

<https://doi.org/10.59298/NIJBAS/2024/5.1.11811>

# Assessment of Hospital Infection Prevention and Control Practices: Insights from Kampala International University Teaching Hospital, Ishaka, Uganda

Namara Edwin

Faculty of Clinical Medicine and Dentistry Kampala International University, Uganda.

## ABSTRACT

The study aimed to identify factors affecting hospital infection prevention and control practices among medical personnel at Kampala International University Teaching Hospital in Ishaka, Uganda. The research was conducted using a quantitative descriptive research design. The result revealed that 76% of respondents felt they had sufficient knowledge about infection control and prevention practices. However, 34% of respondents found precautionary measures interfered with their work, and 70% recap needles after use. Only 32% reported a 0.3% chance of acquiring HIV after a needle stick injury. The study also showed 44% of respondents had received training on hand washing within 6 months. Most respondents 78% were able to wash hands before and after procedures. Only 44% of respondents had received training on waste segregation within a 6-month period. Policies and guidelines also influenced infection prevention and control practices. 52% of respondents considered the hospital infection prevention and control committee active, and 78% of them believed that waste segregation and post-exposure prophylaxis policies were available in their departments. The study found that hand washing is being carried out as recommended due to adequate on-the-job training. However, 54% of staff perceive hand washing as a challenge, and 78% were able to wash hands before and after every procedure as recommended. Only 30% of workers have access to a regular supply of soap and detergents for washing hands. Waste segregation is being practiced as recommended, but challenges persist for medical personnel. The management team should integrate infection prevention and control into the regular supervision of healthcare providers. The study suggests that promoting hand washing in a hospital requires adequate training, facilities, supplies, staffing, and a positive attitude. It recommends frequent hand washing training, accessible running water infrastructure, disposable towels, and soap and detergents. Staff should be trained on attitude change and proper waste segregation.

**Keywords:** Hospital, Infection, Waste, Hand washing, supplies, training

## INTRODUCTION

Infection control is the discipline concerned with preventing nosocomial or healthcare-associated infection, a practical sub-discipline of epidemiology [1]. It is an essential though often under-recognized and under-supported, part of the infrastructure of health care. Infection control and hospital epidemiology are akin to public health practice, practised within the confines of a particular healthcare delivery system rather than directed at society as a whole [2]. Infection control addresses factors related to the spread of infections within the health care setting (whether patient-to-patient, from patient to staff, and from staff to patients, or among staff), including prevention (via hand hygiene/ hand washing, cleaning/ disinfection/ sterilization, vaccination, surveillance), monitoring/ investigation of demonstrated or suspected spread of infection within a particular health-care setting (surveillance and outbreak investigation), and management (interruption of outbreaks)[3]. Driven by several emerging factors in the field of global public health, there is a need to support the development and strengthening of IPC capacity to achieve resilient health systems, both at the national and facility levels[4]. However, a large proportion of HAIs are preventable and there is a growing body of evidence to help raise awareness of the global burden of harm caused by these infections [5,6] including strategies to reduce their spread [7,8]. There is a growing body of evidence on the global burden of harm caused by HAI, as well as the strategies necessary for its reduction [9,10]. Numerous studies document the pivotal role of healthcare workers (HCWs) hands in the propagation of microorganisms within the healthcare environment and ultimately to patients [11,12]. It has been shown that organisms are capable of surviving on HCWs' hands for at least several minutes following

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

contamination. [13] Infectious (contaminated) waste is potentially infectious or toxic if it is not disposed of properly [14]. An investigation of four large outbreaks of Hepatitis B virus (HBV) and Hepatitis C virus (HCV) among patients in ambulatory care facilities in the United States identified a need to define and reinforce safe injection practices. In one of these outbreaks, the preparation of medications in the same workspace where used needles and syringes were dismantled also may have been a contributing factor [15]. Nosocomial infections, or healthcare-associated infections, occur in patients under medical care. Nosocomial infections occur worldwide, both in developed and developing countries. Nosocomial infections account for 7% in developed countries and 10% in developing countries. According to WHO [16] estimates, approximately 15% of all hospitalised patients suffer from these infections. During hospitalisation, patients are exposed to pathogens through different sources, including the environment, healthcare staff, and other infected patients. Transmission of these infections should be restricted for prevention [17]. In Uganda, findings from supervisory visits to health units in Arua District in 2006 revealed that less than 60% of the assessed facilities implemented the required infection control measures, yet the Ministry of Health guidelines state that these measures must be comprehensive in 8111 health units. Patients and healthcare workers are at a direct risk of acquiring hospital infections [18]. The general community may also be exposed to the infections through poorly-dumped medical waste. Among the diseases likely to be transmitted through inadequate infection control are HBV and HCV, HIV, tuberculosis, and postoperative wound infections. Hospital-acquired infections also increase the cost of healthcare through prolonged hospitalisations and the use of more expensive antibiotics [18]. The research was designed to identify the factors affecting hospital infection prevention and control practices among medical personnel in Kampala International University Teaching Hospital, Ishaka municipality, in Bushenyi District, Uganda. The main research objective was to identify the factors affecting hospital infection prevention and control practices among medical personnel in Kampala International University Teaching Hospital, Ishaka municipality, in Bushenyi District, Uganda.

## METHODOLOGY

### Study Design

The study design for this study was a quantitative descriptive research design.

### Area of Study

The research was conducted at KIUTH, a public-private partnership hospital located in Ishaka municipality, which is in Bushenyi district, in western Uganda. It is approximately 330 kilometres, by road, southwest of Kampala, Uganda's largest city and capital.

### Target Population

The study targeted both male and female medical personnel working and studying at KIUTH.

### Study Population

The study included both male and female medical personnel working and studying at KIUTH who are in the medicine, surgery, obstetrics, and paediatric wards in the hospital.

### Sample Size Determination

According to Braud (2010), sample size includes the number of participants or objects in a research study. The size of the population and the amount of error the researcher is willing to tolerate are what determine the size of the sample. Using the Kish Leslie formula

Where  $z$  = standard normal deviation set at 95% Confidence Interval (1.96)

$n$  = estimated minimum sample size required

$p$  = proportion of a characteristic in a sample (93% = 0.93)

$e$  = margin of error (5% = 0.05)

Thus, there were 100 respondents for this study.

### Sampling Technique

The sampling procedure for this study was simple random sampling, in which the researcher made a total of 200 small papers of similar colour and size. 100 of them were written yes, and the other 100 had no. Those who picked papers with 'yes' participated in the research, and those who picked 'no' did not participate in the study.

### Research Instruments

A single method (a questionnaire) was used to collect information from respondents. A questionnaire is a method of gathering self-reported information from respondents through the self-administration of questions in written form [20]. It is commonly used to obtain important information about the population [21]. A questionnaire consisted of a set of structured questions that respondents were expected to respond to appropriately. The items in the questionnaire were derived from the objectives of the study and research questions [22].

