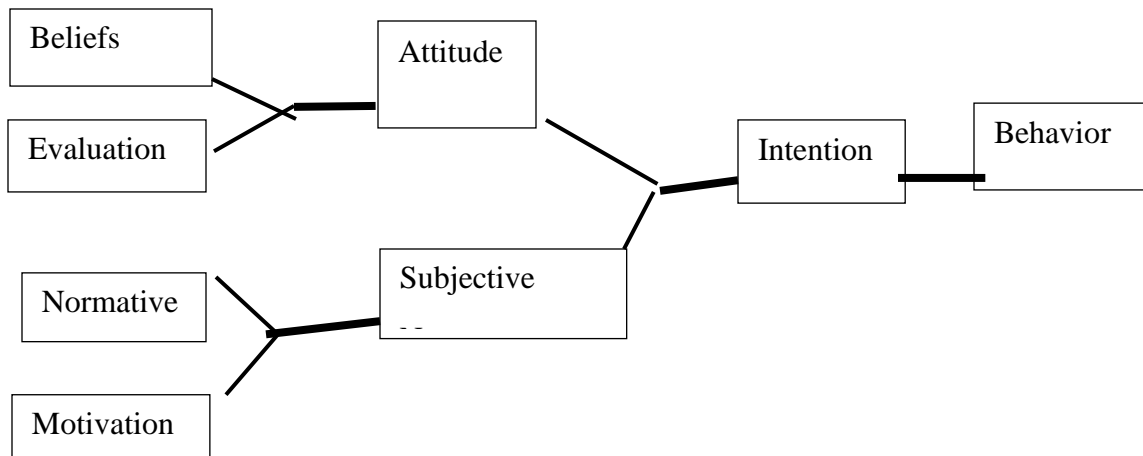


Figure: Theory of reasoned action framework

Beliefs: likelihood that an attitude is true

Evaluation: favorability or unfavorability of an attitude

Normative: expectations of how we should behave in a given situation

Motivation: how much we want to follow norms

Attitude toward behavior: the attitudinal component of reasoned action

Subjective norms: expectations we think others have about how we should behave, the normative component of reasoned action. There are the links between beliefs, attitudes, norms, intentions, and behaviors of individuals. According to this model, a person's behavior is determined by its behavioral intention to perform it. This intention is itself determined by the person's attitudes and his subjective norms towards the behavior. Fishbein and Ajzen define the subjective norms as the person's perception that most people who are important to him think he should or should not perform the behavior in question.

2.3. Empirical literature

2.3.1. Blood and Body Fluids exposure

Exposure to bloodborne pathogens happens in various ways. Although needle stick injuries are the most cause of BBF exposure for surgical team members (Ghosh 2013, p. 6).

The researchers conducted the study in Ethiopia as a country with low income, they found that a total of 6% study participants had been exposed to BBFs in their daily activities, 65.9% participants had been exposed to BBFs in one year and 45.7% of participants had been exposed to BBFs in the past 6 months (Yenesew & Fekadu 2014, p. 6). A cross-sectional descriptive study conducted on the frequency of exposure BBF among the nurses revealed that of the 91 (48.9%) analyzed, were contacted with BBF exposure (Warley et al. 2009, p. 1).

Again a cross-sectional study conducted over 30days in 2013 at the hospitals of Cameroon, revealed that fifty-five 55.7 % participants reported having been exposed to BBF at least once in the 3 months prior to the study. Additionally, the majority of victims 20 %, belong to the surgical department (Nouetchognou et al. 2016, p. 4). Study conducted on BBF exposure related KAP of hospital-based health care providers in the United Arab Emirates came up with the following results: the exposure to BBF, the most frequent persons exposed to BBF were the nurses, about 8.3% , and followed by physicians 15.8% (Zaidi et al. 2012, p. 5).

2.3.2. Blood and body fluids exposure prevention

Surgical team can regularly take actions that prevent the risk of BBF exposure. The vigilant in utilization and arranging of instruments sharp during or after use, are operative risk prevention practices (CDC, 2002). While exposure to BBF is a common incidence in the surgical field, smaller quantity than 30% of all injuries are informed properly (Taylor, 2006, p.4).

All surgical team members, including surgeons, anesthesiologists, nurses, and others, have to comply to the practice of Occupational Safety and Health Administration (OSHA) bloodborne pathogen Standard, including the BBF exposure control plan and infection control guidelines (Herring 2010, p. 9).

This study shows that there are significant opportunities for preventing percutaneous and mucous-cutaneous exposures which are the risks for facing BBF exposure to all categories of OR personnel. Prevention of BBF exposures in the surgical setting will take time, sustained effort, and a mass of changes, because of the difficulty of the environment of OR and the wide variety of products and instruments used.

The study conducted among Mizan- Aman General Hospital workers in South West of Ethiopia shows that a 63 of participants out of 135, they practice standard of BBF exposure precautions always at their workplace. The rest 32 (23.4%), 23 (17.1%), and 17 (12%) practice standard BBF exposure precaution usually, less often and infrequently at their workstation separately (Yakob, et al 2015, p. 1). A study done in Pakistan, the results showed that the greatest common reason known for BBF exposure was stress or being overworked followed by careless attitude (Hamid et al. 2009, p. 2).

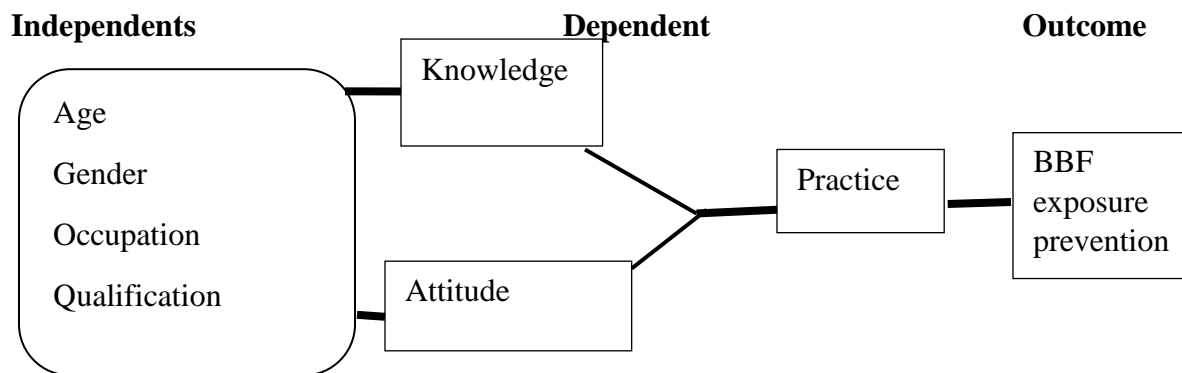
The precautions are designed to prevent the surgical team from being exposed to BBF by applying basic principles of utilization of appropriate protecting barriers such as gloves, masks, gowns and goggles, and safe handling of all sharp disposables (needles, scalpels) and materials in the theatre (Motamed et al., 2006, p. 4).

2.3.3. Surgical team member’s knowledge regarding BBF exposure prevention

Several studies reported that staffs working in health setting in Africa still lack knowledge about BBF prevention, (Alemie, 2012, p.4; Mbaisi et al, p.2., 2013; Reda, Vandeweerd et al 2010, p.7; Zelnick & O’Donnell 2005, p.204). A study conducted in a Small Rural Hospital in Thabo-Mofutsanyana in South Africa on reducing on BBF Exposure, the participants were asked whether they knew how to contact the BBF exposure. The majority of participants recognized how to contact, a large portion 24.3% did not recognize how to contact the BBF exposure (State 2016, p. 3).

