

**KNOWLEDGE AND PRACTICES ON INFECTION PREVENTION AMONGST
HEALTH WORKERS IN ST. DANIEL'S COMBONI HOSPITAL,
BUSHENYI DISTRICT, UGANDA**

**A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF NURSING IN PARTIAL
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BY

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Abstract

Background: Compliance on the part of healthcare workers with standard precautions has been recognized as being an efficient means to prevent and control healthcare-associated infections. Such measures not only protect the patient, but also the HCWs and environment.

Objective: To assess knowledge, attitude and practice towards infection control measures among health workers at St. Daniel's Comboni hospital.

Methods: The study was conducted at St. Daniel's Comboni General Hospital, Southwest Ethiopia. Cross-sectional study design was employed. All HCWs (49) were included in the study but only 36 filled the questionnaires. Self-administered questionnaires were used to collect data. Data was analysed using Microsoft excel.

Results:

Demographically, most health works were relatively young and inexperienced with experience of less than 5 years in the field, while very few had had in-service training on infection prevention control. Most of the health workers had fair knowledge about infection prevention only that actual practice was far from impressive. The main reported challenges to infection prevention in St. Daniel's Comboni hospital were lack of guidelines on standard infection practices the facility and limited awareness about standard among the hospital staff.

Conclusion/recommendation: Majority of health care workers' knowledge, and practice toward standard precaution were not sufficient, favorable and safe enough to the expected standard.

Strengthening and integrating universal precaution with routine services through provision of training and introducing health care workers infection prevention standard of practice, protocol, rules, and regulation are recommended.

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DECLARATION

I Orishaba Justine declare that apart from where reference was made to published /unpublished literature, this research report is my original work and has never been submitted to any institution in any form for any award.

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Signature..... Date.....

MS KABANYORO ANNET

DEDICATION

I dedicate this work to my beloved parents, Sisters, Brothers, friends and well-wishers who helped me to conduct my research.

May God Bless you all

ACKNOWLEDGEMENT

First I thank the almighty GOD for making it possible for me to complete this piece of work, thank you GOD.

In particular I wish to thank in a special way my supervisor MADAM KWESIGA ROSEBEL for her expertise and skilled inputs she made towards this piece of work. She tirelessly guided me through this work despite her busy schedules to enable me come up with this document.

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LIST OF ABBREVIATIONS

PPE:	Personal Protective Equipment
HCWs:	Health Care Workers
WHO:	World Health Organisation
HIV:	Human Immuno-deficiency Virus
AIDS:	Acquired Immune deficiency Syndrome
HBV:	Hepatitis B Virus
HCAIs:	Health Care Acquired Infection
RLS:	Resource Limited Settings
UCMB:	Uganda Catholic Medical Bureau
PNFP:	Private Not For Profit

OPERATIONAL DEFINITIONS

Infections: The invasion and multiplication of microorganism in the body tissue.

Nosocomial infections: These are hospital acquired infections.

Sepsis: The presence of microorganisms or their toxins in the body tissue.

Bacteria: They are micro-organisms that invade the body tissue.

Hemostasis: An arrest of the escape of blood by either natural or artificial means.

Proliferation: Reproduction or multiplication of similar forms of cells.

Knowledge: is clear awareness and understanding.

Attitude: is s personal view of health care workers on infection prevention activities when caring patients.

Practice: is a skill of health care workers on infection prevention activities when

CHAPTER ONE

1.0 Introduction

This chapter presents the background, statement of the problem, objectives, research questions and study justification.

1.1 Background of the study

Nosocomial infections are infections acquired in the hospital or other health care facilities that were not present or incubating at the time of the client's admission. It is also referred to as hospital-acquired infections and includes those infections that become symptomatic after the client is discharged as well as infections among medical personnel. Most nosocomial infections are transmitted by health care personnel who fail to practice proper hand washing procedures or change gloves between client contacts (Delaune SC, Ladner PK, 2010).

Standard precautions are based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible infectious agents. The term standard precautions is replacing 'universal precautions' as it expands the coverage of universal precautions by recognizing that any body fluid may contain contagious and harmful microorganisms. Standard precautions include hand hygiene, use of appropriate personal protective equipment (PPE), use of aseptic technique to reduce patient exposure to microorganisms and management of sharps, blood spills, linen, and waste to maintain a safe environment (Abou El-Enein NY and El-Mahdy HM, 2011) .

Compliance on the part of Healthcare workers (HCWs) including nursing and medical students with standard precautions has been recognized as being an efficient means to prevent and control healthcare-associated infections. Such measures not only protect the patient, but also the HCWs

and the environment. Among the standard precautions advocated, hand hygiene is considered, in itself, the most important one.

Another important measure is the adequate use of gloves, whose purpose is to protect the HCWs, as well as the patient. A preventive measure also worthy of mention is the adoption of safe practices for handling needle sticks and other sharp objects, in view of the possibility of outbreaks, especially of Hepatitis B and C, frequently associated to the offer of healthcare. However, in spite of the effectiveness of these standard precautions, what reality shows us is very low compliance with these measures (Eshetu BTW, Legesse B 2007).

Globally WHO (World health organization) estimates that every year unsafe injections and needle stick injuries cause at least 8-16 million HBV infections, 2.3-4.7 million HCV infections and 160,000 HIV/AIDS infection. WHO estimated that at least 50% of the 12 billion injections administered each year in developing countries are unsafe posing serious health risk to recipients, health workers, health students and the public. Injuries from sharp devices have been associated with the transmission of more than 40 pathogens including hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV (Eshetu BTW, Legesse B (2007)).

Standard precautions are practiced in high-income countries to protect HCWs from occupational exposure to blood and the consequent risk of infection with blood-borne pathogens. The situation is different in low-income countries, where standard precautions are partially practiced Franklin OE (2009).

In African setting, Sub Saharan Africa harbors the largest population of people living with infectious disease mainly with HIV/ AIDS. Ethiopia, Nigeria and South Africa are the three

countries with the largest number of people living with HIV/AIDS. Based on the 2003 nationwide sentinel surveillance of Kenya every year unsafe injections and needle stickle injuries cause around 2 million to become infected by infectious diseases. Urban prevalence of HIV seems stabilizing at a higher magnitude while the spread of HIV among the rural African population is increasing (Eshetu BTW, Legesse B 2007).