### Validity of Research Instruments

The questionnaire was pretested on a selected sample, which was similar to the actual sample that the researcher planned to use in the study. Subjects in the actual study were not used in the pretest. The procedures used in pre-testing the questionnaire were identical to those used during the actual data collection. This allowed the

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

researcher to make meaningful observations. The pretest sample is between 1% and 10%, depending on the sample size [21].

### Reliability of the Research Instruments

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Reliability in research is influenced by random error. As random error increases, reliability increases. Random error is the deviation from a true measurement due to factors that have not effectively been addressed by the researcher [21]

### Inclusion Criteria

- i. Willing to participate in the study.
- ii. I am working and studying at KIUTH.
- iii. Working and studying in the medicine, surgery, obstetrics, and paediatric wards.
- iv. Medical students from the 3rd year of study and above that are present at the wards (medicine, surgical, obstetrics, and paediatric wards)

### Exclusion Criteria

- i. Expressing unwillingness to participate in the study.
- ii. I was working and studying at KIUTH but picked NO.
- iii. I work and study at KIUTH but am stationed on units other than the medicine, surgery, obstetrics, and paediatric wards.
- iv. Medical students at KIUTH are in their 3<sup>rd</sup> year of study.

### Data Collection Procedure

Data collection was started by the researcher obtaining a letter of introduction from Kampala International University, Western Campus. The introductory letter was used to apply for a research permit.

### Data Analysis

The completed questionnaires were reviewed for completeness, and the return rate was calculated. The data was then cleaned, classified, coded, and entered into the data input window of SPSS (Statistical Package for Social Sciences). Thereafter, the data was analysed using descriptive statistics involving frequencies and percentages.

### Quality Control

- i. The data collection tool (questionnaire) was pretested.
- ii. Data analysis was done by information and technology specialists.

### Ethical Considerations

These are principles that protect the rights of participants in a research study. The research was subjected to approval by the Kampala International University, Western Campus, research board. A research permit and permission to conduct data collection were sought from the Medical Superintendent, KIUTH.

## RESULTS

This section describes the demographic data of respondents who participated in the study. The part is subdivided into several subheadings, namely gender of respondents, cadre of respondents, and ward allocation of respondents.

### Gender of the Respondents

The respondents were asked to state their gender and the findings are presented in table 1 below.

**Table 1: Gender of the respondents.**

Gender	Frequency	Percentage (%)
Female	58	58
Male	42	42
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 58% (58) of the respondents were female while 42% (48) of the respondents were male. This implies that at the time of the study majority of the medical personnel at KIUTH were females.

### Cadre of the Respondents

The respondents were asked to state their cadre and the findings are presented in table 2 below.

**Table 2: Cadre of the Respondents**

Cadre	Frequency	Percentage (%)
Nursing student	2	2
Nurse	12	12
Clinical Medicine student	16	16
Bachelor's in Medicine & Surgery student	52	52
Medical Intern	10	10
Medical Officer	4	4
Clinical Officer	2	2
Midwife	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 2% (2) of the respondents were nursing students, 12% (12) were nurses, 16% (16) were clinical medicine students, 52% (52) were Bachelor's in Medicine and Surgery students, 10% (10) were medical interns, 4% (4) were medical officers, 2% (2) were clinical officers, and 2% (2) were midwives. This implies that the majority of the medical personnel at KIUTH at the time of the study were Bachelor's in Medicine and Surgery students, followed by nurses and clinical medicine students.

#### Wards The Respondents Were On

The respondents were asked to state which wards they were in, and the findings are presented in Table 3 below.

**Table 3: Wards the respondents were on**

Ward	Frequency	Percentage (%)
Medical	30	30
Surgical	22	22
Pediatric	26	26
Obstetric	22	22
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 30% (30) of the respondents were from the medical ward, 22% (22) from the surgical ward, 26% (26) from the paediatric ward and 22% (22) from the obstetric ward. This implies that at the time of the study, the majority of the medical personnel were from the medical ward, followed by the paediatric ward, and then equal numbers were from the surgical and obstetric wards.

#### Personnel Factors

This section describes the medical personnel factors affecting the infection control practices of the respondents who participated in the study. The part is subdivided into one subheading, namely the knowledge and attitude of the respondents.

##### Knowledge and Attitude of The Respondents

Respondents were asked if they felt that they had sufficient knowledge about infection control, felt that precautionary measures interfered with their work, and if they recapped needles after using them. They were also asked if they found it safer to recap needles using both hands, the chances of acquiring HIV after a needle stick injury, after how long, following a period of diarrhoea, they would return to the ward, and if they followed the chosen time frame. Findings are represented in tables 4 to 8 below.

##### Sufficient Knowledge About Infection Control

Respondents were asked if they felt they had sufficient knowledge about infection control and prevention practices, and the findings are represented in Table 4 below.

**Table 4: Sufficient knowledge about infection control.**

Response	Frequency	Percentage (%)
Yes	76	76
No	12	12
Not sure	12	12
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 76% (76) of the respondents felt they had sufficient knowledge on infection control and prevention practices; 12% (12) felt they did not have sufficient knowledge on infection control and prevention practices; and another 12% (12) were not sure if they had sufficient knowledge on infection control and prevention practices. This implies that the majority of medical personnel at KIUTH felt that they had sufficient knowledge of infection control and prevention practices and were thus likely to identify the root factors influencing infection prevention and control practices at KIUTH.

**Precautionary Measures Interfering with Work**

Respondents were asked if they felt that precautionary measures interfered with their work, and the findings are represented in Table 5 below.

**Table 5: Precautionary measures interfering with work**

Response	Frequency	Percentage (%)
Always	2	2
Often	32	32
Rarely	42	42
Never	24	24
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 2% (2) of the respondents felt that precautionary measures always interfered with their work, 32% (32) felt that precautionary measures often interfered with their work, 42% (42) felt that precautionary measures rarely interfered with their work, and 24% (24) felt that precautionary measures never interfered with their work. This implies that the majority of medical personnel at KIUTH felt that precautionary measures rarely interfered with their work, and a minority of the respondents felt that precautionary measures always interfered with their work.

**Recapping Needles After Using Them**

Respondents were asked if they recapped needles after using them, and the findings are represented in Table 6 below.

**Table 6: Recapping needles after using them**

Response	Frequency	Percentage (%)
Always	38	38
Often	32	32
Rarely	16	16
Never	14	14
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 38% (38) of the respondents always recap needles after using them, 32% (32) often recap needles after using them, 16% (16) rarely recap needles after using them, and 14% (14) never recap needles after using them. This implies that the majority of medical personnel at KIUTH always and often recap their needles after using them, while a minority of respondents rarely or never recap needles after using them.

