

Factors Influencing Hospital Infections, Prevention and Control Practices Among Health Workers at Kiu-Th Ishaka Bushenyi District

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ABSTRACT

The study aimed to assess factors influencing hospital-acquired infection prevention and control practices among health workers. The objectives included assessing hand hygiene, waste segregation, and safe injections. A cross-sectional descriptive study with 120 participants from various clinics was conducted. Results showed that most respondents had adequate knowledge on infection prevention and control. The study recommended that health facilities provide guidelines, supervise workers, provide adequate disposal materials, and conduct regular health education and seminars for workers. This would help reduce the rate of new infections, hospital stays, and health service costs.

Keywords: risk factors hospital infections, prevention, control practices, health workers

INTRODUCTION

Globally, at least 1.4 million people are affected by nosocomial infections at any one time, the vast majority of these occurring in low-income countries [1]. Infection control is the discipline concerned with prevention of nosocomial or healthcare associated infection, a practical sub-discipline of epidemiology. It is an essential, though often under recognized and under supported, part of the infrastructure of health care. Infection control and hospital epidemiology are key to public health practice, practiced within the confines of a particular health care delivery system rather than directed at society as a whole [2].

Compliance to infection prevention and control is a major problem worldwide in Health care facilities and especially in developing countries, putting patients at higher risks of Health care associated infections, imposing avoidable suffering, longer hospital stay, disability and death on patients [3].

Of every 100 hospitalized patients, 10 in developing countries and 7 in developed countries will acquire at least one healthcare associated infections [4]. In USA and Europe, the point prevalence of patients with at least one HAI in acute

care hospitals has reached 6%, prevalence (19.5%) was highest among patients admitted to intensive care unit [5].

In USA, among an estimated 27 million surgical procedures performed each year, surgical site infections occur at a rate of 2 per 100 procedures, or approximately 500,000 per year. These infections lead to increased duration of hospitalization, costs, morbidity and death [6].

In Bangladesh, medical records of 8769 in patients of a private hospital in Dhaka indicated nosocomial infection rate of 2.29%, with respiratory tract infections accounting for the highest proportion of infections (63%) and skin and soft tissue infections the lowest [7].

In sub-Saharan Africa, prevention and control of hospital associated infections is still a big challenge partly due to inadequate resources in these countries resulting into low priority for HCW management and in many countries, inadequate knowledge and unsatisfactory management practices among the health care workers are major challenges in the management of HCWs [8].

In Uganda, the MoH lists five basic standard precaution measures that can enhance infection control within health

facilities, among which are proper sterilisation, proper sharps disposal,

hand hygiene, safe injections and safe waste management [1].

METHODOLOGY

Study design and rationale

The study was a cross sectional descriptive study [9] employing quantitative data collection methods.

Study setting

The place of study was KIU-TH in Ishaka-Bushenyi municipality, Bushenyi district.

Study population

a) Target population:

The target population in this study included the workers who care for patients.

b) Accessible population:

The exact population included the workers who were available during the time of study. **Eligibility Criteria**

Inclusion criteria

- i) Workers who were officially employed by the hospital.
- ii) The workers that were available on duty during the period of study.
- iii) The workers who consented and accepted to respond.

Exclusion criteria

- i) Workers who were off duty during the period of study.
- ii) Workers who were around and are busy or engaged doing other work.
- iii) All the other health care workers who are not workers and student workers.

Sample size calculation

The sample size was calculated using the formula below

Using the Kish and Leslie formula of 1965 to determine the sample size,

$$n = \frac{Z^2 * P * q}{\delta^2}$$

Where: **n** is the desired sample size. **Z** is the standard deviation of desired accuracy, at 95% accuracy, **Z=1.96**. **P=0.5**, [10]: Where P, is the proportion of the population with desired characteristics. Therefore, **q=1.0-0.5=0.5**. And **δ** is the proportion of error that the researcher can accept. If 95% is the degree of accuracy, the level of error is 5%. Therefore, 0.05 is the level of significance of error is 5%. Therefore, 0.05 is the level of significance.