Again other study showed that 92% participants demanded knowledge about the measures used to reduce BBF like universal precautions, 4% had no knowledge and others many participants understood the several elements of UBP. A large literature review revealed that these health employees are at risk of infection of blood-borne pathogens because of BBF exposure and may have insufficient knowledge about of being exposed to BBF (Garcia & Facchini 2009, p.4).

2.3.4. Conceptual framework of the study



2.3.5. Critical review and gap identification

Through the literature review, some studies were written in relation to this study, where many often they mentioned that the surgical team members are at high risks to be exposure to BBF. There is limited literature about BBF exposure Prevention even if that there are much organization develop the strategies for preventing BBF exposure among surgical team members.

There is limited literature about knowledge, attitude, and practice in Rwanda. The aim of the study will be to assess knowledge, attitude, and practice among surgical team members on blood and body fluids exposures prevention so that prevention measures must enhance and improve current practices. The study conducted in Ethiopia, the population were all workers working in the hospital instead of surgical team (Yakob, et al 2015, p. 3). There is limited literature available on previous studies involving doctors and nurses in similar developing countries (Hesse, et al, 2006, p. 4).

CHAPTER 3. METHODOLOGY

This chapter described the methodology that used in the study, study area, data management, study limitation, the tools used for data collection and ethical consideration.

3.1. Study Area

The study was conducted at University teaching hospital of Kigali (UTHK), commonly known as CHUK (Centre Hospitalier Universitaire de Kigali, in French) which is one of the public referral hospitals and serves the surrounding population and patients referred from other health facilities across the country.

The University teaching hospital of Kigali is situated in the central capital of Rwanda in the District of Nyarugenge. It is the main public health institution in the country, Kigali Hospital Centre is one of the referral hospitals of the Country that began to work as a health center in 1928. Whereby it started to work as a hospital in 1965 and with the enactment law N° 41/41/2000 of 7/12/2000 on the creation and organization of Kigali Hospital Centre it has been an integral part and became a public institution with legal personality known as University Teaching Hospital of Kigali (UTHK). The UTHK offers healthcare services to patients such as medical service and surgical service, mainly the surgery intervention happened in the operating room by surgical team members where my study was conducted.

3.2. Study Design

A non-experimental research design was used to conduct the study. The research used a quantitative descriptive cross-sectional study in the form of a self-administered questionnaire to collect the data for the study. The main purpose of descriptive research is the true interpretation of the characteristics of individuals, circumstances, or groups and the frequency with which

certain phenomena occur by using statistics to describe and summarize the data (Polit and Hungler, 2013, p. 25).

3.3. Study Population

The populations were the surgical team members include: the nurses, the surgeons, anesthesiologists /anesthetists and the total population will be 72 staffs, distributed as follows; 30 nurses, surgeons: 14, anesthesiologists 3, anesthetists 25.

Surgical team members

Surgical team	Number
Anesthesiologists	3
Anesthetists	25
Nurses	30
Surgeons	14

3.4. Sampling Strategy

This study used total population sampling (TPS) as a method of sampling. The TPS is a type of the purposive sampling techniques that involves examining the whole population that particular set of (e.g.: Knowledge, attitude, practice, exposure to any event, etc.) the surgical team members in the study have a particular set of characteristics to the BBF exposure prevention. It is an essential to note that only some features are not very shared, but since it is these features that we are interested in, they influence our selection of total population sampling. In total population sampling, researchers select to study the whole population because the size of the population that has the particular set of features that we are interested in is typically very small.

3.4. 1. Sample Size

The sample size was 72 surgical team members because of sampling method is TPS.

3.5. Data Collection Tools

Data was collected by using a self-administered structured questionnaire. A questionnaire used by Lockhart and Karen (2011) in their study adapted for the study with some modification for the fitness of Rwanda context the study. A validated questionnaire that was developed by the principal investigator was used as the survey tool called health & safety questionnaire. The questionnaire was constructed from the reviewed literature and items derived from established guidelines set by OSHA, Infection Control Practices Advisory Committee, WHO. The information for completing each section used was included at the beginning of each section. Demographic information and items regarding participant were included in section 1. Statements relating to the three domains: Knowledge, Attitudes, and Practice were included in sections 2, and 3 respectively. After determining that the content validity of the questionnaire was good and internal consistency (item reliability) coefficients were acceptable the final questionnaire was ready for administration to the larger group of health workers (Lockhart and Karen, 2011, p. 74). Cronbach's alpha was used to measure internal consistency (i.e. the extent to which the items were interrelated) using questionnaires with complete data, generally, reliability over 0.7 is required.

Questionnaire tool was pre-testing on surgical team members at Rwanda military hospital for the achievement of the required goal before the actual data collection time in order to check for their clarity and consistency, There was pre-testing of the questionnaire in English language and Kinyarwanda on 7 surgical team members., which were well answered and returned. The questionnaire was understood in the same way by everyone who completed it. According to Connelly 2008, p. 13, existing literature suggests that a pre-test study sample should be 10% of the sample projected for study. The pre-tested sample size was 7, formula is $n = N * 10\%$, n: sample size, N: Population.

3.6. Validity and reliability of the research tool

Validity expresses how well the research tools measure the phenomena under study. It refers to the nearness of what the researcher believes is measuring to what researcher planned to measure in the certain study (Roberts, 2006, p. 42). Face validity measures the construct of the study tool using facial looking of the tool (Devon et al. 2016, p. 8). In this study; the face validity of the questionnaire determined by asking questions to my classmate to verify whether they are clear and well structured. The content validity assessed whether questions are relevant and cover the KAP among surgical team members on BBF exposure prevention. A panel of experts namely research supervisor and surgical professionals was used to evaluate the content validity of the modified instrument. Reliability describes how far a given tool like questionnaire will lead to similar results in different situations (Roberts 2006, p .41). A pilot study was done to assess the validity of the questionnaire and the feasibility of the study.

3.7. Data Collection Procedures

After getting the permissions for the ethic committee from the school of nursing and hospital to conduct the study, the researcher met surgical team to present the study and study purpose and tool to be used. An informed consent was obtained from surgical patients before collecting data.

3.8. Data Analysis and Presentation

Collected data were entered into the computer using a software program Statistical Package for the Social Science (SPSS) 20 version. Statistical analysis of data will include descriptive statistics to include percentage, means and standard deviation. Inferential statistics included: logistic regression-and Chi- square test. The findings result was presented at University of

Rwanda panel to be granted, the published in a journal for public access to findings. The findings were also disseminated at Kigali University Teaching Hospital.

3.9. Data Management

After data collection, all questionnaires collected and stored in a locked cupboard. The data entered into a computer secured with a password. The questionnaires was kept in a locked cupboard and they will be destroyed after 5 years.

3.10. Data Dissemination

This study conducted for the academic award, the findings presented at school panel to be awarded, and will be published in a journal for public access to findings. The thesis presented in the school library and I will send the copy of the thesis at University Teaching Hospital of Kigali (UTHK).

3.11. Limitations of the Study

The sampling strategy used was TPS which limited the generalizability of the study results to other hospitals in Rwanda because of few number of surgical team members.