A well-structured infection control programme plays a vital role in reducing mortality, morbidity and cost resulting from nosocomial infections in hospitalized patients. However, infection control activities in developing countries are severely constrained by numerous problems. Most hospitals in developing countries, especially Africa, have no effective infection control programme and there is lack both of awareness of the problem and of personnel trained in infection control practices. (Dixon, 2011)

Problems with infrastructure and infection control plague Ugandan health care services. Only 31 percent of health care facilities in Uganda, including 64 percent of all hospitals, have a regular water supply, and even fewer, 24 percent, have regular electricity or a generator. Other items needed for infection control are also in short supply; more than half of facilities do not have soap or disinfectant, and 42 percent do not have latex gloves. These conditions put both providers and clients at risk (Zaramba, 2011)

In Uganda, where the healthcare service is largely covered by low and midlevel health professionals, assessing the necessary knowledge, attitude and practice or the skill on infection prevention and factors in health care facilities as early as possible can give way to manage the limited resource available in the sector for health providers and customers.

The purpose of this research was therefore to assess the knowledge, attitude and practice of standard precautions among health care workers in St. Daniel's Comboni Hospital so as to help in identifying and improving the pattern of universal precaution at the health facility level in the study area and beyond. It also helped to provide information for both governmental and private health care workers regarding universal precaution.

1.2 Problem statement

Healthcare-acquired infections (HCAIs) are significant causes of morbidity and mortality among hospitalized patients worldwide. Recent literature suggests the burden of HCAIs may be disproportionately high in resource-limited settings (RLS) with rates of HCAIs estimated to be two to twenty times that of developed countries (Allegranzi B, Pittet D,2007). One of the major reasons for these high rates of HCAIs is the lack of infection control programs, which have been neglected due to limited resources, competing priorities, and other barriers (Borg Michael A, 2010). Identifying existing infection control knowledge, attitudes, and practices (KAP) among health care workers is a key first step in developing a successful infection control program.

Nosocomial infections have been recognized as a problem affecting the quality of health care and a principal source of adverse healthcare outcomes. It has been documented in the literature that within the realm of patient safety, these infections have serious impact. Increased hospital stay days, increased costs of healthcare, economic hardship to patients and their families and even deaths, are among the many negative outcomes (Schmader et al 2009).

In Uganda, the Ministry of Health (MOH) lists five basic standard precaution measures that can enhance infection control within the health facilities. These are: hand hygiene, adequate protective wear, proper sterilization, proper sharps disposal and safe waste management (MOH, 2005).

However, findings from a national service provision assessment survey conducted by MOH showed that only 6 % of health facilities had all infection control items while supervisory visits to health facilities in Bushenyi District in 2012 revealed that less than 60 % of the assessed facilities implemented the required infection control measures (MOH, 2013). This study therefore assessed the knowledge and practices among health workers using St. Daniel's Comboni Hospital as a case study.

1.3 Purpose of the study:

The study aimed at assessing the level of knowledge and practice of infection control among health workers in St. Daniel's Comboni Hospital

1.4 Specific Objectives

1. To determine knowledge about infection prevention among the health workers at St. Daniel's Comboni Hospital
2. To determine the infection control practices in use among health workers at St. Daniel's Comboni Hospital.
3. To establish limitations to successful infection control practices at St. Daniel's Comboni Hospital.

1.5 Research Questions

1. What is the knowledge about infection prevention among the health workers at St. Daniel's Comboni Hospital?
2. What are the infection control practices among health workers at St. Daniel's Comboni Hospital?
3. What are the limitations to successful infection control practices at St. Daniel's Comboni Hospital?

1.6 Study justification

1.6.1 Nursing practice

It has been documented in several epidemiological studies that healthcare workers such as physicians, dentists and nurses are implicated in the transmission of nosocomial infections. Literature that has explored the knowledge and practices of nurses is limited. Therefore, it is important to further investigate the impact of knowledge and practices of nurses with regard to the degree of the infection control. Assessing compliance with infection control measures in any health care setting is vital. Regular updating and strengthening of infection control practices should be one of the priority function of any place where health services are rendered. The findings from this study have added to the existing literature and will be used in developing interventions to increase infection control practices in St. Daniel's Comboni Hospital and beyond. The findings of the study will therefore help in improving infection control practices in the hospital and beyond.

1.6.2 Nursing management

The results of this study will be used by policy makers to design appropriate policies with respect to infection control among health workers.

1.6.3 Nursing research

As well as serving as a learning experience to the researcher, the results will also act as a point of reference to future researchers on infection control.

1.6.4 Nursing Education

The results will particularly help in the following; curricula improvement, instruction material development, continuous medical sessions and on field mentorships among others.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents the views of other scholars and researches that are related to the topic under study. The literature is reviewed basing on the study of objectives using the following themes: Knowledge of health workers about infection control and infection control practices among health workers.

2.1 Knowledge of health workers about infection control

A survey of doctors' and nurses' knowledge, attitude and compliance with infection control guidelines in Birmingham teaching hospitals was conducted by Stein, Makarawo, & Ahmad (2003). The results of this study indicated that overall knowledge regarding blood-borne virus transmission from an infected patient after needles stick injury was low (44.0% for hepatitis B virus, 38.1% for hepatitis C virus, and 54.6% HIV).According to the authors of this study; education, monitoring, improved availability of resources, and disciplinary measures for poor compliance are required to improve infection control practices in hospitals.

A another descriptive study was conducted on the level of knowledge and practice of prevention of hospital acquired infections among trained nurses in surgical wards and the factors that hinder this practice. The findings revealed that 98% of the respondents have heard about nosocomial infections while 2% have not (Agaral and Thomas, 2003)

A cross-sectional study was conducted among nurses and physicians providing direct patient care in four hospitals in Hong Kong About 78% of the respondents practice prevention of hospital acquired infections while 22% do not. About 94% of the respondents expressed that they have

hindrances to the practice of prevention of nosocomial infections. The hindrances include poor working environment among 26%, poor knowledge about prevention of nosocomial infection was 10%, and lack of water for hand washing and other material resources 58%.

The Study reveals that majority of the trained nurses in surgical wards have knowledge about the prevention of nosocomial infections but not all practice it due to lack of equipments and poor working environment (Agaral and Thomas, 2003). A study was conducted to assess the knowledge of health team in relation to infection control measures as well as their level of practice in the application of infection control measures at the endoscopy units in El-Kasr El-Ani Hospital, The New Kasr El-Ani Teaching Hospital (French), and the Internal Medicine Hospital, all hospitals are affiliated to Cairo University.

The selected sample consisted of 40 doctors, 50 nurses, and 30 workers. The result revealed that 5% of physicians, 10% of nurses had satisfactory knowledge and 30% of physicians and just 4% of nurses had adequate level of performance, while none of the workers had satisfactory level of knowledge or practice. The study recommended an educational program for the endoscopy staff about infection and infection control measures application for the protection of staff and patients (Talaat and Shamia, 2010).