**Recapping Needles with Both Hands**

Respondents were asked if they found it safer to recap needles with both hands, and the findings are represented in Table 7 below.

**Table 7: Recapping needles with both hands**

Response	Frequency	Percentage (%)
Yes	14	14
No	84	84
Not sure	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 14% (14) of the respondents found it safer to recap needles with both hands, 84% (84) do not find it safer to recap needles with both hands while 2% (2) were not sure. This implies that majority of medical personnel at KIUTH do not recap needles with both hands while a minority of them recap needles with both hands.

**Chances of Acquiring HIV after a Needle Stick Injury**

Respondents were asked about the chance of acquiring HIV after a needle stick injury and the findings are represented in table 8 below.

**Table 8: Chance of acquiring HIV after needle stick injury**

Chance (%)	Frequency	Percentage (%)
10	18	18
30	22	22
0.3	32	32
70	24	24
No response	4	4
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 18% (18) of the respondents think there is a 10% chance of acquiring HIV after a needle stick injury, 22% (22) think there is a 30% chance of acquiring HIV, 32% (32) think there is a 0.3% chance of acquiring HIV, 24% (24) think there is a 70% chance of acquiring HIV, and 4% (4) had no response. This implies that some of the medical personnel at KIUTH think that there is a 0.3% chance of acquiring HIV from needle stick injuries; however, there is no clear-cut majority as a close to the same percentage of personnel think there is a 30% or 70% chance of acquiring HIV.

**Training on Hand Washing in the Last 6 Months**

The study sought to know whether the respondents had undergone any training on hand washing within six months before the study period. The responses of the respondents are shown in the table below.

**Table 9: Training on hand washing in the last 6 Months**

Rating	Frequency	Percentage (%)
Strongly agree	36	36
Agree	28	28
Neither agree nor disagree	6	6
Disagree	20	20
Strongly Disagree	10	10
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 36% (36) of the respondents strongly agreed that they had received training on hand washing within 6 months before the study period; 28% (28) agreed; 6% (6) neither agreed nor disagreed; 20% (20) disagreed; and 10% (10) strongly disagreed. This implies that the majority of the respondents undergo on-the-job training on hand washing as frequently as it is necessary to sustain the practice of hand washing in the hospital.

**Emphasizing Hand Washing Practice in Departmental Meetings**

The study sought to establish whether handwashing practice was emphasized in meetings taking place within the hospital departments. The responses of the respondents are shown in the table below.

**Table 10: Hand washing is emphasized in departmental meetings**

Rating	Frequency	Percentage (%)
Strongly agree	30	30
Agree	34	34
Neither agree nor disagree	8	8
Disagree	16	16
Strongly disagree	12	12
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 30% (30) of the respondents strongly agreed that hand washing was being emphasised in their departmental meetings, 34% (34) agreed, 8% (8) neither agreed nor disagreed, 16% (16) disagreed, and 12% (12) strongly disagreed. This implies that the majority of the departments value hand washing and emphasise its practice in departmental meetings. There are, however, some departments that have not set hand washing as an agenda item in their meetings to act as a reminder to the medical personnel working in the departments.

**Washing Hands Before and After Every Procedure Is Done**

The respondents were asked to state whether they were able to wash their hands before and after performing procedures on all patients as recommended. The responses the respondents gave are shown in the table below.

**Table 11: Hand washing is done before and after all procedures by staff**

Rating	Frequency	Percentage (%)
Strongly agree	36	36
Agree	42	42
Neither agree nor disagree	2	2
Disagree	18	18
Strongly disagree	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 36% (36) of the respondents strongly agreed that they were able to wash hands before and after all procedures done to patients, 42% (42) agreed, 2% (2) neither agreed nor disagreed, 18% (18) disagreed, and 2% (2) strongly disagreed. This implies that the majority of medical personnel can meet the recommended standard of washing hands before and after each procedure, while a minority is acting below the standard.

**The Ward has a Running Water Source**

The respondents were asked to indicate whether their ward had a running water source. Their responses are shown in the table below.

**Table 12: Ward has a running water source**

Rating	Frequency	Percentage (%)
Strongly agree	50	50
Agree	34	34
Neither agree nor disagree	0	0
Disagree	12	12
Strongly disagree	4	4
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 50% (50) of the respondents strongly agreed that their ward has a running water source, 34% (34) agreed, 0% (0) neither agreed nor disagreed, 12% (12) disagreed, and 4% (4) strongly disagreed. Running water sources are necessary to facilitate hand washing. The fact that many wards have running water sources implies that the hospital prioritised hand washing in many wards. It also implies that the wards without a running water source are not washing their hands as recommended.

**The Running Water Source is in Working Order**

The respondents were asked to state whether the running water sources in their wards were in working order. The respondents gave the responses shown in the table below.

**Table 13: The running water source is in working order**

Rating	Frequency	Percentage (%)
Strongly agree	36	36
Agree	42	42
Neither agree nor disagree	4	4
Disagree	12	12
Strongly disagree	4	4
No Response	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 36% (36) of the respondents strongly agreed that the running water source in their wards was in working order, 42% (42) agreed, 4% (4) neither agreed nor disagreed, 12% (12) disagreed, 4% (4) strongly disagreed, and 2% (2) of the respondents did not give an answer to this question. This implies that the majority of the running water sources are in use. However, there are some departments with out-of-order running water sources. These departments cannot afford to wash their hands as recommended.

**The Running Water Source Is Easily Accessible from The Working Area**

The respondents were asked to indicate whether the running water source in their wards was easily accessible from the working area. The respondents responded as shown in the table below.

**Table 14: The running water source is easily accessible from the working area**

Rating	Frequency	Percentage (%)
Strongly agree	24	24
Agree	52	52
Neither agree nor disagree	12	12
Disagree	6	6
Strongly disagree	6	6
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 24% (24) of the respondents strongly agreed that the running water sources in their wards were easily accessible from the working areas, 52% (52) agreed, 12% (12) neither agreed nor disagreed, 6% (6) disagreed and 6% (6) strongly disagreed. This implies that in majority of the wards medical personnel can access the running water easily from the working area hence facilitating the practice of hand washing by the staff while working. There is a minority of medical staff for whom hand washing has been made impossible by the lack of easy accessibility to a running water source from the working areas.

**The Ward Has Adequate Supply of Soap or Detergent for Washing Hands**

The respondents were asked to state whether their wards had an adequate supply of soap or detergent for washing hands. The respondents answered as shown in the table shown below:

**Table 15: The ward has an adequate supply of soap or detergent**

Rating	Frequency	Percentage (%)
Strongly agree	18	18
Agree	42	42
Neither agree nor disagree	10	10
Disagree	20	20
Strongly disagree	10	10
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 18% (18) of the respondents strongly agreed that the wards in which they worked had an adequate supply of soap or detergents for washing hands; 42% (42) agreed; 10% (10) neither agreed nor disagreed; 20% (20) disagreed; and 10% (10) strongly disagreed. This implies that three-fifths of medical personnel are able to wash hands using soap and water as recommended, while two-fifths are not able to wash hands properly due to a lack of reliable access to soap and detergents.