Using the formula,

$$n = \frac{(1.96)^2 * 0.5 * 0.5}{(0.05)^2}, n=384 \text{ participants.}$$

Where: $nf = \frac{n}{1 + \frac{n}{N}}$ Where: **nf** is the sample size. **N** is

the population size of the study area (**N=180** medical students rotating in KIUTH wards). Using the above formula,

$$nf = \frac{384}{1 + \frac{384}{180}}, = \approx 120 \text{ participants were}$$

selected. Therefore, the sample size for this study was **120** workers who care for patients rotating in medical, surgical, paediatric, obstetric and specials clinics. Percentages per rotation was apportioned according to the total number of workers.

Sampling procedure

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

Data Collection procedures

Data was collected through administering a questionnaire to a single participant. The researcher explained to the respondent the research project, the purpose, the kind of questions that were asked. Confidentiality was assured, consent was asked for and a consent form was signed. Filling the questionnaire spent 30 to 45 minutes. At the end of filling the questionnaire by the respondent, the researcher thanked the respondent for their cooperation.

Data analysis

Data was analyzed using Microsoft excel SPSS version 20.1. Data analysis started by allocating codes for each question, tallying, counting frequencies and computing percentages. Tabulation was done and data put in their respective figures. This was done to facilitate the process for easy analysis and interpretation of the findings. The percentages were further analyzed by establishing the relationship between the independent and the dependent variables where the information obtained was

presented using cross tabulation method (cross tabulation analysis) and appropriate figures, graphs, and pie charts.

Ethical considerations

All participants were informed about the nature of the study and they were given the option of withdrawing from the study

or to omit answering certain questions without any negative repercussions. Anonymity and confidentiality was assured [11]. Ethical approval was obtained from the Research ethical committee of KIU-WC before data collection.

RESULTS

Table 1: Socio-demographics of the respondents

Age	Frequency	Percentage
18-22	60	50
23-28	35	29.2
29-33	12	10
34-38	9	7.5
39-43	7	5.8
44-48	4	3.3
Total	120	100
Marital status		
Single	87	72.5
Married	33	27.5
Total	120	100

Most of the participants were between the age of 18-22 (50%), 23-28 (29.2%) followed by those of 29-33 (10%), 39-

43(5.8%) while 44-48 were between (3.3%) 42 years. Most of the participants were single (72.5%) while (27.5%) were married

Table 2: The extent to which hand hygiene influences Hospital acquired infection prevention and control practices.

	Frequency	Percentage
Have you had training on hand hygiene in the last 1 year?		
YES	100	83.3
NO	20	16.7
TOTAL	120	100
Health workers always wash hands before and after every procedure done to all patients attended to		
Strongly Agree,	55	45.8
Agree,	20	16.7
Strongly Disagree,	30	25
Disagree	15	12.5
Total	120	100
Is hand hygiene emphasized frequently in your departmental meetings?		
YES.	80	66.7
NO	40	33.3
Total	120	100
Do you consider hand hygiene a challenge in your ward?		
Yes	32	26.7
No	88	73.3

Total	120	100
Do you consider hand hygiene a challenge in your ward?		
Yes	69	57.5
No	51	42.5
TOTAL	120	100
What do you think about hand hygiene in a hospital		
It is for the good of the patient only.	26	21.7
It is for the good of the health worker only.	43	35.8
It is for the good of both patient and health worker.	15	12.5
It is a less useful time wasting practice in hospital.	25	20.8
It is for the good of the patient only.	11	9.2
TOTAL	120	100

From the table findings above, 83.3% had training on hand hygiene in the last 1 year unlike 16.7% did not have training on hand hygiene in the last 1 year. The findings implied that majority of worker practiced hand hygiene as most of them were trained. Health workers were asked whether they always wash hands before and after every procedure done to all patients attended to, 45.8% strongly agreed, 16.7% agreed, 25% disagreed while 12.5% strongly disagreed. Workers were also asked whether hand hygiene is emphasized frequently in your

departmental meetings. Majority 66.7% said yes unlike 33.3% of workers said. Whether workers consider hand hygiene a challenge in their wards. Majority 83.3% agreed unlike 26.7% disagreed. Most participants think that hand hygiene in a hospital is for the good of the health worker only 43%, 21.7% showed hand hygiene in a hospital is good for the patient only, 20.8% showed that it is a less useful time-wasting practice in hospital, 12.5% agreed that is good for both patient and health worker unlike 9.2% showed that it is for the good of the patient only.