A Study regarding nosocomial respiratory infections and nurses' performance related to infection control measures was conducted in artificially ventilated patients in Egypt to assess nurses' practices regarding daily care activities, ventilator decontamination, and use of universal infection control measures and the maintenance of the patients' care environment. The study revealed a high incidence of nosocomial respiratory infections. Also, it was revealed that

pseudomonas was the causative agents in more than one fourth of the cases. Moreover, nurses' infection control practices were inadequate (Ahmed, Eshra, Nassar, &El-Shikh, 2000).

A cross-sectional study was conducted among nurses and physicians providing direct patient care in four hospitals in Hong Kong on perceptions of the importance and impact of health care associated infections and hand hygiene. Among respondents a total of 60% of the nurses and 46% of the physicians acknowledged that over 75% of healthcare-associated infections can be prevented by hand hygiene (Tai et al, 2009)

2.3 Infection control Practices among Health Workers

A descriptive study was conducted on nurses who worked at surgical wards in Azady Teaching Hospital in Kirkuk city to assess the practices of nurses towards standard precautions. The study revealed that the majority (91.9%) of the nurses did not get training sessions regarding infection control and (83.4%) of them had not participated continuous learning about infection control. According to the level of practices towards standard precautions, it has revealed that poor practices of standard precautions by surgical wards nurses had shown in surgical wards (Mahmud and Abdul Sahib, 2011).

A descriptive study conducted by Eskander , Morsy, & Elfeky (2013) to assess critical nurses 'knowledge and evaluate their practice regarding infection control standard precautions revealed that, approximately two thirds (63.6%) of the studied sample had unsatisfactory knowledge level, more than half (57.1%) of the studied sample had satisfactory performance level. An observational study was conducted among health care worker's including nurses to determine the hand hygiene practices.

The intervention consisted of problem-based and task orientated hand hygiene education, enhancement of minimal handling protocol and clustering of nursing care, liberal provision of alcohol-based hand antiseptic, improvement in hand hygiene facilities, ongoing regular hand hygiene audit, and implementation of health care– associated infection surveillance. The observational study was repeated 6 months after the completion of the intervention program, which extended over 1-year period. The study reveals that there was improvement in most aspects of hand-washing technique in the post intervention stage and the health care– associated infection rate decreased from 11.3 to 6.2 per 1000 patient-days and it emphasize the need for a problem-based and task-orientated education program that can improve hand hygiene compliance (Barbara and Josephine, 2004).

Standard Precautions have been widely promoted in high-income countries, and to a lesser extent, in low income countries (Kermode et al, 2005).

However, despite the development of detailed guidelines, in many developing countries, knowledge of standard precautions is grossly low, and standard precautions are not only insufficiently established and inappropriately applied, but also only selectively adhered to (*Kolude et al, 2013; Luo et al., 2010*).

Globally WHO (world health organization) estimates that every year unsafe injections and needle stick injuries cause at least 8-16 million HBV infections, 2.3-4.7 million HCV infections and 160,000 HIV/AIDS infection. WHO estimated that at least 50% of the 12 billion injections administered each year in developing countries are unsafe posing serious health risk to recipients, health workers, health students and the public Injuries from sharp devices have been

associated with the transmission of more than 40 pathogens including hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV (Eshetu BTW, Legesse B 2007).

Standard precautions are practiced in high-income countries to protect HCWs from occupational exposure to blood and the consequent risk of infection with blood-borne pathogens. The situation is different in low-income countries, where standard precautions are partially practiced (Franklin OE, 2009).

The study carried out in 2013 by Ugandans Kamugelega A, Kizito AN and Balidawa H; Journal of infection in developing countries volume 7; show that infection control is still low so the study aimed to highlight the shortcomings in knowledge, attitude and practice on infection control.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the study area, study design, study population, sampling procedures, sample size determination, study variables, ethical considerations, data collection and analysis.

3.1 Study design and rationale

An Institutional based cross-sectional study design was conducted to assess knowledge, attitudes and practice of health professionals towards infection preventions in St. Daniel's Comboni Hospital. This design was most appropriate because data was collected at a point in time and facts were immediately discovered and availed. It was also even cheap and affordable.

3.2. Study Area

St. Daniel's Comboni Hospital Kyamuhunga is a PNFP Hospital, located in Ryabagoma Village Kyamuhunga Catholic Parish in Kyamuhunga Sub-County, Igara West Constituency Bushenyi District. It is a Roman Catholic Church based Institution in Mbarara Archdiocese affiliated to UCMB. It is approximately 80km from Mbarara town on Mbarara – Kasese High way and 15km from Bushenyi District headquarters. The Hospital was gazetted in May 1996 with a capacity of 100 beds. With a Maternity department, surgical ward, General Medical ward, temporary Operation Theatre and some Staff houses.

3.3 Study population

The study populations were all health workers serving in St. Daniel's Comboni Hospital including doctors, clinical officers, midwives, nurses, nursing assistants and laboratory attendants.

3.4.1 Sample size determination

Sample size will be calculated by formula as used by Fisher (1937). In a context where the target population is more than 10,000 the formula is

$$n = z^2 pq / d^2$$

n= desired sample size

Z=standard normal deviate (1.96) that corresponds to 95% confidence level.

p= the proportion in the target population estimated to have a particular characteristic (birth preparedness). Since there was no data on the level of infection prevention, the researcher used a prevalence of 50 % (0.5) to give maximum variability.

$$q = 1.0 - p$$

d= the degree of accuracy desired (0.05 was used in this case)

$$n = ((1.96)^2 (0.5) (0.5)) / (0.05)^2 = 384$$

In St. Daniel's Comboni Hospital where this study was carried out the target population was 49 (HMIS St. Daniel's Comboni Hospital) which was less than 10,000. In this context the following formula was used.

$$nf = n / (1 + n/N)$$

nf= sample size when the total population is less than 10,000.

N= estimated total population less than 10,000

n= estimate sample when the total population is more than 10,000.

The number of health workers in St. Daniel's Comboni Hospital is 49

The sample size for a population more than 10,000 is 384.

nf= $384 / (1 + 384/49) = 384/8.8 = 44$. The computed sample size was 44.

3.4.2 Sampling procedure

The district and health facility for the study were purposely selected. The health workers serving in the hospital were similarly purposely sampled in view of the study topic. The health workers were selected proportionately as in the table below.