3.12. Ethical Consideration

. Ethical approval for the research obtained from the institutional review board (IRB) of UR/ College of Medicine and Health Sciences School of Nursing and Midwifery, permission to conduct the study also obtained from General Director of UTHK. Disclosure of the study risks and benefits was undertaken. The participant was not directly benefit from the study, however, the study results will be used to prevent exposure rates to blood borne pathogens. No risks are anticipated except for the discomfort of availing personal time to answer the questions asked in the questionnaires. The participation was voluntary and consenting participants gave informed written consents. Two copies of the informed consent were availed. The original copy was

retained by the researcher while the copies were given to the participants. Confidentiality was kept as no names appeared on the questionnaire. Participants had the right to withdraw from the study at any point without victimization. However, efforts were made to ensure no fall outs by adequately and appropriately addressing queries arising. The contact of the supervisors and IRB availed to address any concerns that arose.

CHAPTER 4: RESULTS PRESENTATION AND INTERPRETATION

This chapter presents results of the study from the questionnaire which was addressed to the surgical team members working at University teaching hospital of Kigali. The questionnaires contained the questions about socio-demographic, knowledge and attitude on BBF exposure among surgical team and practices toward BBF exposure prevention. All data collected were entered into SPSS, there was 72 questionnaires distributed however 71 questionnaires were returned and entered in the computerized program for analysis.

Descriptive and inferential analyses were used to analyze the data. The descriptive analyses consisted of frequency distributions. Cross tabulations were done to determine if there were any relationships between the variables and the chi-square test was done to determine if there is any real statistically significant relationship between the variables.

4.1. Description socio-demographic characteristics of respondents

According to the results, 32 (45.1%) of the participants are aged between 40-49 years and 38 (53.5%) were female. Regarding the occupation 32 (45.1%) of the participants were staff nurses among other disciplines at diploma level 41 (57.7%). The majority of the participants had work experience above 2 years 54 (76.1%), Table 1.

Table 1: Social demographic characteristics of the participants

	Respondents	Percentage
Age categories		
20-29	6	8.5
30-39	26	36.6
40-49	32	45.1
50-59	6	8.5
More than 60	1	1.4
Gender		
Female	38	53.5
Male	33	46.5
Occupation		
Staff Nurse	32	45.1
General practitioner	2	2.8
Surgeon (Specialist)	11	15.5
Anesthesiologists	2	2.8
Anesthetists Technician	24	33.8
Qualifications		
Diploma	41	57.7
Bachelor degree	17	23.9
Master's degree	13	18.3
Experience in OR		
0-1 year	5	7.0
1-2 years	12	16.9
Above 2 years	54	76.1

4.2. Knowledge and Attitude on BBF exposure among Surgical Team

In the structured questionnaire used 12 questions assessed knowledge and attitude of participants.

Out of 71 respondents, 69 (97.2%) of participants that the absence of PPE can cause BBF exposure during the intervention. Out of 69 (97.2%) of participants exposed to BBF in their daily activities, 63 (88.7%) reported having been exposed to BBF in the last one years.

Forty-eight (63.4%) of participants replied that they did not report the incident/accident BBF exposure to the concerned personal officer and 29 (40.8%) of respondents they did not know that the working area has the reporting system about BBF exposure.

Regarding training, 44 (62.0%) of the participants did not receive any training regarding BBF exposure prevention, 69 (97.2%) of the respondents thought it was essential to receive the training. The 28 (39.4%) of the respondents who reported having been trained, had undergone training for one to two years.

Fifty-four (76.1%) of the respondents replied that, if there is an insufficient protective equipment it can influence the BBF exposure, Table 2.

Table 2: Knowledge and Attitude on BBF exposure among Surgical Team

		Frequency	Percentage
The absence of protective equipment among surgical team members can cause BBF exposure?	Yes	69	97.2
	I don't know	2	2.8
Have you ever exposure to blood and body fluids in your daily activities?	Yes	69	97.2
	No	2	2.8
Have you had exposure to blood /body fluid since the last year?	Yes	63	88.7
	No	8	11.3
Reporting to concerned BBF exposure control office	Yes	23	36.6
	No	48	63.4
Does the hospital have a system for reporting accidental exposure to blood and body fluids?	Yes	26	36.6
	No	15	21.1
	I don't know	29	40.8
Do you think where you work has enough protective equipment	Yes	15	21.1
	No	38	53.5
	I don't know	18	25.4
If you have insufficient protective equipment , do you think that it could influence BBF exposure prevention	Yes	54	76.1
	No	7	9.9
	I don't know	10	14.1
Do you receive training for how to prevent BBF exposure	Yes	28	38.4
	No	43	60.6
How many training sessions did you receive in this year?	One times	24	33.8
	Two times	4	5.6
	Never	43	60.6
Do you think it is necessary to receive training of BBF exposure prevention	Yes	69	97.2
	I don't know	2	2.8
Do you know about Universal Precaution Guidelines for BBF exposure prevention?	Yes	25	35.2
	No	46	64.8

Figure 1 shows the reasons given for occupational exposure to BBFs the main ones being the type of operation 31.5% followed by lack of protective measures 30.4%.

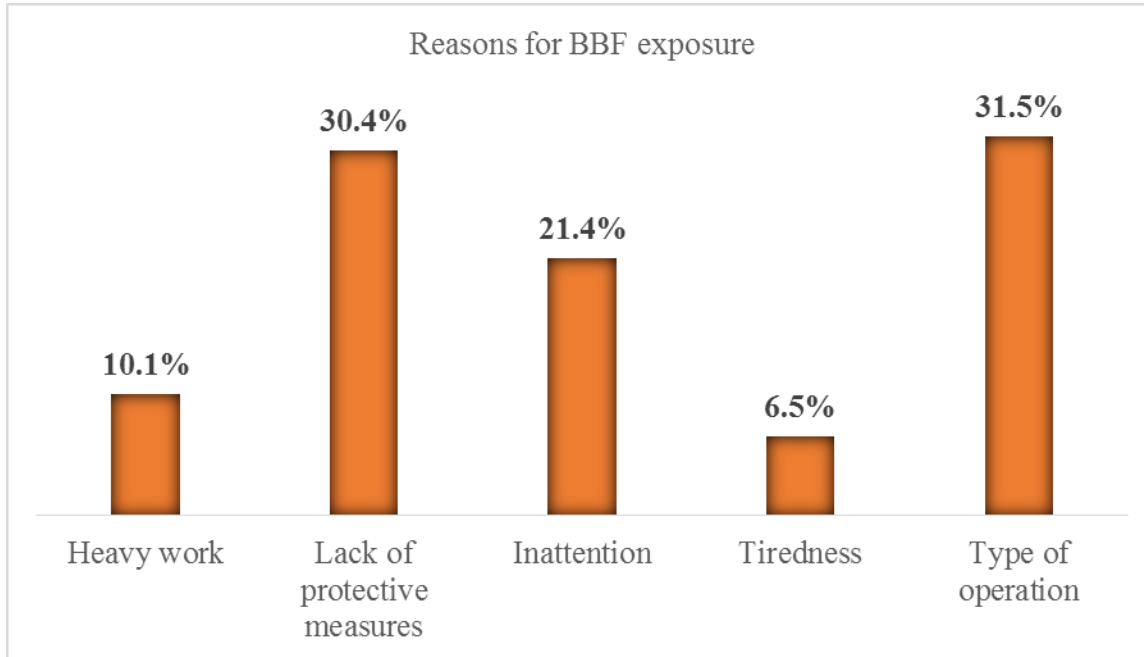


Figure 1: Reasons for BBF exposure

4.3. Practices toward BBF exposure prevention

Regarding personal protective equipment (PPE) use during surgical intervention, the results were as follows, all respondent used surgical gloves, mask, head covers, gowns (95.8%), clean gloves (85.9%), and boots/shoes (67.6%). Apron and Eye protector/goggles shared the same percentage of (43.7%). The respondents reported that the reasons for not wearing PPE were the stock out of desired PPE 34 (47.9%), while some had no reason for not using PPE 17 (23.9%). It was also reported by 26(36.6%) of the respondents that PPE was adequately available for use at all times, Table 3.