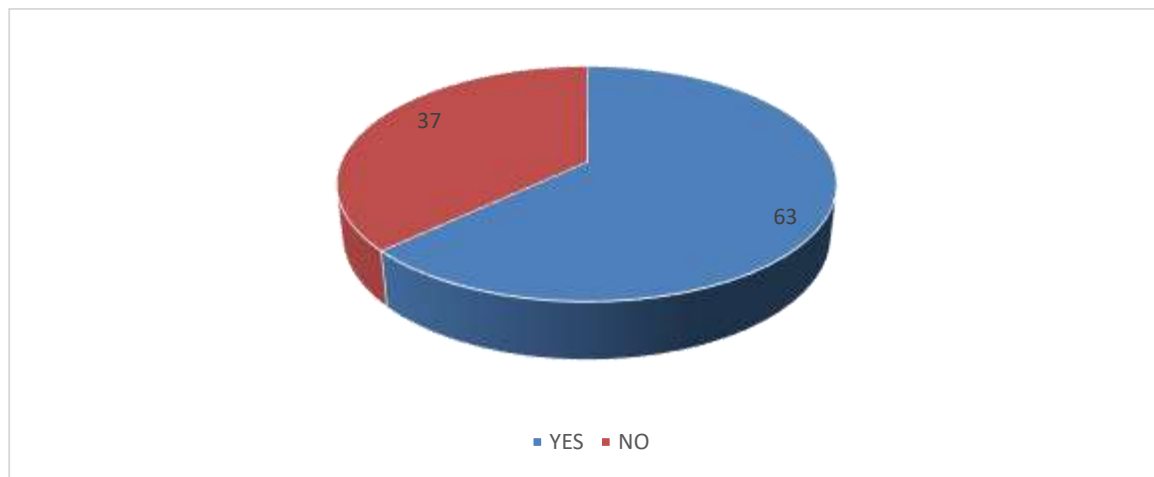


Figure 2: Whether respondents have had training on waste segregation in the past 1 year

Most of respondents 63% had training on waste segregation in the past 1 year

unlike 37% did not have training on waste segregation in the past 1 year

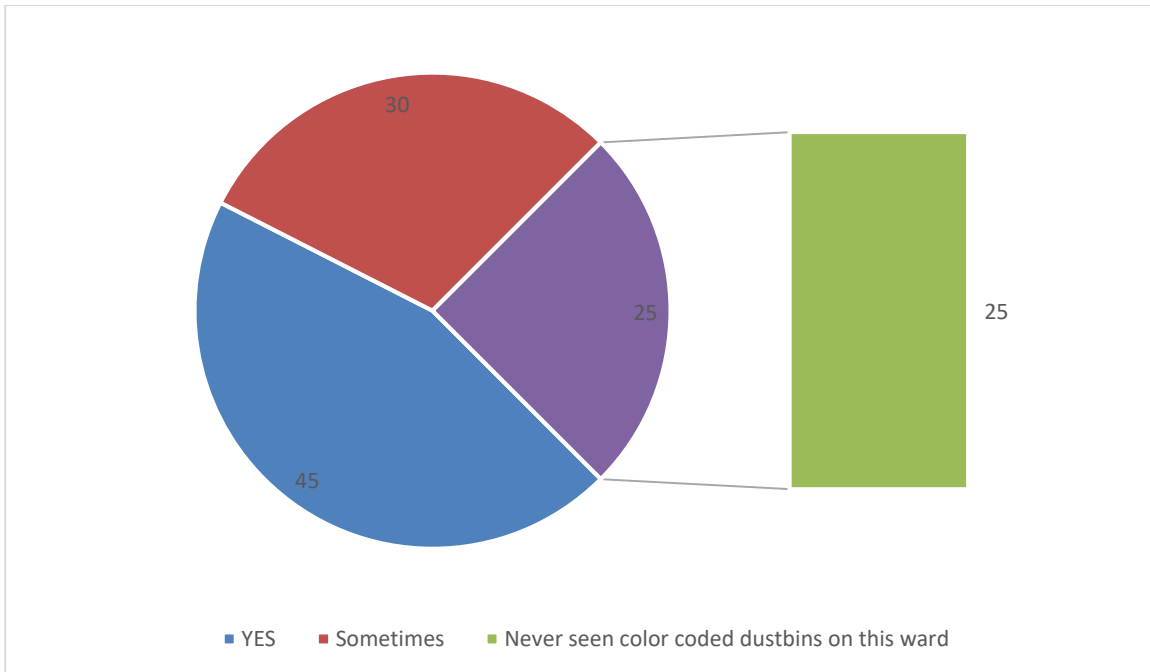


Figure 3: Whether the department receive adequate supply of color-coded dustbins.