	Medical officer	Clinical officer	Nurses	Midwives	Nursing assistants	Laboratory staff	Total
Number in the Hospital	3	5	15	12	10	4	49
Number selected	3	5	13	10	8	4	44

All medical officers, clinical officers and laboratory staff were included in the sample while for nurses, midwives and Nursing assistants, a staff list was used to systematically select 13, 10 and 8 respectively as shown in the table above. Among these only 36 responded to the questionnaires as 6 were off duty at the time of the survey while 2 refused to participate in the study.

3.4.3 Inclusion criteria

All Health workers working in the various departments/wards of St. Daniel's Comboni hospital as full time employees and agreed to consent were considered.

3.4.4 Exclusion criteria

All part-time HWs, those that refused to consent and those out of hospital during the study time.

3.5 Definition of variables

These are variables that will used to describe or measure the problem under the study.

They include;

- The dependent variable for this study was knowledge and practices regarding infection prevention.
- The independent variables were:

- Health workers demographic characteristics
- Respondents knowledge about infection control
- Health workers infection prevention practices
- Challenges to implementation of infection prevention

3.6 Research instruments

Data will be collected using a semi- structured questionnaire which was pre-tested at a health unit in a nearby hospital (Ishaka Adventist Hospital) before commencement of the study. The necessary changes were made following the pre-test.

3.7.1 Data collection procedures

A structured and standardized self-administered questionnaire was used to collect data. The questionnaires were given to health workers to fill after which they were collected.

3.7.2 Data management

The data was managed as follows to ensure that it is of acceptable quality:

- The researcher personally collected the data herself.
- Every filled questionnaire was checked for accuracy and completeness and where necessary returned to the health worker to complete.
- The filled questionnaires were numbered and serialized to avoid double entry.
- Pre-testing the data collection tools ensured that they were appropriate.

3.7.3 Data Analysis

Data was processed using a data master sheet; with the help of an electronic calculator and by use of Microsoft excel program, data was processed and presented in percentage frequency distribution tables, pie chart and graphs.

3.8 Ethical consideration

A letter of authorization from school of Nursing Kampala international University introduced the researcher to the Medical superintendent St. Daniel's Comboni Hospital, who permitted the study and introduced her to other health workers in the Hospital. The researcher sought permission from the medical superintendent St. Daniel's Comboni hospital.

The researcher introduced herself to the ward in-charges who introduced her to the other HWs.

3.9 Limitations for the study

- Resources like funds were limited but the researcher solicited money from relatives and friends in order to overcome the problem.
- Some selected health workers refused to participate while others were absent during the time of the study.

3.10 Dissemination of results

The results were first presented to School of Nursing, Kampala International University and upon approval they will be disseminated to the following;

- Uganda Nurses and Midwives examination board.
- Medical superintendent St. Daniel's Comboni Hospital.
- District Health Officer, Bushenyi district.

CHAPTER FOUR

INTERPRETATION AND PRESENTATION OF FINDINGS

4.0 Introduction

This chapter presents the findings of the study on assessment of Infection control status at St. Daniel's Comboni hospital. The findings are presented according to the themes that are based on objectives of the study and research questions.

Demographic characteristics of the respondents

Table 1: Baseline characteristics of the sample

(n=36)

Parameters		Number of Respondents	Percentage (%)
Age (years)	20 – 30	18	50.0
	31 – 40	10	27.8
	41 – 50	06	16.7
	51 – 60	02	05.5
	Total	36	100.0
Cadre	Doctor	02	5.6
	Clinical Officer	03	8.3
	Nurse	13	36.1
	Midwife	08	22.2
	Nursing assistant	08	22.2
	Laboratory staff	02	5.6
	Total	36	100.0
Gender	Male	16	44.4
	Female	20	55.6
	Total	36	100.0
Experience	5 years or less	17	47.2
	6 – 10 years	14	38.9
	10 – 15 years	04	11.1
	More than 15 years	05	2.8

Table 1 presents the demographic characteristics of the sample. It clarifies that most of the respondents were in the age bracket of 20 – 30 years, were nurses in percentage of 50% and 36.1 respectively. However, more than one half were females, married and had less than five years of experience, in the percentages of (55.6%, 63.9% and 47.2%) respectively.

4.2 Knowledge about infection prevention practices

Among 36 health professionals 14(39.9 %) of them had ever participated in any training program about infection prevention/ standard precaution. All of the respondents know that dirty needle and sharp materials could transmit disease causing agents. Some of the common diseases known by respondents were HIV (100%), hepatitis (HBV) (84%), tetanus (clostridium tetani) (58.3%). Slightly more than half of the respondents, 21(58.3%) knew that it is important to wash hands before examining patients while 25(69.4%) appreciated the need to recap needles after use (Table 2).

Table 2: Knowledge about infection prevention practices n=36

Characteristics	Response of HCW's	
	Yes	No
Knowledge variables		
Ever attained in-service training on Infection prevention	14(39.9%)	22(61.1%)
Dirty needles transmit disease causing agent	36(100%)	0(0%)
Disease causing agents transmitted with dirty needles and sharps known to health workers		
Hepatitis (HBV)	30(83.3%)	6(16.7%)
HIV/ AIDS	36(100%)	0(0%)
Tetanus (clostridium tetani)	17(47.2%)	19(52.8%)

Practice variables		
Wash hands before examining the patients	21(58.3)	15 (41.7%)
Recap needles immediately after using them	8(22.2%)	28(77.8)

4.3 Infection control practices in use among health workers

The infection control practices explored were; hand washing, use of gloves personal protective like gloves, gowns and facial masks. The disposal of sharps was also explored.

Regarding the use of Personal protective equipment, masks and examination gloves were being overwhelmingly used by health workers by 20(55.6) and 36(100%) respectively. On the other hand other PPEs like aprons, head covers, gum boots and eye protectors/goggles were marginally used by 16(44.4%),15(41.7%) and 6(16.6%) respectively.

Regarding the infection prevention practices, five parameters were explored; hand washing, use of gloves, use of face masks, and use of gowns and management of sharps.

Hand washing was not consistent because apart from washing them after using the toilet as reported by 34(94%) of the respondents, in other instances where when hand washing is paramount, it was not always done as standard infection prevention strategy. Instances like before patient contact, after patient contact, before wearing gloves, hand washing was reportedly always done by 6(16.7%),2(5.6%) and 12(33.3%) respectively(Table 4)

Use of face masks was very limited as only 15(41.7%) reportedly using them when undertaking procedures likely to generate splashes while there was no reported use of nose masks when working within 1-2 metres of patients with expectoration.

Regarding sharp management, 5(13.8) of 36 respondents admitted to always recapping needles and 8(22.2%) to detaching needles from syringes and 25(69.4%) claimed to protect their fingers anytime they had to break a glass ampoule or bottle (Table 4).