Table 3: Practices toward BBF exposure prevention

		Frequency	Percentage
The items of PPE during the surgical interventions	Aprons	31	43.7
	surgical gloves	71	100.0
	Head cover	71	100.0
	Boots/shoes	48	67.6
	Eye protector/goggles	31	43.7
	Masks	71	100.0
	Clean gloves	61	85.9
	Gowns	68	95.8
The reasons for not wearing any of stated PPE.	stock out of desired PPE	34	47.9
	PPE was not always necessary	12	16.9
	PPE was not comfortable/convenient	2	2.8
	Difficulty to work with PPE	6	8.5
	No reasons	17	23.9
Are the personal protective equipment provided adequately for use all the time?	Yes	26	36.6
	No	38	53.5
	I don't know	7	9.9

Figure 2 shows that majority of the respondents used PPE occasionally 47(66.2

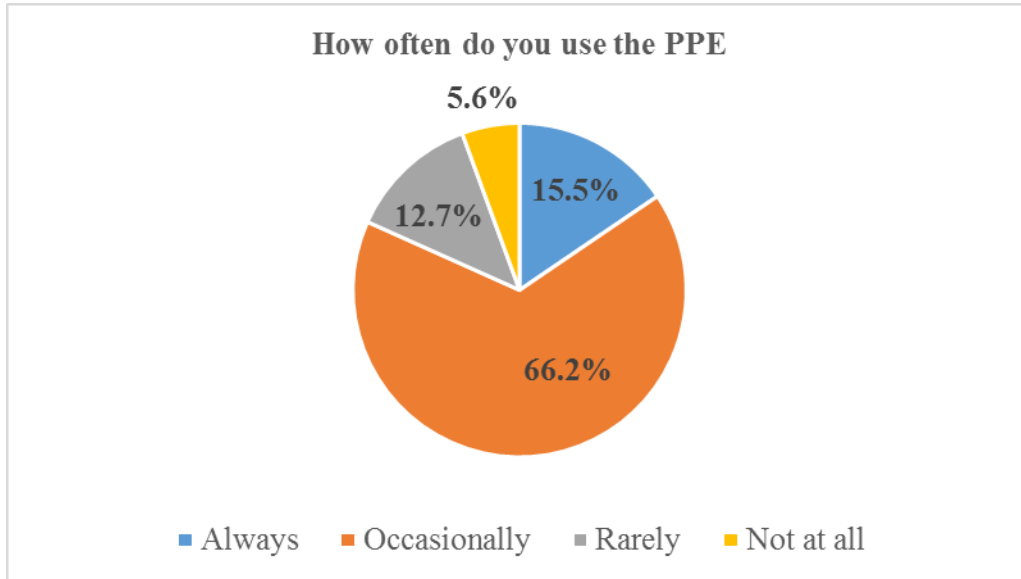


Figure 2: Frequency of using PPE among respondents

This study revealed that 36 (35.0%) of the respondents had experienced a body blood, 32 (31.1%) had blood splash, and 29 (28.2%) had suffered a sharp injury while 6 (5.8%) experienced a glove tear while handling sharps, Figure 3.

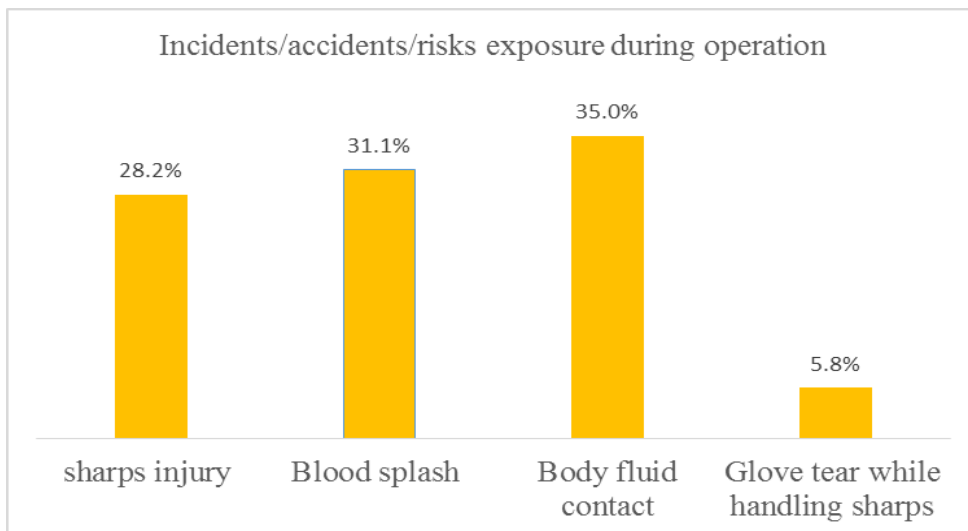


Figure 3: Percentage of incidents/accidents/risks exposure during operation among surgical team. The measures taken by the surgical team after exposure to blood body fluid is as shown in Figure 4.

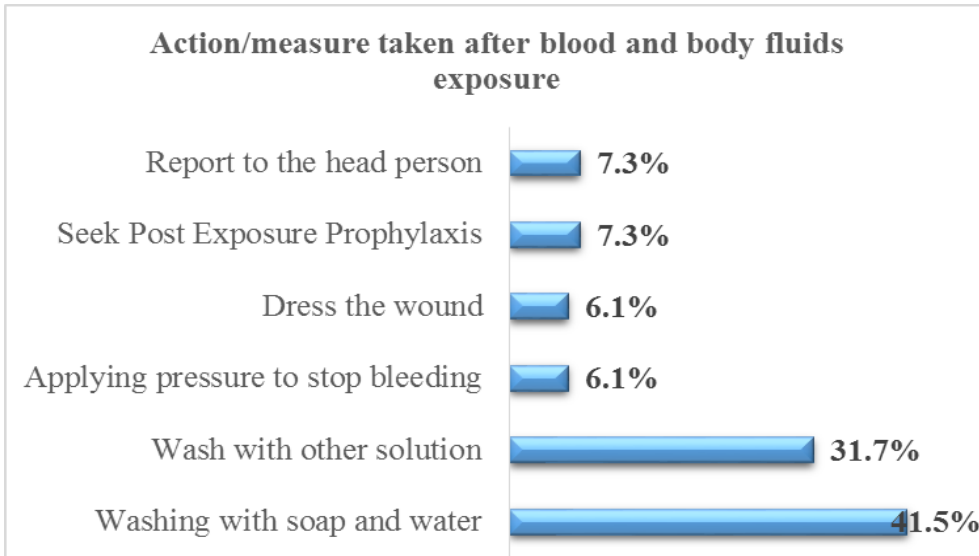


Figure 4: Measures used after being exposed to blood or body fluid

4.4. Relationship between socio-demographic and knowledge and attitude

This study revealed that there was a relation of sociodemographic and knowledge and attitude of toward BBF exposure prevention. Inferential statistics were performed to determine a relationship between working experience and knowledge and attitude about BBF exposure and prevention. There was statistically significant ($\chi^2=0.033$, $p=0.05$,) relationship between sociodemographic and knowledge and attitude for BBF exposure prevention, Table 4.

Table.4: The relationship between respondents 'sociodemographic and knowledge and attitude.