Most of participants 45% showed that ward has adequate supply of color-coded liner bags, 30% sometimes receive adequate supply of color-coded liner bags unlike 25% never seen color coded

dustbins on this ward. Most of participants agreed that their ward has adequate supply of color-coded liner bags.

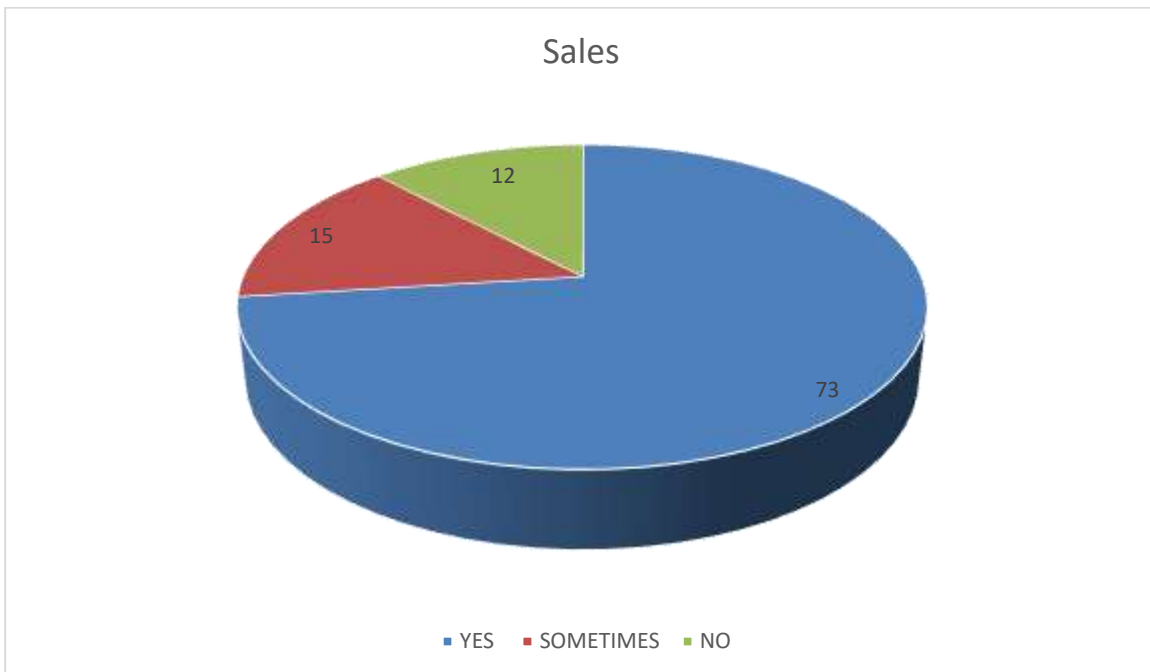


Figure 4: If ward has adequate supply of color-coded liner bags

Majority 73% showed that the ward has adequate supply of color-coded liner bags unlike 12% disagreed with the statement.