Chart 1: Personal protective equipment ever used by HCW's, St. Daniel's Comboni Hospital N=36

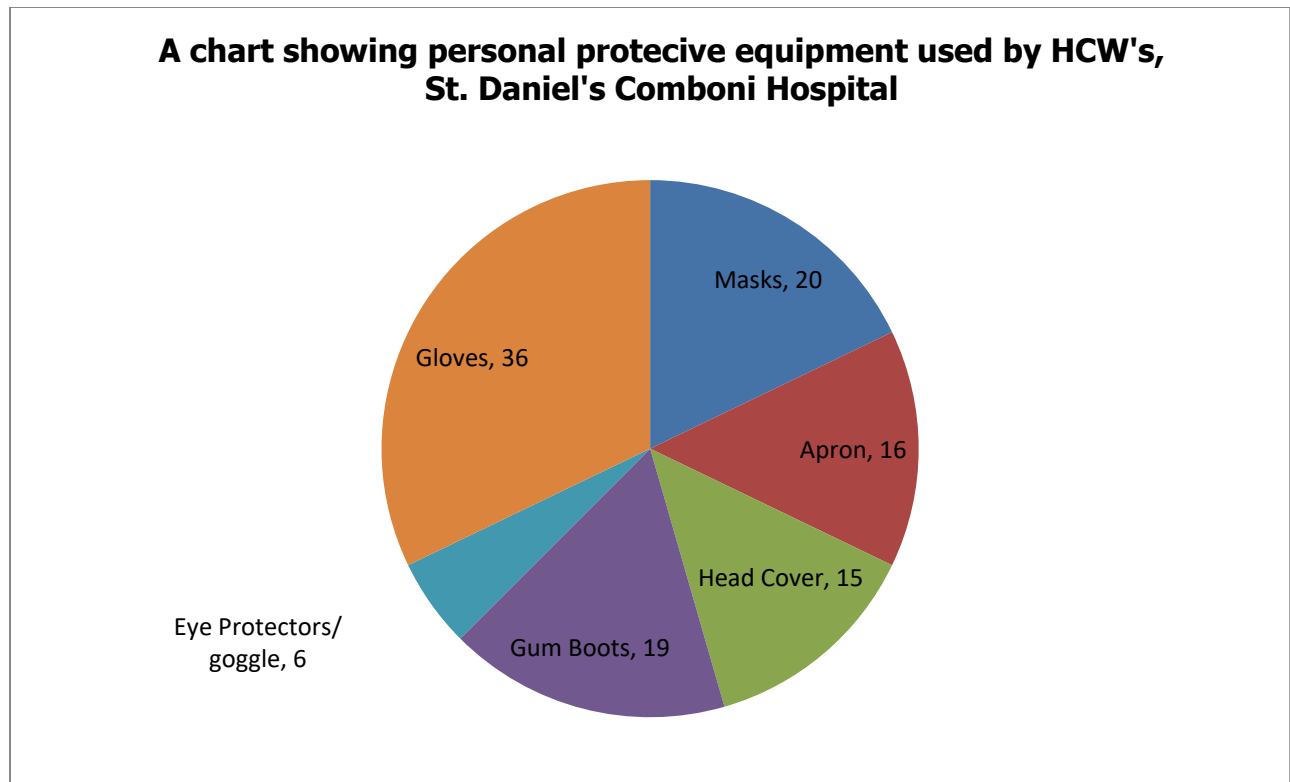


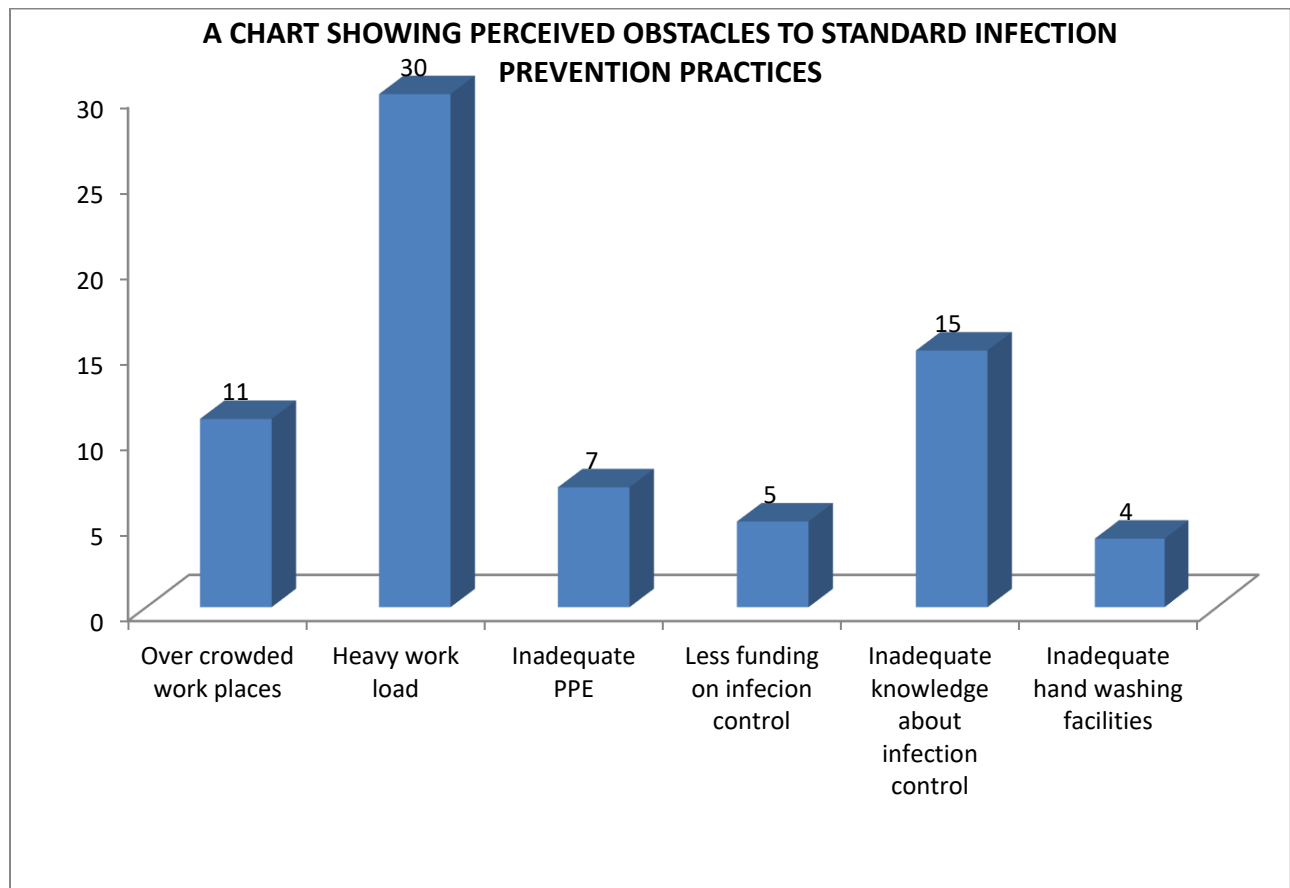
Table 3: Practice of standard infection prevention measures by respondents