**Hand Washing is for the Medical Personnel's Own Good**

The respondents were asked to indicate whether hand washing was for their own good. The respondents responded as shown in the table below.

**Table 16: Hand washing is for the medical personnel's own good**

Rating	Frequency	Percentage (%)
Strongly agree	66	18
Agree	24	42
Neither agree nor disagree	4	10
Disagree	2	20
Strongly disagree	2	10
No Response	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 66% (66) of the respondents strongly agreed that hand washing was for the good of the medical personnel, 24% (24) agreed, 4% (4) neither agreed nor disagreed, 2% (2) disagreed, 2% (2) strongly disagreed, and 2% (2) did not give an answer to this question. This implies that the majority of medical personnel appreciate the positive benefits that hospital hand washing provides to themselves and hence take the practice seriously, while a small percentage do not appreciate that these benefits exist and therefore do not take the practice seriously.

**Hand Washing Is for the Good of the Patient**

The respondents were asked to state whether hand washing was for the good of the patient. The responses given are shown in the table below.



**Table 17: Proper hand washing is for the good of the patient**

Rating	Frequency	Percentage (%)
Strongly agree	46	46
Agree	38	38
Neither agree nor disagree	4	4
Disagree	8	8
Strongly disagree	4	4
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 46% (46) of the respondents strongly agreed that proper hand washing is for the good of the patients, 38% (38) agreed, 4% (4) neither agreed nor disagreed, 8% (8) disagreed, and 4% (4) strongly disagreed. This implies that the majority of medical personnel appreciate the importance of hand washing practices to patients, while a small but significant fraction of these personnel do not appreciate these benefits and therefore might not be practicing hand washing as recommended.

**Hand washing is a Challenge on the Ward**

The respondents were asked to state whether they considered hand washing to be a challenge on their wards. They responded as shown in the table shown below.

**Table 18: Hand washing is a challenge.**

Response	Frequency	Percentage (%)
Yes	54	54
No	46	46
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 54% (54) said yes, and 46% (46) said no. This implies that, for the majority of the respondents, washing hands as recommended is possible because their departments do not have adequate capacity to sustain proper hand washing. A slightly greater than half of the respondents do not experience any challenges with hand washing in their departments, and therefore their departments have adequate capacity to implement proper hand washing practices, while the rest of the respondents are still facing challenges with hand washing in their departments, and therefore their departments do not have adequate capacity to implement proper hand washing practices.

**How Hand Washing Practice Can be Improved in the Departments**

The respondents were asked to state how they thought the practice of hand washing could be improved in the departments in which they worked. Their responses are outlined in the statements below: "...provide hand washing facilities in several points on the ward for easy access; otherwise, having only one hand washing area as it is makes it very hard for us to keep going back to the one washing point, so we end up washing hands only once before the whole ward round and after." "... availing soap more frequently to both personnel and patients, availing water more frequently, and encouraging everyone on the ward, patients, to wash their hands." "*Guidelines* should be placed at every handwashing point on how to properly wash hands and should be reemphasized in every meeting." "... training on hand washing should be increased and availing towels at hand washing facilities for drying of hands..." These responses imply that for better hand washing practices, the number of hand washing facilities needs to be increased, soap and water availability must be addressed, training on hand washing should be increased, towels should be available for hand drying, and hand washing should be encouraged for everyone on the ward.

**Waste Segregation and Infection Prevention and Control Practices**

This section contains several subsections namely; training of staff on waste segregation, emphasis of waste segregation in departmental meetings and ward rounds, availability of adequate color-coded dust bins in departments, availability of adequate color-coded liner bags in departments, accessibility of the dust bins from the working areas in departments, labeling of dust bins in departments, whether waste segregation is for the good of the healthcare provider, whether waste segregation is for the good of the patient, whether waste segregation is considered as a challenge in the departments where respondents worked and how the respondents thought waste segregation practice could be improved in their departments.

**Training of Staff on Waste Segregation within 6 Months Prior to the Study**

The respondents were asked to indicate whether they had received any training on waste segregation within six months prior to the time the study was carried out. Their responses are shown in Table 19 below:

**Table 19: Received training on waste segregation in the last 6 Months**

Rating	Frequency	Percentage (%)
Strongly agree	16	16
Agree	28	28
Neither agree nor disagree	8	8
Disagree	32	32
Strongly disagree	16	16
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 16% (16) of the respondents strongly agreed that they received training on waste segregation within 6 months prior to the time the study was carried out, 28% (28) agreed, 8% (8) neither agreed nor disagreed, 32% (32) disagreed, and 16% (16) strongly disagreed. This implies that the majority of medical personnel do not receive frequent training on waste segregation from time to time to enable them to update their knowledge and skills on waste segregation for proper practice. Less than half of the medical personnel receive updates in a period of six months.

**Waste Segregation is emphasized in Departmental Meetings and Ward Rounds**

The respondents were asked to state whether the practice of waste segregation was emphasized in departmental meetings and ward rounds in the place where they worked. The responses given are shown in Table 20 below:

**Table 20: Waste segregation is emphasized in meetings and ward rounds**

Rating	Frequency	Percentage (%)
Strongly agree	18	18
Agree	44	44
Neither agree nor disagree	12	12
Disagree	16	16
Strongly disagree	10	10
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 18% (18) of the respondents strongly agreed that waste segregation was being emphasised in meetings in the departments and ward rounds where they worked, 44% (44) agreed, 12% (12) neither agreed nor disagreed, 16% (16) disagreed, and 10% (10) strongly disagreed. This implies that many departments in the hospital value waste segregation and emphasise it in meetings, whereas a few departments do not use their departmental meetings to encourage members to segregate clinical waste well.

**The Ward has Adequate Supply of Colour-Coded dustbins**

The respondents were asked to indicate whether their wards had an adequate supply of colour-coded dustbins for waste segregation. Their responses are shown in Table 21 below:

**Table 21: Supply of colour - coded dustbins is adequate**

Rating	Frequency	Percentage (%)
Strongly agree	46	46
Agree	48	48
Neither agree nor disagree	0	0
Disagree	4	4
Strongly disagree	0	0
No response	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 46% (46) of the respondents strongly agreed that there was an adequate supply of colour-coded dust bins to aid in waste segregation, 48% (48) agreed, 0% (0) neither agreed nor disagreed, 4% (4) disagreed, 0 (0) strongly disagreed, and 2% (2) of the respondents did not give a response to this question. This implies that the majority of the respondents do not mix waste due to an adequate supply of colour-coded dust bins. This is very good, if indeed this is the case.