		Knowledge and Attitude		P-Value
		Poor knowledge	Good knowledge	
Age	20-29	4(66.7%)	2(33.3%)	0.354
	30-39	8(30.8%)	18(69.2%)	
	40-49	13(40.6%)	19(59.4%)	
	50-59	3(50.0%)	3(50.0%)	
	More than 60	1(100.0%)	0(0.0%)	
Gender	Female	14(36.8%)	24(63.2%)	0.462
	Male	15(45.5%)	18(54.5%)	
Occupation	Staff Nurse	16(50.0%)	16(50.0%)	0.428
	General practitioner	1(50.0%)	1(50.0%)	
	Surgeon	5(45.5%)	6(54.5%)	
	Anesthesiologists	1(50.0%)	1(50.0%)	
	Anesthetists Technician	6(25.0%)	18(75.0%)	
Qualifications	Diploma	18(43.9%)	23(56.1%)	0.541
	Bachelor degree	5(29.4%)	12(70.6%)	
	Master's degree	6(46.2%)	7(53.8%)	
Experience	0-1 year	0(0.0%)	5(100.0%)	0.033
	1-2 years	8(66.7%)	4(33.3%)	
	Above 2 years	21(38.9%)	33(61.1%)	

4.5. Relationship between knowledge and attitude and practice

According to the results summarized in the table, the participants had good knowledge and attitude in relation to PPE use in BBF exposure prevention even though this was not statistically significant($p= 0.578$).There was statistically significant ($\chi=0.044$, $df=4$, $p=0.05$,) relationship between knowledge and attitude, and practice of how often using PPE for BBF exposure prevention.

Table 5: Relationship between knowledge and attitude and practice by items

The items of Personal protective equipment during the surgical interventions	knowledge and Attitude		P-Value
	Poor knowledge	Good knowledge	
Apron, Utility glove, Head cover, Boots/shoes, Eye protector/goggle, Mask, Examination glove and Gown	11 37.9%	20 47.6%	0.578
Utility Glove, Head cover, Mask, Examination glove and Gown	12 41.4%	18 42.9%	
Utility Glove, Boots/shoes Head cover, Mask, and Gown	4 13.8%	3 7.1%	
Utility Glove, Head cover, Mask	2 6.9%	1 2.4%	
The reasons for not wearing any of stated personal protective equipment			
stock out of desired PPE	9 31.0%	19 45.2%	0.044
PPE was not always necessary	6 20.7%	7 16.7%	
PPE was not comfortable/convenient	2 6.9%	1 2.4%	
Difficulty to work with PPE	1 3.4%	9 21.4%	
No reasons	11 37.9%	6 14.3%	
How often do you use the personal protective equipment/ material?			
Always	10 34.5%	4 9.5%	0.044
Occasionally	15 51.7%	25 59.5%	
Rarely	2 6.9%	9 21.4%	
Not at all	2 6.9%	4 9.5%	

The results from the relationship between sociodemographic and practice as the results presented in table6, there were not statistically significant between ages, gender, occupation, qualification.

The findings show that there was a relationship between working experience and practice toward BBF exposure prevention.

Table 6: Relationship between socio-demographic and practice

		Practice		P-Value
		Poor Practice	Good Practice	
Age	20-29	4(66.7%)	2(33.3%)	0.306
	30-39	14(53.8%)	12(46.2%)	
	40-49	23(71.9%)	9(28.1%)	
	50-59	5(83.3%)	1(16.7%)	
	More than 60	0(0.0%)	1(100.0%)	
Gender	Female	24(63.2%)	14(36.8%)	0.758
	Male	22(66.7%)	11(33.3%)	
Occupation	Staff Nurse	21(65.6%)	11(34.4%)	0.694
	General practitioner	1(50.0%)	1(50.0%)	
	Surgeon	9(81.8%)	2(18.2%)	
	Anesthesiologists	1(50.0%)	1(50.0%)	
	Anesthetists Technician	14(58.3%)	10(41.7%)	
Qualifications	Diploma	25(61.0%)	16(39.0%)	0.577
	Bachelor degree	11(64.7%)	6(35.3%)	
	Master's degree	10(76.9%)	3(23.1%)	
Experience	0-1 year	4(80.0%)	1(20.0%)	0.040
	1-2 years	4(33.3%)	8(66.7%)	
	Above 2 years	38(70.4%)	16(29.6%)	

According to the results summarized in table7, the relation between knowledge and attitude and Practice toward BBF exposure prevention was not statistically significant (p= 0. 0.055).

Table7: Relationship between knowledge and attitude and Practice

		Practice		P-Value
		Poor practice	Good practice	
knowledge and Attitude	Poor knowledge	15 51.7%	14 48.3%	0.055
	Good knowledge	31 73.8%	11 26.2%	

Multinomial logistic regression

The results are summarized in table8, after doing computerized a multinomial logistic regression. In general, the working experience contributes to the knowledge and attitude about BBF exposure and prevention-value equal 0.033 while individual year working experience did not contribute to the knowledge and attitude, p-value=0.105. The surgical team with the good knowledge they wear occasionally more than other.

Table 8: Multinomial Analysis by logistic regression test for a variable related to knowledge and attitude.

		Chi-square	P-value
knowledge and Attitude	Poor knowledge Good knowledge	8.586	0.105
How long have you worked in Operating room	0-1 year 1-2 years Above 2 years		
knowledge and Attitude	Poor knowledge Good knowledge		
How often do you use the personal protective equipment/ material?	Always Occasionally Rarely Not at all	9.634	0.402
The reasons for not wearing any of stated personal protective equipment	Poor knowledge Good knowledge stock out of desired PPE PPE was not always necessary PPE was not comfortable/convenient Difficulty to work with PPE No reasons	10.528	0.032

CHAPTER 5: DISCUSSION

5.1. Introduction

This study conducted at University Teaching Hospital of Kigali (UTHK) to assess knowledge, attitude, and practice among surgical team members on blood and body fluids exposures prevention.

5.2. Sociodemographic profile

The profile of participants as it is revealed by the study, the respondents predominantly of surgical team was the female 53.5%, aged 40-49years old, working for over 2 years in the operating room. Most of the participants were staff nurses 45.1% and most qualifications were among those who had diploma level, Table1. The results of this study are comparable with the findings from similar studies conducted in Kenya where Nurses were 62.8% of the respondents, many respondents 63% were female, 64.7% had obtained a diploma as the highest level of education (Wafula, 2012).

5.3. Knowledge and attitude of surgical team toward BBF exposure prevention

69 (97.2%) of respondents reported that they were exposed to BBF in their daily activities and 63(88.7%) were also exposed to the BBF in the last one years. which is comparable with findings from Ethiopia as a country with low income (74%) of health care professionals (HCPs) reported occupational exposure to BBFs in their lifetime while 45.7% of respondents had been exposed to BBFs in the past 6 months (Yenesew & Fekadu 2014, p. 4).

From the total respondents 48 (63.4%) of the surgical team members did not report to infection control office, only 23(36.6%) reported. Contrary to the study conducted in Ethiopia, the respondents 50% of health care workers reported to infection control office and reporting is necessary to be addressed for better reporting statistics as well as for effectiveness of

interventions to reduce blood borne diseases among surgical team and Start post exposure prophylaxis (PEP) early, (Jemaneh, 2014). In this study, 40.8% of respondents did not know if the hospital there were working in had a system of reporting about BBF exposure. According to Linda, 2003 the lower rate of reporting could be due to poor information dissemination strategy in the hospital.

Among the reasons given for occupational exposure to BBFs included the: the type of operation 31.5% followed by lack of protective measures 30.4 %. Different to the study done in Pakistan in which the greatest common reason known for BBF exposure were stress or being overworked followed by careless attitude (Hamid et al. 2009, p. 102).