Item	Frequency			
	Always , n (%)	Sometimes, n (%)	Never, n (%)	Total ,n(%)
Hand washing (n =36)				
Before patient contact	4(11.1%)	13(36.1)	19(52.8%)	36(100%)
After patient contact	6(16.7%)	21(58.3%)	9(25%)	36(100%)
After contact with contaminated equipment or surface	24(66.7)	8(22.2%)	4(11.1%)	36(100%)
After wearing gloves	12(33.3%)	22(61.1)	2(5.6%)	36(100%)
After using the toilet	34(94.4%)	2(5.6%)	0(0.0)	36(100%)
Use of gloves (n = 36)				
Wear gloves when touching blood or other body fluid or mucus membrane	36(100%)	0(0%)	0(0%)	36(100%)
Change gloves between patient contacts	28(77.8)	4(11.1%)	0(0%)	36(100%)
Change gloves between different procedures on the same patient	3(8.3%)	20(55.6%)	13(36.1%)	36(100%)
Reuse disposable gloves	0(0%)	4(11.1%)	32(88.9%)	36(100%)
Face mask (n =36)				
Wear facemask when undertaking procedures likely to generate splashes	15(41.7%)	16(44.4%)	5(13.9)	36(100%)
Wear nose mask when working within 1-2 metres of patients with expectoration	0(0.0)	4(11.1%)	32(88.9)	36(100%)
Gown (n =36)				
Wear gown / apron to protect skin/clothing when undertaking procedures likely to generate splashes.	30(83.3)	16(44.4%)	6(16.7)	36(100%)
Wear impermeable gown	28(77.8%)	8(22.2%)	0(0%)	36(100%)
Removes soiled / wet gown as soon as possible	26(72.2%)	10(27.8)	4911.1)	36(100%)
Sharps management (n =36)				
Recapping	5(13.8)	7(19.4%)	24(66.7)	36(100%)
Detaching needles from syringe	8(22.2%)	8(22.2%)	23(63.9%)	36(100%)
Protect fingers when breaking glass ampoule /bottle	25(69.4%)	11(30.6%)	0(0%)	36(100%)
Dispose sharp immediately in safety box	29(80.5%)	7(19.5)	0(%)	36(100%)

4.5 Limitations to successful infection control practices

Among perceived obstacles, the main factors undermining infection control practices in the hospital included lack of awareness about standard precautions in the health facility mentioned by 30(83.3%) and 26(72.2%) respectively as in the table 5 below.

Chart 2: Perceived obstacles to standard infection prevention practices N=36



CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

Contaminated environmental surfaces, drugs, intravenous solutions or by foodstuffs are all potential sources of infection (*Mayank et al., 2009; Joseph et al., 2010*). Standard precautions are intended to protect the patient by ensuring that healthcare personnel do not transmit infectious agents to patients through their hands or equipment during patient care (*Wang et al., 2010*). In Uganda, there are few studies on infection prevention and related topics. This study contributes to determine knowledge, and practice of health care workers towards standard precaution in St Daniel's Comboni Hospital. This study investigated the level of knowledge and practice of infection control among health workers in St. Daniel's Comboni Hospital. This chapter presents the discussion, conclusions and recommendations of finding presented in chapter four.

5.1 Discussion

5.1.1 Demographic characteristics of the respondents

Half of the health workers, 18(50%) in this study were in the 20-30 years age bracket, similar to what was documented in some studies (*Sreedharan et al., 2001; Johnson et al., 2013*) emphasizing the need to protect this group of workers in the prime of their life from hospital infections as they have many years ahead of them in the health service.

In addition, slightly less than one half of the respondents, 17(47.2%) of these health workers had an experience of less than 5 years. These workers need mentorships, supervision and on job trainings for them to improve on their infection control practices as required by international standards.

5.1.2 Knowledge about infection prevention practices

Data from the study reveals a fairly high awareness of standard precautions, as has been reported in some studies (*Sreedharan et al 2010*).

Only 22 (61.1%) of the respondents said that they never participated in any training dedicated to infection/standard precaution. This shows the inadequacy of training on infection control measures in the hospital. This probably explains the relative poor knowledge and practices regarding infection prevention among the health workers in the hospital. Apart from HIV/AIDS and Hepatitis B knowledge about the transmission of other communicable diseases was relatively below average. As recommended by other scholars (Stein, Makarawo, & Ahmad (2003) education, monitoring, improved availability of resources, and disciplinary measures for poor compliance are required to improve infection control practices in hospitals.

Another sad fact was that slightly more than half of the respondents, 21(58.3%) knew that it is important to wash hands before meeting patients while 15(41.6%) thought recap needles was an infection prevention strategy.

5.1.3 Practice about infection prevention practices

Considering that hand washing is the single most important means of preventing the spread of infection, only 4(11.1%) % of health care workers wash their hand before examining patients. This study has revealed that health care workers had comparatively lesser in practicing hand washing technique than the previous study done in North (Wollo Damte M, 2006) that 74.1% of health care workers wash their hands before examining patients. Another area for improvement in hand hygiene identified was the knowledge and practice as regards timing for hand hygiene. Hand hygiene was least known to be carried out before wearing gloves, and correspondingly,

poorly practiced. This is most likely due to the fact that health workers generally lack the standardized practice of washing hands as a means to infection control.

Poor needle handling (re-capping, manipulation and detaching) was practiced at a rate higher than what was reported in previous studies (*Reda et al., 2010; and Tadesse, 2009*). This is surprising in view of the global sensitizations to health workers to improve on infection control.

5.2 Conclusions

5.2.1 Demographics characteristics

The study has shown that, the infection control status at St. Daniel's Comboni hospital is still low.

5.2.2 Infection prevention practices

Many respondents had fair knowledge regarding infection prevention although a significant number had not had an in service training programme. Many respondents did not appreciate the need for hand washing before handling patients.