**The Supply of Colour-Coded Liner Bags Is Adequate**

The respondents were asked to state whether their wards had an adequate supply of colour-coded liner bags for waste segregation. The respondents answered as shown in the table below:

**Table 22: The supply of colour - coded liner bags is adequate**

Rating	Frequency	Percentage (%)
Strongly agree	32	32
Agree	52	52
Neither agree nor disagree	6	6
Disagree	8	8
Strongly disagree	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 32% (32) of the respondents strongly agreed that the wards in which they worked had adequate supply of color-coded liner bags to aid in waste segregation, 52% (52) agreed, 6% (6) neither agreed nor disagreed, 8% (8) disagreed and 2% (2) strongly disagreed. This implies that in majority of the wards waste handlers are able to differentiate the different kinds of clinical wastes due to the availability and use of the color-coded liner bags while for the wards without these bags, the wastes are likely to be mixed thus putting the waste handlers and medical personnel at risk of infections.

**The Dustbins are Easily Accessible**

The respondents were asked to indicate whether the dust bins in their wards were situated in areas easily accessible from the working areas. The respondents responded as shown in table 23 below:

**Table 23: Dust bins are easily accessible**

Rating	Frequency	Percentage (%)
Strongly agree	30	30
Agree	54	54
Neither agree nor disagree	8	8
Disagree	6	6
Strongly disagree	0	0
No response	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 30% (30) of the respondents strongly agreed that the dust bins in the wards where they worked were easily accessible from the working areas; 54% (54) of them agreed; 8% neither agreed nor disagreed; 6% (6) disagreed; 0% (0) strongly disagreed; and 2% (2) of them did not give a response to this question. This implies that the majority of personnel who are able to access the dust bins easily do not travel long distances to put waste in the bins, thus wasting time and energy. Those personnel who are able to access the dust bins easily are able to do proper waste segregation.

**The Dust Bins are Well Labeled**

The respondents were asked to state whether the dust bins in their wards were well labeled to facilitate waste segregation. The respondents answered as shown in Table 24 below:

**Table 24: Dust bins are well labelled.**

Rating	Frequency	Percentage (%)
Strongly agree	34	34
Agree	48	48
Neither agree nor disagree	6	6
Disagree	12	12
Strongly disagree	0	0
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 34% (34) of the respondents strongly agreed that the dust bins in departments where they worked were clearly labeled, 48% (48) agreed, 6% (6) neither agreed nor disagreed, 12% (12) disagreed and 0% (0) strongly disagreed. Labelling enables personnel to easily classify the clinical waste into non-infectious, infectious and highly infectious categories and put these categories of waste in the corresponding dust bins. These findings imply that majority of the personnel have access to labeled dust bins and hence are able to put the wastes in the right dust bins. Those with unlabeled dust bins are not likely to do proper waste segregation.

**Waste Segregation Is for the Good of the Healthcare Provider**

The study sought to find out whether the respondents considered hand washing to be of benefit to the healthcare provider. The respondents were asked to state whether waste segregation is for the good of themselves. The respondents' answers are shown in table 25 below.

**Table 25: Waste segregation is for the good of the healthcare provider**

Rating	Frequency	Percentage (%)
Strongly agree	50	50
Agree	34	34
Neither agree nor disagree	14	14
Disagree	2	2
Strongly disagree	0	0
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 50% (50) of the respondents strongly agreed that proper waste segregation is for the good of the healthcare provider, 34% (34) agreed, 14% (14) neither agreed nor disagreed, 2% (2) disagreed, and 0% (0) strongly disagreed. This implies that the majority of healthcare workers will practice proper waste segregation because of the perceived benefits to themselves, while a few of the personnel do not practice proper waste segregation because they do not see the practice as being beneficial to them. Poor waste segregation by these personnel will put the lives of personnel and the patients they take care of at risk.

**Waste Segregation is for the Good of the Patient**

The study sought to find out whether the respondents considered waste segregation to be beneficial to the patients. They were asked to state whether waste segregation was good for the patient. The respondents answered as shown in Table 26 below:

**Table 26: Waste segregation is for the good of the patient**

Rating	Frequency	Percentage (%)
Strongly agree	38	38
Agree	28	28
Neither agree nor disagree	12	12
Disagree	20	20
Strongly disagree	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 38% (38) of the respondents strongly agreed that proper waste segregation was for the good of the patient, 28% (28) agreed, 12% (12) neither agreed nor disagreed, 20% (20) disagreed, and 2% (2) strongly disagreed. Those personnel who agree that waste segregation is for the good of the patient are more likely to practice waste segregation properly than those who disagree. Therefore, the findings imply that the majority of the respondents understand the benefits of proper waste segregation for the patients they take care of and are likely to segregate the waste well. The small fraction of the respondents who do not perceive any benefits that waste segregation provides to patients are less likely to practice proper waste segregation, therefore putting the lives of patients at risk.

**Waste Segregation is the Work of the Casual Workers Only**

The study sought to establish whether the respondents considered waste segregation to be the role of casual workers only. They were asked to state whether waste segregation is the work of only casual workers. Their responses are shown in Table 27 below:

**Table 27: Waste segregation is the casual workers' job**

Rating	Frequency	Percentage (%)
Strongly agree	8	8
Agree	12	12
Neither agree nor disagree	6	6
Disagree	38	38
Strongly disagree	36	36
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 8% (8) of the respondents strongly agreed with the opinion that waste segregation in the ward where they worked was the duty of the casual worker, 12% (12) agreed, 6% (6) neither agreed nor disagreed, 38% (38) disagreed, and 36% (36) strongly disagreed. All personnel participate in the generation of clinical waste within the hospital, and it is the responsibility of all to segregate the waste generated well. The responses to this question imply that the majority of the respondents appreciate the fact that waste segregation cannot be accomplished by one person alone. They also imply that there are a few personnel who do not want to take responsibility for waste segregation in their departments.

### Waste Segregation Is Everybody's Job

The study sought to know whether the respondents considered waste segregation to be a collective responsibility. They were asked to state whether waste segregation was everybody's job. They responded as shown in Table 28 below:

**Table 28: Waste segregation is everybody's job**

Rating	Frequency	Percentage (%)
Strongly agree	52	52
Agree	34	34
Neither agree nor disagree	4	4
Disagree	2	2
Strongly disagree	8	8
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 52% (52) of the respondents strongly agreed, 34% (34) agreed, 4% (4) neither agreed nor disagreed, 2% (2) disagreed, and 8% (8) strongly disagreed. The results imply that many people take responsibility for waste segregation in their wards, whereas a small percentage of the workers do not take responsibility for waste segregation in their departments.