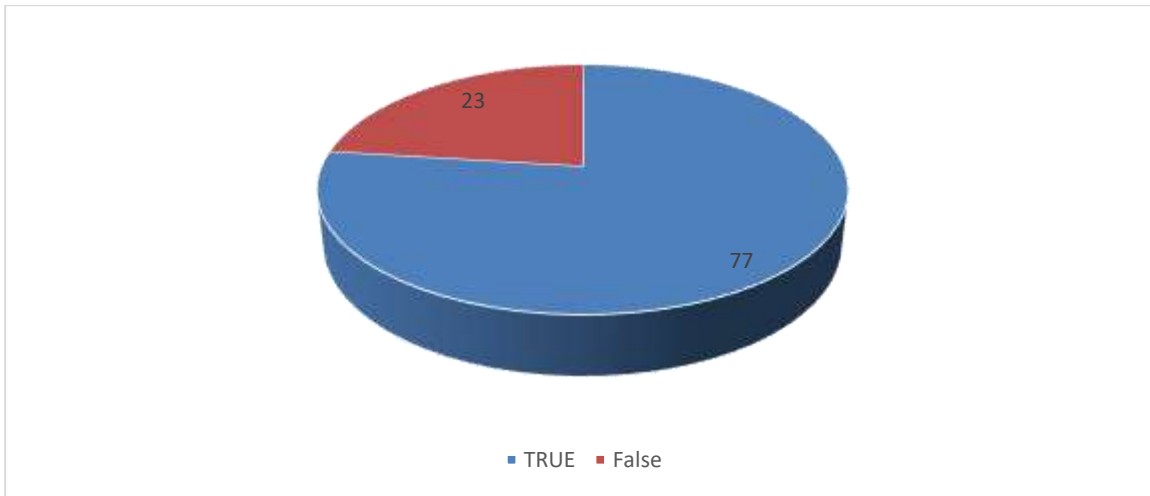


Figure 5: If dustbins are easily accessible from the working area

According to the findings, the dustbins are easily accessible from the working

area as majority 77% agreed unlike few of 23% disagreed.

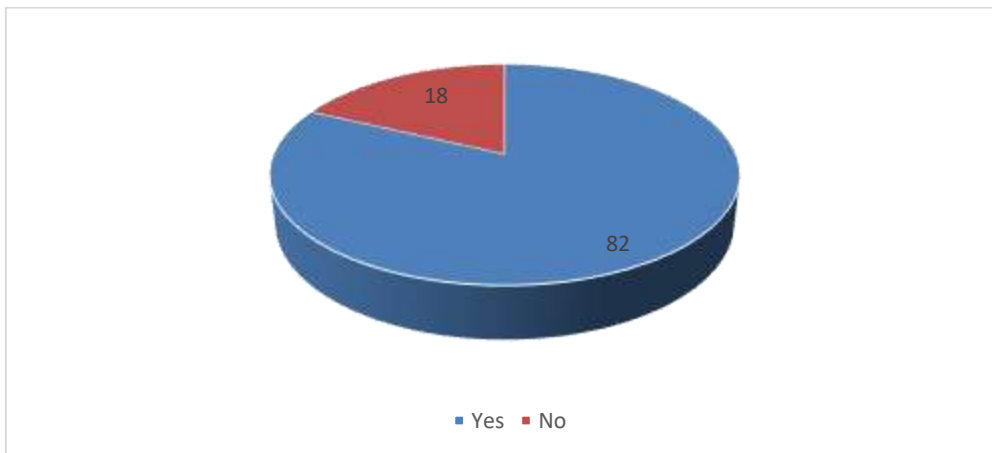
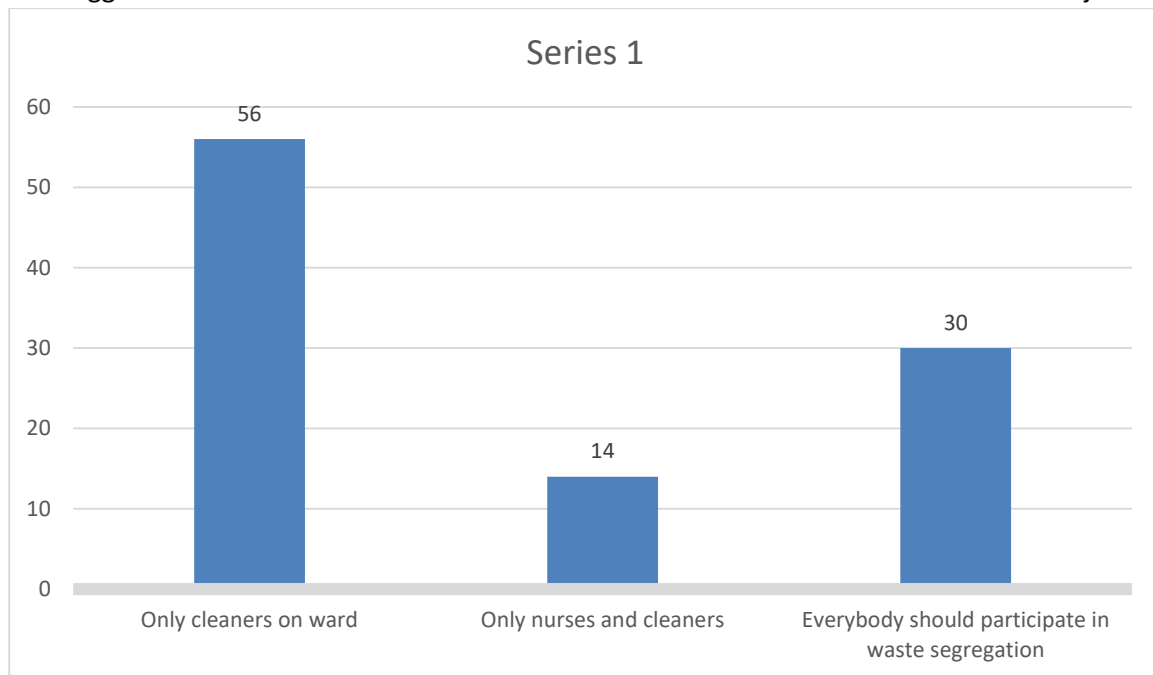