5.2.3 Infection prevention practices

Health worker's practices toward universal/standard precaution in St. Daniel's Comboni Hospital were not sufficient, favorable and safe enough to the expected standards. Health care workers were not properly handling, and disposing used needle/sharp materials in the study area.

Health care workers did not consistently use personal protective devices. The risk of health institution acquired infection to health care workers, clients, patients, children and the communities were therefore found to be very high.

5.2.4 Challenges to standard infection prevention practices

The main reported challenges to infection prevention implementation in St. Daniel's Comboni hospital were heavy workload of HWs' overcrowded workplaces and Lack of awareness about standard precautions in the health facility

5.3 Recommendations

Provision of protocols and or prevention /guidelines on infection prevention is encouraged to act as reference to health workers during their day to day activities

Continuing medical education sessions on infection prevention should also be regularly carried out by experts

There should be regular support supervision with respect to infection prevention so as to improve health worker's capacity and attitude.

Interventions to improve knowledge and compliance to standard precaution should target identified groups, and focus on behaviour change communication.

References

1. Abou El-Enein NY, El-Mahdy HM (2011) Standard precautions: a KAP study among nurses in the dialysis unit in a University Hospital in Alexandria, Egypt. J Egypt Public Health Assoc 86:3-10.
2. Ahmed N, Eshra DM, Nassar BM, El-Shikh AA. (2000) Study of nosocomial respiratory infections and nurses' performance related to infection control measures in artificially ventilated patients. Journal of Egypt Public Health Assoc.;75(1-2):199-217
3. Agaral M, Thomas P. (2003) Prevalence of post op nosocomial infection in neuro surgical patients and associated risk factors-a prospective study .NJL. Sept;107(3):625 – 620
4. Allegranzi B, Pittet D. Healthcare-associated infection in developing countries: simple solutions to meet complex challenges. Infect Control Hosp Epidemiol. 2007;28(12):1323–1327.
5. Barbara C.C , Josephene L. (2004) Hand hygiene practices in a neonatal ICU . A multimodal intervention and impact on nosocomial infection. Peadiatrics official journal of the American academy of Peadiatrics. Nov; 114 (5):565-571.
6. Borg Michael A. Prevention and control of healthcare associated infections within developing countries.Int J Infect Control. 2010;6(1):1–6
7. Damte M (2006) Assessment of the knowledge, attitude and practiceHCW's on universal precaution in north wollo zone. Addis Abeba

8. Delaune SC, Ladner PK (2010) Fundamental of nursing Standards and Practice. (4th Edn) Delmar Cengage Learning.
9. Eshetu BTW, Legesse B (2007) Knowledge, attitude, practice on infection prevention among health and medical Students. Addis Ababa: Addis Ababa.
10. Franklin OE (2009) The Knowledge And Practice Of Standard Precautions Among Health Care Workers In Public Secondary Health Facilities Abuja, Nigeria. University Of South Africa November 2009
11. Johnson OE, Asuzu MC, Adebisi AD (2013). Knowledge and practice of universal precautions among professionals in public and private health facilities in Uyo, Southern Nigeria- a comparative study. *Ibom Med. J.* 6(1): 9-19
12. Joseph NM, Sistla S., Dutta, T.K., Badhe, A.S., Rasitha, D, Parija, SC (2010). Role of intensive care unit environment and health-care workers in transmission of ventilator associated pneumonia. *J. Infect Dev.*,4:282-291.
13. Kolude OO, Omokhodion FO, Owoaje ET (2013). Universal Precaution: Knowledge, Compliance and perceived risk of infection among doctors at a University Teaching Hospital. Poster Exhibition:
14. Luo Y, He GP, Zhou JW, Luo Y. (2010). Factors impacting compliance with standard precautions in nursing, China. *Int. J. Infect Dis.* 14 (12):1106-1114.
15. Mayank D, Anshuman M, Singh RK, Afzal A, Baronia AK, Prasad KN (2009). Nosocomial cross-transmission of pseudomonas aeruginosa between patients in a tertiary intensive care unit. *Indian Pathol Microbiol.* 52:509-513

16. MOH. Infection control: policies and procedures. Uganda: Ministry of Health; 2005.
17. MOH. Uganda service provision assessment survey 2007. Ministry of Health and Macro International Inc. 2007.
18. Sreedharan J, Muttappillymyalil J, Venkatramana M (2001). Knowledge about standard precautions among university hospital nurses in the United Arab Emirate. *Eastern Med. Health J.* 17(4): 331-334
19. Ugandan medical and health sciences interns' infection control knowledge and practices by Kamulegeya A, Kizito AN, Balidawa H; *Journal of infection in developing countries.*
20. Wang H, Fennie K., Burgess L, Williams AB (2003). A training programme for the prevention of occupational exposure to blood borne pathogens: Impact on knowledge, behavior and incidence of needle stick injuries among student nurses in Changsha, People's Republic of China. *J.Advan. nurs.*, 41(2):187-1194.

APPENDIX I: CONSENT FORM

QUESTIONNAIRE ON KNOWLEDGE, ATTITUDE AND PRACTICES ON INFECTION CONTROL AMONGST HEALTH WORKERS IN ST. DANIEL'S COMBONI HOSPITAL

I, **ORISHABA JUSTINE**, Diploma Nurse (Extension) student in my final year and conducting a research on **KNOWLEDGE AND PRACTICES ON INFECTION CONTROL AMONGST HEALTH WORKERS IN ST. DANIEL'S COMBONI HOSPITAL**. The purpose of this survey is to collect information about the infection control practices at your hospital. I request you to participate our participation in this survey.

I ASSURE YOU THAT YOUR ANSWERS WILL BE KEPT CONFIDENTIAL AND USED SOLELY FOR RESEARCH PURPOSE.

Thank you for your assistance.