### Waste Segregation is a Challenge

The study sought to establish whether the respondents considered waste segregation to be a challenge in their departments. Their responses are shown in Table 29 below:

**Table 29: Waste segregation is a challenge**

Response	Frequency	Percentage
Yes	52	52
No	46	46
No Response	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 52% (52) of the respondents stated that waste segregation was a challenge in the wards where they worked, 46% (46) stated that it was not a challenge and 2% (2) did not respond to this question. The results imply that waste segregation is a challenge to than a smooth ride in many departments.

### The Hospital has an Active Infection Prevention and Control Committee

The study sought to establish whether the respondents perceived the infection prevention and control committee of the hospital as being active. The respondents were asked to state whether the infection prevention and control committee of the hospital was active. The respondents responded as shown in table 30 below:

**Table 30: The hospital has an active infection prevention and control committee**

Rating	Frequency	Percentage (%)
Strongly agree	18	18
Agree	34	34
Neither agree nor disagree	26	26
Disagree	20	20
Strongly disagree	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 18% (18) strongly agreed, 34% (34) agreed, 26% (26) neither agreed nor disagreed, 20% (20) disagreed and 2% (2) strongly disagreed. The results imply that there is inadequate co-ordination of infection prevention and control activities within the hospital.

### Waste Segregation Policy Is Available in The Ward

The respondents were asked to state whether the waste segregation policy was available in the wards where they worked. The respondents were asked to indicate whether the waste segregation policy was available in the departments where they worked. The respondents answered as shown in table 31 below.

**Table 31: Waste segregation policy is available in the ward**

Rating	Frequency	Percentage (%)
Strongly agree	18	18
Agree	60	60
Neither agree nor disagree	18	18
Disagree	4	4
Strongly disagree	0	0
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 18% (18) of the respondents strongly agreed, 60% (60) agreed, 18% (18) neither agreed nor disagreed, 4% (4) disagreed and 0% (0) strongly disagreed. The results imply that the majority of the wards had the waste segregation policy readily available for their personnel to refer to. The results also imply that there were still very few personnel who did not have a proper guideline on how to segregate waste due to unavailability of waste segregation policy in the wards where they worked.

**Post Exposure Prophylaxis Policy is Available in the Ward.**

The study sought to find out whether the post exposure prophylaxis policy was available in the wards where the respondents worked. The respondents were asked to state whether post-exposure prophylaxis policy was available in the wards where they worked. The respondents responded as shown in table 32 below:

**Table 32: Post exposure prophylaxis is available in the departments**

Rating	Frequency	Percentage (%)
Strongly agree	28	28
Agree	46	46
Neither agree nor disagree	12	12
Disagree	6	6
Strongly disagree	6	6
No Response	1	1
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 28% (28) of the respondents strongly agreed, 46% (46) agreed, 12% (12) neither agreed nor disagreed, 6% (6) disagreed, 6% (6) strongly disagreed and 1% (1) did not give a response to the question. This implies that many of the respondents know what to do in case they were accidentally pricked by unsafe needles and other sharps.

**The Policies are Written in a Language that is Easy to Understand**

The study sought to establish whether the policies that were available in the wards where the respondents worked were written in a language easy to understand. The respondents were asked to indicate whether the policies on IPC in their departments were written in a language that was easy to understand. The respondents responded as shown in table 33 below:

**Table 33: The policies are written in a language easy to understand**

Rating	Frequency	Percentage (%)
Strongly agree	16	16
Agree	54	54
Neither agree nor disagree	20	20
Disagree	8	8
Strongly disagree	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

From the table, 16% (16) of the respondents strongly agreed, 54% (54) agreed, 20% (20) neither agreed nor disagreed, 8% (8) disagreed, and 2% (2) strongly disagreed. This implies that the majority of personnel are able to understand the meaning of policies; however, some personnel are not able to understand the meaning of the policies due to complex language, and hence they need to be simplified for all to understand and implement them.

## DISCUSSION

The first objective was to establish the extent to which personnel factors influence infection prevention and control practices at KIUTH. The data analysed showed that 76% of the respondents felt that they had sufficient knowledge about infection control and prevention practices. Concerning interference with work by precautionary measures, 34% of the respondents stated that precautionary measures interfere with their work; 70% of the respondents indicated that they recap needles after using them; and 84% found it safer to recap needles with both hands, which is wrong practice as it increases the risk of needle stick injury. Finally, only 32% said that there was a 0.3% chance of acquiring HIV after a needle stick injury; however, studies have shown that there is less than a 1% chance of acquiring HIV after a needle stick injury. The second objective of the study was to establish the extent to which hand washing influenced infection prevention and control practices in KIUTH. The data analysed revealed that only 44% of the respondents had been trained on hand washing within 6 months from the time the study was carried out. Concerning the emphasis on the importance of hand washing practices in departmental meetings, 64% of the respondents agreed that this was being done in their wards. It was also established that only 78% of the respondents were able to wash hands before and after every procedure done to patients as recommended. This observation does not agree with that made by previous researchers, who found that the majority of healthcare providers do not wash hands as recommended in the clinical area. 84% of the departments had a running water source, and 78% of the respondents reported that the running water sources in their departments were in working order, while 76% of the respondents reported that the running water sources in their departments were easily accessible from the working areas. 60% of the respondents stated that their departments had an adequate supply of soap and detergents for hand washing. Past studies had observed that adequate facilities needed to be put in place for proper hand washing to take place in any particular clinical setup. 90% of the respondents were of the opinion that hand washing was beneficial to the healthcare provider, and only 84% of the respondents stated that hand washing was of benefit to the patients. Finally, 46% of the respondents stated that they considered hand washing to be a challenge in the departments in which they worked. Lack of constant running water in wards, erratic supply of soap and detergents, few hand washing facilities on wards of sinks, and lack of towels for hand drying were cited as the main hindrances to effective hand washing in departments by personnel. The third objective of the study was to assess how waste segregation influenced infection prevention and control practices at KIUTH. The data analysed revealed that only 44% of the respondents had received training on waste segregation in a 6-month period. Many of the respondents (62%) agreed that waste segregation was being emphasised in their departmental meetings. Colour-coded dust bins were adequate, according to 94% of the respondents, and easily accessible from the working areas. However, only 82% of the respondents reported that the dustbins in their departments were well labeled. The supply of colour-coded liner bags in the departments was adequate, as reported by 84% of the respondents. 84% of the respondents stated that waste segregation was for the benefit of the healthcare provider, while only 66% of the respondents stated that waste segregation was for the benefit of the patient. A minority of respondents (20%) stated that waste segregation is the job of casual workers, whereas a majority of respondents (86%) stated that waste segregation is the responsibility of everybody. 52% of the respondents considered waste segregation to be a challenge in the departments where they worked. These respondents stated that the waste segregation areas needed to be increased in their departments. There were a few respondents who felt that the dust bins were adequate and that waste segregation was never a challenge. Other respondents pointed out the negative attitude of the staff as the main cause of poor waste segregation practices in their departments. Other respondents thought that the main challenge was the collection of waste from the departments for disposal. They reported that the waste was overstaying in the departments, thus causing a lot of smell from the rotting waste. The fourth objective was to establish the extent to which the provision of policies and guidelines influences infection prevention and control practices in KIUTH. The data analysed showed that 52% of the respondents considered the hospital infection prevention and control committee to be active. Concerning the availability of policies on infection prevention and control in the departments, 78% of the respondents stated that the waste segregation policy was available in their departments, and 74% of the respondents indicated that the post-exposure prophylaxis policy was available in the departments where they worked. Finally, only 70% of the respondents thought that the policies in the departments where they worked were written in a language easy to read and understand.