Fifteen (21.1%) of the participants replied that they have enough personal protective equipment in their work area 38 (53.5%) of the respondents, fifty-four (76.1%) of the participants responded that insufficient protective equipment can influence the BBF exposure.

5.4. Practice toward BBF exposure prevention

Comparing the results of items of PPE used during surgical intervention from this study and the study conducted in Ethiopia, the results were as follows, all respondent used surgical gloves, mask, head covers, gowns (95.8%), clean gloves (85.9%), and boots/shoes (67.6%). Apron and Eye protector/goggles shared the same percentage of (43.7%).whereas the results of a study conducted in Ethiopia shows that 133 (98.5%) for a gown, 78 (57.7%) for an apron, 135 (100%) for gloves, 87 (64.4%) for the mask.

According to the results also, the surgical team responded that the only 26(36.6%) of PPE were available adequate to be used at all time. Comparative with a study done Mizan-Aman General Hospital Workers, South West Ethiopia which has the health care workers have some similarities

in using PPE. The study result was much higher than the study conducted in Central India among dental science students which indicated that among the study participants only two participants (students) used at all time face mask, gloves, eye wears and protective clothing during as infection control measure (Singh A, et al 2011, p.102).

Regarding Measures used by the surgical team members after being exposed to blood body fluid, this study revealed that: 41.5% of surgical team wash with soap and water, this was not comparison with the study conducted among HCW's in Ethiopia which was 95.1%.

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

This study concludes that; there was an occurrence of a high number of the surgical team experience BBF exposure during their daily activities. This study has shown that the surgical team members working at university teaching hospital of Kigali (UTHK) have insufficient levels of knowledge, attitude and practice on BBF exposure prevention. Moreover, there was a significant relationship between knowledge and attitude, and practice of how often using PPE as protection measures against BBF exposure.

The PPEs were not enough and were not used properly. Surgical team members were not reporting as required if they were exposed to BBF in order to get PEP early, while some of them did not know the system of reporting of the hospital. According to the findings, the surgical team members are at high risk to suffer blood borne disease which was a very dangerous to them, their family and even to the community.

6.2. Recommendations

To the Hospital and surgical team:

The hospital should introduce the BBF exposure prevention standard of practice, protocol, rules, regulation, policies, and procedures to promote the safety of the surgical team members.

Personal protective equipment and practice of universal standard precaution are very important in the operating room to protect the surgical team and the patients from being infected with any blood borne infections and surgical injuries, the hospital should make the availability at all time.

The hospital needs to sensitize the surgical team on reporting systems to address and manage complications from BBF exposure and establish the real source of causes.

It is necessary for each member of the surgical team to have a basic knowledge of what universal standard precautions is all about and in which situations to use personal protective equipment.

Strengthening and integrating universal precaution through the provision of continuous training are needed.

Every surgical team should get the opportunity to attend in services training and refresher course because all members need to have update information regarding BBF exposure prevention.

Surgical team should wash with soap and water when they experienced BBF exposure.

To the researchers:

Another recommendation would be to replicate the study, further research is needed regarding this topic to include the health care providers working in different departments of the hospital.

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Appendices

The gantt chart and the budget of study

Tasks												
Tasks/Month	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Searching researchable topic	√											
Developing proposal		√	√	√	√							
Presentation of Proposal to the Panel Members						√						
Correction of proposal						√	√	√				
Submission to IRB								√				
Data collection									√	√		
Data entry and analysis											√	
Finalize study												√
Presentation and dissemination final report												√

Budget

Items	Quantity/	Unity price in Frw	Price in Frw
Equipment and materials			
handbook	2	1 000	2 000
Blade paper	2	4 000	8 000
pen	100	100	10 000
computer	1	350 000	350 000
Hard disc	1	80 000	80 000
modern	1	10 000	10 000
Travels and communication			
Internet bundles	-	21 000per month	252 000
communication	-	5 000 per month	60 000
Transport estimated fees	-	-	360 000
Study processing			
Statisticians assistant salary			500 000
Language editor			200 000
printing	10	5000	50 000
bending	10	500	5 000
		Total Fees	1 837 000

Individual consent form (version English)

Hello,

My name is Mr. Eric KARERA; I am a student at the University of Rwanda, college of medicine and health sciences, undertaking a master's degree in Nursing Peri-Operative track. One of the requirements for the degree is to conduct a research.

For the study of knowledge, attitude and practice among surgical team members on blood and body fluids exposure prevention at university teaching hospital of Kigali.

The aim of the research is to assess the Knowledge, attitude and practice among surgical team members on blood and body fluids exposures prevention. The participant is the Nurses in the theatre room, the surgeon, and anesthesiologist and anesthetists providers

To attain this purpose, you're genuine participation in filling the questionnaire with real information is very important and highly appreciated.

Your name will not be written on this form and all the information gathered will be kept strictly confidential.

Please note that by completing this questionnaire you are voluntarily agreeing to participate in the research study. But the information that you will give us is quite useful to achieve the study and to bring change in health services rendered by surgical team members. It will take you approximately between 20-50 minutes of your time to complete the questionnaire.

Contact Details

Contact details of researcher

Eric KARERA

University of Rwanda

College of medicine and health sciences

School of Nursing

e-mail:erickarera06@gmail.com

Tel: +250783258528

Contact details of the research supervisor

Lilian A. Omondi

University of Rwanda (UR)

College of Medicine and Health Sciences,

School of Nursing and Midwifery

[+250-789924968](tel:+250789924968)

Email: liliathis@gmail.com

For reporting of complaints or problems relating to the study, contact the IRB Administrator or Chair

Institutional Review Board

Research Office

University of Rwanda

Kigali, Rwanda

Tel: +250 (0)7885-63312

Email: researchcenter@ur.ac.rw

Consent to participate in the research

I hereby confirm that I understand the content of this document and the nature of the research project, and I consent to participate voluntarily in the research project. I understand that have the right to withdraw from the study at any time.

Signature of participant

Date

...../...../...../.....

dd mm yyyy

Individual consent form (version Kinyarwanda)

Muraho,

Nitwa Eric KARERA; ndi umunyeshuri mu kiciro cya 3 cya Kaminuza mu umunyeshuri wiga icyiciro cya gatatatu cya kaminuza muri iniverisiti y'u Rwanda mu bijyanye no kuvura no kwita ku barwayi babagwa. Ndimu ndakora ubushakashatsi bujyanye ni ibyo niga.

Ubushakashatsi ku Ubumenyi, imyitwarire nimikorere mukwirinda ko amaraso namavangingo ko akujyaho mubanu bakorera mwiseta mubitaro bikuru byakaminiza bya Kigali.

Integer nkuru yububushakashatsi ni ukureba ubumenyi imyitwarire ndetse nimikorere mukwirinda ko amaraso namavangingo ajya kubakora mwiseta mugiwhe cyo kubaga

Abazitabira ubu bushakashatsi ni abakozi bakorera mwiseta barimo abaforomo nabaforomokazi, inzobere mukubaga abatanga ikinya ndetse ninzobere mugutanga ikinya.

Kugirango tugere ku intego yubushakashatsi, muri inyangamugayo mukuzuzwa ibibazo twateganyije muri ubu bushakashatsi mutanga amakuru yukuri.

umushakashatsi azabarinda ikintu cyose cyakwangiza uburenganzira bwanyu muri ubu bushakashatsi. Ntamazina azagaragara k'urupapuro rw'ubushakashatsi kandi amakuru muzatanga azabikwa ahantu mwibanga rikomeye.