SIGNATURE OF THE RESPONDANT

APPENDIX II: QUESTIONNAIRE

INSTRUCTION: TICK ALL APPROPRIATE ANSWER(S)

A. SOCIODEMOGRAPHIC CHARACTERISTICS.

1. Age..... years

2. Sex

(a) Male

(b) Female

3. Cadre (a) Doctor

(b) Clinical officer

(c) Nurse

(d) Mid wife

(e) Nursing assistant

(f) Laboratory staff

4. Gender

(a) Male

(b) Female

5. Experience (Working)

(a) 5 years

(b) 6-10 years

(c) 10- 15 years

(d) More than 15 years

B. KNOWLEDGE ABOUT INFECTION PREVENTION

Tick Yes or No against each of the following

		1 = YES	2 = NO
6.	Have you ever attended an in-service training on infection prevention	<input type="checkbox"/>	<input type="checkbox"/>
7.	Do dirty needles transmit disease causing agent?	<input type="checkbox"/>	<input type="checkbox"/>
8.	Are the following disease causing agents transmitted with dirty needles and sharps?		
a	HIV/AIDS	<input type="checkbox"/>	<input type="checkbox"/>
b	Hepatitis B	<input type="checkbox"/>	<input type="checkbox"/>
c	Clostridium tetani	<input type="checkbox"/>	<input type="checkbox"/>
d	Malaria(Plasmodium species)	<input type="checkbox"/>	<input type="checkbox"/>
e	Tuberculosis (Mycobacterium tuberculosis)	<input type="checkbox"/>	<input type="checkbox"/>
9.	important practices to infection control		
a	Washing hands before examining the patients	<input type="checkbox"/>	<input type="checkbox"/>
b	Recapping needles immediately after using them	<input type="checkbox"/>	<input type="checkbox"/>

C. INFECTION CONTROL PRACTICES

10. Have you ever used any of the following personal protective equipments?

Personal protective equipment		1 = YES	2 = NO
a.	Gown	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
b.	Apron		
c.	Head cover	<input type="checkbox"/>	<input type="checkbox"/>
d.	Eye protectors/goggle	<input type="checkbox"/>	<input type="checkbox"/>
e.	Examination glove	<input type="checkbox"/>	<input type="checkbox"/>

11. Specific infection prevention measures by respondents (tick appropriately)

Item	Alternative		
How do you	Always	Sometimes,	Never
(a)wash hands as an infection prevention strategy			
On arrival at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Before patient contact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After patient contact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After contact with contaminated equipment or surface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Before wearing gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After wearing gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After using the toilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b)Use of gloves			
Wear gloves when touching blood or other body fluid or mucus membrane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change gloves between patient contacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change gloves between different procedures on the same patient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reuse disposable gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c)Use Face masks			
Wear facemask when undertaking procedures likely to generate splashes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wear nose mask when working within 1-2 metres of patients with expectoration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) use Gowns			
Wear gown / apron to protect skin/clothing when undertaking procedures likely to generate splashes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wear impermeable gown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Removes soiled / wet gown as soon as possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e)manage Sharps			
Recaps needles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detaches needles from syringe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manipulate needles (bending, breaking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use syringe with needle on agitated patient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protect fingers when breaking glass ampoule /bottle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

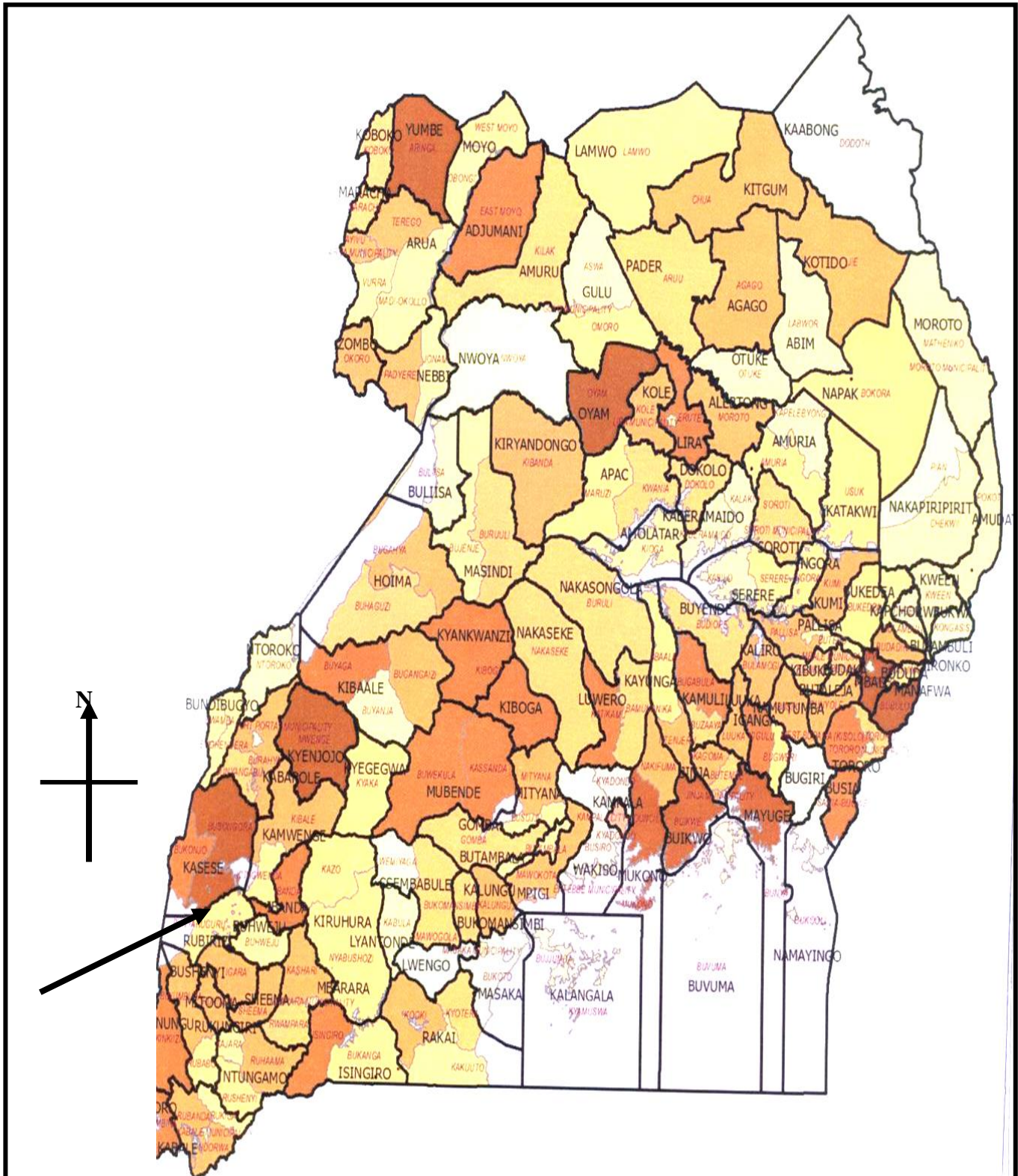
Dispose sharp immediately in safety box	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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D. CHALLENGES TO STANDARD INFECTION PREVENTION PRACTICES

What are the challenges to infection control in this hospital?

THANK YOU FOR COOPERATION.

APPENDIX III: MAP OF UGANDA SHOWING BUSHENYI DISTRICT



APPENDIX IV: MAP OF BUSHENYI DISTRICT