## CONCLUSION

The study investigated the factors influencing infection prevention and control practices at KIUTH. The study specifically sought to establish the extent to which hand washing influenced infection prevention and control practices in KIUTH and concluded that hand washing is being carried out in KIUTH as recommended due to adequate on-the-job training of staff on hand washing, emphasis on the importance of hand washing to staff in departmental meetings, and the availability of adequate hand washing facilities in the departments. 54% of the staff perceive hand washing to be a challenge in their departments; 78% were able to wash hands before and after every procedure as recommended. Most wards do have running water sources, while a few running water sources are out

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

of order. Only 30% of the workers have access to a regular supply of soap and detergents for washing hands. There is a minority of staff who do not consider hand washing to be of any benefit to them or to the patients and therefore do not see any need to practice it. Some personnel consider gloving to be a substitute for washing hands and do not think it is necessary to wash hands when one is able to change gloves while attending to patients. Studies conducted by the CDC and several others found that nurses and doctors fail to wash their hands the recommended time 60% of the time between patient contacts and procedures. Health care facilities must have adequate hand-washing basins, with a minimum of one per patient room, procedure room, and exam room. Each six-bed cubicle must have at least one sink. Each sink should be large enough to avoid splashing and prevent contamination by bacteria that are resident in the drain. Sinks must be sealed to the wall or placed far enough from the wall to allow effective cleaning. They should be located near the entrance or exit for easy access by HCWs. The surrounding area must be nonporous to resist the growth of fungi. Taps and soap dispensers should be fitted with hands-off controls, that is, controls that can be operated by elbow, knee, or foot. Elbow-operated systems are preferable because they are less prone to breaking down. Where resources allow, electronically generated systems should be considered. The study sought to assess how waste segregation influenced infection prevention and control practices in KIUTH. The study concludes that waste segregation is being practiced as recommended, but not without challenges to medical personnel, and there could be further improvement through frequent training and emphasis on waste segregation among the personnel and an adequate supply of colour-coded dust bins and colour-coded liner bags. Waste segregation is a challenge for the majority of the workers. Only a small proportion of healthcare providers receive frequent on-the-job training on waste segregation, and there are health care providers who do not easily access colour-coded dust bins near their areas of work, whereas those who access the dust bins are not able to segregate waste well due to a lack of training. In spite of the fact that many staff consider waste segregation to be everybody's duty, some think that waste segregation is a role for casual workers. According to empirical literature, it is possible that segregation can be achieved through training and the design of clear standards to be followed by all players in waste generation in hospitals [23] Segregation consists of separating the different waste streams based on the hazardous properties of the waste, the type of treatment, and the disposal methods that are applied to each [24] Efforts should be made to minimise the amount of waste generated by the health facility, e.g., paper and unnecessary injections. The administration should provide means of waste disposal that are accessible and convenient for staff. There should be a system in place to ensure that staff adhere to appropriate waste disposal. This could be done with the help of supervisors of respective units in the facility and included with other training to change staff's attitudes and behaviours as regards infection control practices. Clinical waste should be collected in separate containers from non-clinical waste; the containers should be lined with identifiable plastic bags (biohazard markers or color-coded). Different locally available containers can be used in place of costly equipment. Garbage should be collected daily and transported to specific trolleys. There should be a designated restricted area in the facility for waste storage. Finally, the study sought to establish the extent to which the provision of policies and guidelines influences infection prevention and control practices in KIUTH. The study concludes that the infection prevention and control committee in the hospital may not be actively involved in its functions within the hospital. This committee is supposed to spearhead the development and distribution of IPC policies to the hospital departments. Data analysed showed that only a number of healthcare workers had never seen waste segregation and post-exposure prophylaxis policies in their departments. In the departments where the policies are available, only 70% of the staff find them easy to read and understand. According to empirical literature, the presence of an infection prevention and control committee and infection prevention and control lead persons recognised by the hospital administration is associated with good infection prevention and control practices. Infection prevention and control lead persons must have support from the hospital administration to acquire various supplies and mechanisms that are necessary for good infection prevention and control practices. The management team should integrate infection prevention and control into the regular supervision of health care providers, and the infection prevention and control lead person should be part of the supervision team. In addition, infection prevention and control activities should be factored into the annual planning and budgetary process, thereby ensuring the consistent availability of infection prevention and control supplies and equipment. Health care facilities without active infection prevention and control committees perform poorly in infection prevention and control practices at both institutional and provider levels. Where the infection prevention and control IPC lead person is not part of the hospital management team, IPC activities tend to be relegated to the back and to lose the prominence that is necessary for good practices.

#### **Recommendation**

The study has revealed that adequate training and sensitization of staff, adequate facilities, adequate supplies, adequate staffing, and a positive staff attitude are needed to promote hand washing in the hospital. Therefore, the study recommends that the hospital formulate a programme for frequent hand washing training and sensitization for all staff, that the hospital ensures that there is proper and easily accessible running water infrastructure near the areas of work in all departments, that the hospital supplies disposable towels to enable the health care workers

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



to dry their hands after washing them at the work areas, and that the hospital should ensure that soap and detergents are always available at the clinical working areas. The staff needs to be trained on attitude change, that gloving does not substitute for washing hands in their working areas, and that hand washing is beneficial to both the patients and the staff. The study has also shown that frequent sensitization and training of staff are needed to enable them to have a positive attitude and practice proper waste segregation. The study recommends that the hospital integrate these trainings into the normal hospital programmes to ensure that all workers access them frequently. Finally, the study revealed that the infection prevention and control committee in the hospital may not be active, but many workers have access to policies on infection prevention and control. Only 70% understand the policies available. Therefore, the study recommends that the committee be revitalized by the hospital management to be able to undertake its mandate. Policies on waste segregation, injection safety, and post-exposure prophylaxis should be developed in easy-to-understand language and made available to all departments.