Ntanyungu idasanzwe iri muri ubu bushakashatsi gusa amakakuru azavamo azifashishwa mu kunoza no guhindura imikorere yabakozi bo mwiseta mukwirinda amaraso namavangingo kubajya ho muri serivisei yibagiye serivisei zihabwa abarwayi babagwa mu bitaro by u Rwanda.

Gusubiza ibi bibazo bishobora gutwara byibura hagati y'iminota 20-na 50.

Aho tubarizwa: Umushakashatsi

Umushakashatsi: Eric KARERA

e-mail:erickarera06@gmail.com

telefoni: +250783258528

Umunyeshuri muri kaminuza y' u Rwanda.

Mwarimu

Lilian A. Omondi

[+250-789924968](tel:+250-789924968)

E-mail:liliathis@gmail.com

Murakoze!!

Eric KARERA

KWEMERA NTA GAHATO GUTANGA AMAKURU MU BUSHAKASHATSI

Ndangije kumva ubusobanuro bujyanye ni ubu bushakashatsi kandi ndangije kumva neza ibijyanye no gutanga amakuru muri bwo ntagahato, nemeye gutanga amakuru kandi ndumva neza ko igihe cyose shobora kubihagarika nta nkurikizi zimbayeho.

Umukono

Itariki

.....

English version
Date: _____

Participant code _____

Questionnaire

KNOWLEDGE, ATTITUDE AND PRACTICE AMONG SURGICAL TEAM MEMBERS ON BLOOD AND BODY FLUIDS EXPOSURE PREVENTION AT UNIVERSITY TEACHING HOSPITAL OF KIGALI

Please circle the number corresponds Response

SECTION 1. Information about You

1	What is your age?	Less than 20	1
		20-29	2
		30-39	3
		40-49	4
		50-59	5
		More than 60	6
2	What is your Gender?	Female	1
		Male	2
3	What is your Occupation?	Staff Nurse	1
		General practitioner	2
		Surgeon (Specialist)	3
		Anesthesiologists	4
		Anesthetists Technician	5
		Diploma	1

4	What are your highest qualifications obtained	Bachelor degree	2
		Master's degree	3
		Any other (specify).....	4
5	How long have you worked in Operating room	0-1 year	1
		1-2 years	2
		Above 2 years	3

SECTION 2. Knowledge and Attitude on BBF exposure among Surgical Team

1	Do you think that an absence of Protective equipment among surgical team members can cause BBF exposure?	Yes	1
		No	2
		I don't know	3
2	Have you ever exposure to blood and body fluids in your daily activities?	Yes	1
		No	2
3	Have you had exposure to blood /body fluid since the last year?	Yes	1
		No	2
4	If the response to Q2 or Q3 above is yes have you reported to concerned BBF exposure control office?	Yes	1
		No	2
5	Does the hospital have a system for reporting accidental exposure to blood and body fluids?	Yes	1
		No	2
		I don't know	3
		Heavy work	1

6	Reasons for BBF exposure: (Select all apply)	Lack of protective measures	2
		Inattention	3
		Tiredness	4
		Type of operation	5
		Any other (specify).....	6
7	Do you think where you work has enough protective equipment	Yes	1
		No	2
		I don't know	3
8	If you have insufficient protective equipment ,do you think that it could influence BBF exposure prevention	Yes	1
		No	2
		I don't know	3
9	Do you receive training for how to prevent BBF exposure	Yes	1
		No	2
10	How many training sessions did you receive in this year?	One times	1
		Two times	2
		Three or more	3
		Never	4
11	Do you think it is necessary to receive training of BBF exposure prevention	Yes	1
		No	2
		I don't know	3
12	Do you know about Universal Precaution Guidelines for BBF exposure prevention?	Yes	1
		No	2

SECTION 3. Practices toward BBF exposure prevention

1	Which of the items of Personal protective equipment are used for the last time during the surgical intervention? (Select all apply)	Apron	1
		Surgical glove	2
		Headcover	3
		Boots/shoes	4
		Eye protector/goggle	5
		Mask	6
		Clean glove	7
		Gown	8
2	What are the reasons for not wearing any of stated personal protective equipment	stock out of desired PPE	1
		PPE were not always necessary	2
		PPE were not comfortable/convenient	3
		difficulty to work with PPE	4
		No reasons	5
3	Are the personal protective equipment provided adequate for use all the time?	Yes	1
		No	2
		I don't know	3
4	How often do you use the personal protective equipment/ material?	Always	1
		Occasionally	2
		Rarely	3
		Not at all	4
5	Which of the following, incidents/accidents/risks have you been exposure during operation? (Select all apply)	sharps injury	1
		Blood splash	2
		Body fluid contact	3
		Glove tear while handling sharps	4

		Any other (specify).....	5
6	Which of the following Action/measure taken after blood and body fluids exposure? (Select all apply)	Washing with soap and water	1
		Wash with other solution	2
		Applying pressure to stop bleeding	3
		Dress the wound	4
		Seek Post Exposure Prophylaxis	5
		Report to the head person	6
		Any other (specify).....	7

Adapted from Lockhart and Karen (2011)
email:kare.lockhart@ubc.ca
Thank you for your time and your answers!

Kinyarwanda version
Itariki: _____

Kode y'usubiza _____

Questionnaire

Ubumenyi, Imyitarire n' Imikorere y'Abakozi b'Iseta mu Kwirinda amaraso
n'Amavangango mu Bitaro bikuru bya Kaminuza bya KIGALI

Ca uruziga ku mubare uhuye n'igisubize

uhisemo

Igice cya 1 Amakuru Akwerekereye

1	Ufite imyaka ingahe?	Munsi ya 20	1
		20-29	2
		30-39	3
		40-49	4
		50-59	5
		Hejuru ya 60	6
2	Igitsina cyawe?	Gore	1
		Gabo	2
3	Akazi ukora?	Umuforomo/kazi	1
		Umuganga Ubaga	2
		Inzobere mu kubaga	3
		Inzobere mu gutanga ikinya	4
		Utanga ikinya	5
4	Ufite iyihe mamya bumenyi?	Icyiciro1	1
		Icyiciro2	2
		Icyiciro3	3
		Hari indi (yivuge).....	4
		
		Hagati y'imyaka 0-1	1

5	Umaze igihe kingana gute ukorera mu iseta?	Hagati y'imyaka 1-2	2
		Hejuru y'imyaka 2	3

Igice cya 2. ubumenyi imyitwarire mu kwirinda amaraso n'amavangingo

1	Utekereza ko kubura kw'ibikoresho Bambara birinda ari impamvu yatuma amaraso n'amavangingo akujyaho?	Yego	1
		Oya	2
		Ntabyonzi	3
2	Waba warigeze amaraso n'amavangingo akujyaho mu kazi kawe kaburiminsi?	Yego	1
		Oya	2
3	Waba warigeze amaraso n'amavangingo akujyaho mu mwaka ushize?	Yego	1
		Oya	2
4	Niba igisubizo utanze ku kibazo cya 3 ari Yego , waba warabimenyeshesheje ababishinzwe	Yego	1
		Oya	2
5	Ibitaro byaba bifite babimenyeshesha, igihe amaraso n'amavangingo akugiyeho?	Yego	1
		Oya	2
		Ntabyonzi	3
6	Niyihe mpamvu ituma amaraso n'amavangingo akujyaho ?Hitamo ibyo ubona aribyo byose	Akazi kenshi	1
		Kubura ibyo kwirinda	2
		Uburyo butunguranye	3
		kuruha	4
		Bitewe naho bari kubaga	5
		Hari ikindi ? (Kivuge).....	6
7	Utekerezako aho mukorera bafite ibikoresho bihagije byo kwirinda amaraso n'amavangingo ?	Yego	1
		Oya	2
		Ntabyonzi	3
8	Nimba hari ibikoresho bidahagije, utekerezako byaba intandaro yatuma amaraso n'amavangingo akujyaho ?	Yego	1
		Oya	2
		Ntabyonzi	3
9	Waba warahawe amahugurwa mukwirinda ko amaraso n'amavangingo akujyaho ?	Yego	1
		Oya	2
10	Igisubizo cyawe ku kibazo cya 9	Imwe	1

	niba ari Yego , nicuro zingaha wahuguwe?	Ebyiri	2
		Eshatu cg zirenga	3
11	Utekereza ko amahugurwa ari ingenzi mu kwirinda ko amaraso n'amavangingo akujyaho?	Yego	1
		Oya	2
		Ntabyonzi	3
12	Uzi imirongo ngenderwaho n'amabwirinzi mpuza mahanga mukwirinda ko amaraso n'amavangingo akujyaho?	Yego	1
		Oya	2

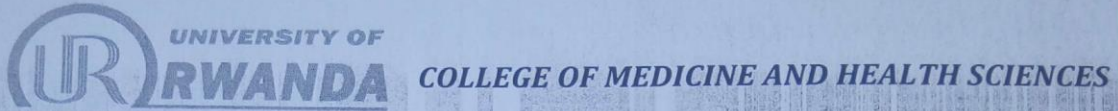
Igice cya 3. Ibikorwa mu kwirinda ko amaraso abajyaho

1	Ni ikihe gikoresho wakoreshe ubwo uheruka kubaga? (Subiza byose bikwiye)	porotegisiyo	1
		Uturinda ntoki two kubagana	2
		intofero	3
		Inkweto ndende	4
		Amataratara Bambara babaga	5
		Agapfuka munwa	6
		Uturinda ntoki imyanda	7
		Ikanzu Bambara babaga	8
2	Ni iyihe mpamvu ituma hatambarwa ibikoresho byo kwirinda ko amaraso n'amavangingo akujyaho? (Subiza byose bikwiye)	Mu bubiko byashize	1
		Singombwa burigihe	2
		Kubyambara birabangamye	3
		Kubaga ubyambaye biragorana	4
		Ntampamvu ihari	5
3	Igihe cyose ibikoresho cyo kwirinda amaraso n' amavangingo igihe barimo babaga biba bihari bihagije?	Yego	1
		Oya	2
		Ntabyonzi	3
4	Nikangahe ukoresha ibikoresho twavuze mukibazo cya 1?	Burigihe	1
		Rimwe na rimwe	2
		Takeya	3
		Ntanarimwe	4
5	Ni ibihe byago wagize ubwo warimo ubaga byari gutuma amaraso n'amavangingo akujyaho? (Subiza byose bikwiye)	Ibikoresho byaranjombye	1
		Amaraso yanyirasheho	2
		Amavangingo yanguyeho	3
		Uturinda ntoki twaracitse	4

		Ikindi (kivuge).....	5
6	Ni ibihe bikorwa ukora cg ingamba ufata Igihe cyose amaraso n'amavangingo yakugiyeho?	Gukaraba isabune n'amazi	1
		Gukaraba ibindi bitari isabune	2
		Kuhakanda uhagarika kuva kw'amaraso	3
		Kupfuka igisebe	4
		Gushaka imiti yo kwikingira	5
		Kubivuga ku muyobozi	6
		Ikindi (kivuge).....	7

Byavanywe muri Lockhart na Karen (2011)
email:kare.lockhart@ubc.ca
Turabashimiye ubwitange muduhaye ndetse n'ibisubizo mwatanze!

Ethical clearance from IRB/UR



CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 16/01/2017
Ref: CMHS/IRB/105/2017

KARERA Eric
School of Nursing and Midwifery, CMHS, UR


Dear KARERA Eric

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled *“Knowledge, Attitude And Practice Among Surgical Team Members On Blood And Body Fluids Exposure Prevention At University Teaching Hospital of Kigali”*.

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

 Professor Kato J. NJUNWA
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR



- Cc:
- Principal College of Medicine and Health Sciences, UR
 - University Director of Research and Postgraduate studies, UR

Acceptance letter from UTHK



CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL

Ethics Committee / Comité d'éthique

February 3rd, 2017

Ref.: EC/CHUK/257/2017

Review Approval Notice

Dear Karera Eric,

Your research project: *"Knowledge, Attitude and Practice among Surgical team Members on Blood and Body Fluids Exposure Prevention at University Teaching Hospital of Kigali."*

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 3/02/2017 to evaluate your protocol of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your protocol.

You are required to present the results of your study to CHUK Ethics Committee before publication.

PS: Please note that the present approval is valid for 12 months.

Yours sincerely,




John Nyirigira
The Secretary, Ethics Committee,
University Teaching Hospital of Kigali

<<University teaching hospital of Kigali Ethics committee operates according to standard operating procedures (Sops) which are updated on an annual basis and in compliance with GCP and Ethics guidelines and regulations>>.

B.P. :655 Kigali- RWANDA www.chk.rw Tél. Fax : 00 (250) 576638 E-mail : chuk_hospital@chukigali.rw

Letter for requesting data collection

 **UNIVERSITY OF RWANDA** COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

Kigali, on 30 / 01 / 2017
Ref. No: 23 / UR-CMHS/SoNM/17

TO WHOM IT MAY CONCERN

Dear Sir/Madam,


Re: Request to collect data



Referring to the above subject, I am requesting for permission for **KARERA Eric**, a final year student in the Masters of Science in nursing at the University of Rwanda/College of Medicine and Health Science to collect data for his/her research dissertation entitled *Knowledge, Attitude and Practice among Surgical Team Members on Blood and Body Fluids Exposure Prevention*.

This exercise that is going to take a period of 2 months starting from 13th February 2017 to 12th April 2017 will be done **At University Teaching Hospital of Kigali**.

We are looking forward for your usual cooperation.

Sincerely,

 **Dr. Donatilla MUKAMANA, IN, PhD**
Dean, School of Nursing and Midwifery
College of Medicine and Health Sciences

Email: schoolofnursingandmidwifery@ur.ac.rw, P.O.Box: 3286 Kigali-Rwanda, Website: www.ur.ac.rw

Authority to submit the dissertation form

THE FORM FOR SUBMISSION OF THE DISSERTATION

**UR-COLLEGE OF MEDICINE AND HEALTH SCIENCES
P.O.BOX 3286 KIGALI**

DECLARATION AND AUTHORITY TO SUBMIT THE DISSERTATION

Surname and First Name of the Student

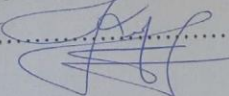
KARERA Eric

Title of the project "knowledge, attitude and practice among surgical team members on blood and body fluids exposure prevention at university teaching hospital of Kigali"

a. Declaration by the Student

I do hereby declare that this *dissertation* submitted in partial fulfilment of the requirements for the degree of **MASTERS OF SCIENCE** in **NURSING**, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Date and Signature of the Student

12/06/2017 

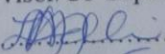
b. Authority to Submit the dissertation


Surname and First Name of the Supervisor:

Lilian A.OMONDI

In my capacity as a Supervisor, I do hereby authorise the student to submit his/her **dissertation**.

Date and Signature of the Supervisor/Co-Supervisor

12th June 2017 



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Eric KARERA** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 10/02/2016.

Certification Number: 2197134.