#### REFERENCES

1. Ikramullah, Anwar, Shah., Danish, Mehmood., Sardar, Alam., Barkat, Ullah. and Waqar, Ali. (2023). "Knowledge and Infection Control practices Regarding Healthcare-Associated Infection among Healthcare Workers." *Pakistan Journal of Medical and Health Sciences*, doi: 10.53350/pjmhs202317692
2. Machilu, Zimba., Chalwe, Chanda., Chama, Mulubwa., Alice, Hazemba. "Infection Prevention and Control practices; an exploratory qualitative study of experiences of health care providers and support staff at the University Teaching Hospital, Lusaka, Zambia." *medRxiv*, undefined (2022). doi: 10.1101/2022.03.23.22269760
3. Xiaoyan, Song. and Jeffrey, Li. (2020). "Infection Prevention and Control: Applying Common Sense to Everyday Practice." undefined doi: 10.1007/978-3-030-70780-4\_7
4. Vergil, de, Claro., Manlito, Torralba. and Laurentiu, Stan. (2023). "Exploring the value of rapid infection prevention and control assessment for a coordinated multisectoral response." *Lancet Infectious Diseases*, undefined doi: 10.1016/s1473-3099(23)00286-4
5. Anthony, Wanyoro., Amos, Oburu., Joseph, S., Solomkin. (2022). "Adapting infection prevention and control assessment tools for use in low- and middle-income countries." *World Journal of Surgical Infection*, undefined doi: 10.4103/wjsi.wjsi\_7\_23
6. Allegranzi B, BagheriNejad S, Combescure C, Graafmans W, Attar H, Donaldson L, et al. (2011). Burden of endemic health-care-associated infection in developing countries: systematic review and meta-analysis. *Lancet*;377(9761):228-41.
7. Shekelle PG, Provonost PP, Wachter RM, McDonald KM, Schoelles K, Dy SM, et al. (2013). The top 10 patient safety strategies that can be encouraged for adoption now. *Ann Intern Med*.;58(5 Pt 2): 365-8
8. Ali, Habeeb, AlAmer., Fawaz, Alharbi., Asim, Aldhilan., Ziyad, Almushayti., Khalefa, Ali, Alghofaily., Ayman, Elbehiry., Adil, Abalkhail. (2022). "Healthcare-Associated Infections (HAIs): Challenges and Measures Taken by the Radiology Department to Control Infection Transmission." *Vaccines*, undefined doi: 10.3390/vaccines10122060
9. Onosakponome. E., O, Clement, U., Nyenke., Roseanne, A, Okafor. (2022). "Health Care Associated Infections." *Journal of advances in microbiology*, undefined doi: 10.9734/jamb/2022/v22i930496
10. World Health Organisation. (2010). WHO best practices for injections and related procedures toolkit. Geneva, Switzerland: WHO Document Production Services.
11. Stephen, Cagle., Brett, L, Hutcherson., Anna, Wiley. (2022). "Health Care-Associated Infections: Best Practices for Prevention." *American Family Physician*, undefined
12. Nehad, J., Ahmed., Nehad, J., Ahmed., Abdul, Haseeb., Emad, M., Elazab., Hamed, M., Kheir., Azmi, Hassali., Amer, Hayat, Khan. (2021). "Incidence of Healthcare-Associated Infections (HAIs) and the adherence to the HAIs' prevention strategies in a military hospital in Alkharj." *Journal of The Saudi Pharmaceutical Society*, undefined doi: 10.1016/J.JSPS.2021.08.012
13. Shelley, S., Magill., Jonathan, R., Edwards., M., Stat., Wendy, Bamberg., Zintars, G., Beldavs., Ghinwa, Dumyati., Marion, A., Kainer., Ruth, Lynfield., Meghan, Maloney., Laura, McAllister-Hollod., Joelle, Nadle., Susan, M., Ray., Deborah, L., Thompson., Lucy, E., Wilson., Scott, K., Fridkin. (2022). "Multistate Point-Prevalence Survey of Health Care-Associated Infections." *The New England Journal of Medicine*, undefined doi: 10.1056/NEJMc210023
14. Ministry of Medical Services and Ministry of Public Health and Sanitation. (2010). National Infection Prevention and Control Guidelines for Healthcare Workers Nairobi: Government of Kenya.
15. Stacy, R., Tressler., Maria, C., del, Rosario., Michelle, D., Kirby., Ashley, N., Simmons., Melissa, A., Scott., Sherif, Ibrahim., Joseph, C., Forbi., Hong, Thai., Guo-liang, Xia., Meghan, Lyman., Melissa, G., Collier., Priti, R., Patel., Danae, Bixler. (2021). "Outbreak of hepatitis B and hepatitis C virus infections associated with a cardiology clinic, West Virginia, 2012-2014." *Infection Control and Hospital Epidemiology*, undefined doi: 10.1017/ICE.2021.31

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

16. World Health Organisation. (2006). Guidelines on Hand Hygiene: Improving Adherence to Hand Hygiene Practice: A Multidisciplinary Approach WHO press.
17. Ayesha, Noor., Ali, Raza, Ishaq., Laila, Jafri., Faiza, Jabeen., Rehana, Rani., Bushra, Hafeez, Kiani., Nosheen, Akhtar., Zeeshan, Javed., Tahira, Younis., Fatima, Jalal. (2021). "Health Care Associated Infections (HCAIs) a New Threat for World; U-Turn from Recovery to Death." undefined. doi: 10.5772/INTECHOPEN.97193
18. Implementation of infection control in health facilities in Arua district, Uganda: a cross-sectional study, Peter Wasswa, Christine K. Nalwadda, Esther Buregyeya, Sheba N. Gitta, Patrick Anguzu & Fred Nuwaha *BMC Infectious Diseases* volume 15, 268 (2015)
19. Braud. (2010). Sample size and population.
20. Polit. (2004). Nursing Research: Principles and Methods. Philadelphia: Lippincott Williams and Wilkins.
21. Mugenda. (2003). Research Methods: Quantitative and Qualitative Approaches. Nairobi: African Centre for Technology Studies.
22. Kothari. (1990). Research Methodology, 2nd Edition, pages 32–39, 98, 100–101 (2nd Edition ed.).
23. Muna, Ibrahim., Mesfin, Kebede. and Bizatu, Mengiste (2023). "Healthcare Waste Segregation Practice and Associated Factors among Healthcare Professionals Working in Public and Private Hospitals, Dire Dawa, Eastern Ethiopia." *Journal of Environmental and Public Health*, undefined. doi: 10.1155/2023/8015856
24. Okechukwu, E., C, (2022). "Segregation Practices by Health Workers in Urban Hospitals - A Step Necessary to Achieve Minimization and Effective Biomedical Waste Management." *Texila International Journal of Public Health*, undefined. doi: 10.21522/tijph.2013.10.02.art025

**CITE AS: Namara Edwin (2024). Assessment of Hospital Infection Prevention and Control Practices: Insights from Kampala International University Teaching Hospital, Ishaka, Uganda. NEWPORT INTERNATIONAL JOURNAL OF BIOLOGICAL AND APPLIED SCIENCES 5 (1): 1-18. <https://doi.org/10.59298/NIJBAS/2024/5.1.11811>**