Figure 6: If dustbins on the ward are clearly labeled

Most of 82% agreed that dustbins on the ward are clearly labeled unlike few of 18% disagreed.



Graph 1: The role of waste segregation

From the opinions, 56% agreed that waste segregation is a role of cleaner on ward, 14% cited on only workers and cleaners

unlike 30% agreed that everybody should participate in waste segregation.

Table 3: The influence of safe injections on Hospital acquired infection prevention and control practices

Variables	Frequency	Percentage
Is your ward having enough safety box supply?		
YES	50	41.7
NO	70	58.3
Total	120	100
Are the safety boxes easily accessed during procedures?		
NO	88	73.3
YES	32	26.7
Total	120	100
Do you receive adequate supply of disposable syringes and gloves?		
YES	77	64.2
NO	43	35.8
Total	120	100
Do you receive adequate supply of disposable syringes and gloves?		
YES	60	50%
NO	60	50%
TOTAL	12	100
Do waste handlers on your ward provided with enough protective gear?		
YES	60	50%
NO	60	100

TOTAL	120	
What is your opinion on injection safety		
It is for the good of a health worker	55	45.8
It is for the good of the patient	20	16.7
Both the patient and health worker benefit if an injection is safely administered	45	27.5
TOTAL	120	100

From the study findings; Participants responded that the ward have enough safety box supply (58.3%) agreed and (41.7%) disagreed. It was found out that participants have adequate supply of disposable syringes and gloves, 73.3% agreed while 26.7% disagreed. It was further revealed that respondents receive adequate supply of disposable syringes

Health workers were asked whether they always wash hands before and after every procedure done to all patients attended to, 45.8% strongly agreed, 16.7% agreed, 25% disagreed while 12.5% strongly disagreed. Workers were also asked whether hand hygiene is emphasized frequently in your departmental meetings. Majority 66.7% said yes unlike 33.3% of workers said. The findings are in line with [12]. The hands of a health care worker are a common vehicle of pathogen transmission in hospital settings. And therefore, Health care worker hand hygiene is critical for patients' wellbeing. Whilst failure of health care workers to comply with the best hand hygiene practice is problem in all health care settings, issues of lack of access to adequate cleaning equipment and in cases even running water make practicing good hand hygiene particularly difficult in low resource developing country settings.

Most participants think that hand hygiene in a hospital is for the good of the health worker only 43%, 21.7% showed hand hygiene in a hospital is good for the patient only, 20.8% showed that it is a less useful time-wasting practice in hospital, 12.5% agreed that is good for both patient and health worker unlike 9.2% showed that it is for the good of the patient only. the findings are in line with a study conducted among medical students revealed poor

and gloves this was supported by 60% who agreed and disagreed. Most of participants revealed that injection safety is good for health workers 45% agreed, 16.7% revealed that it is good for patients while 27.5% agreed that it is good for both the patient and health worker benefit if an injection is safely administered.

DISCUSSION

knowledge on hand hygiene with more than 40% of the study participants being unaware of the importance of hand washing [13] and approximately 90% of them indicated the lack of clean running water in hospital wards. However, most of the respondents had good attitude on hand hygiene on most of the aspects that were assessed [14].

Most of participants 45% showed that ward has adequate supply of color-coded liner bags, 30% sometimes receive adequate supply of color-coded liner bags unlike 25% never seen color coded dustbins on this ward. Most of participants agreed that their ward has adequate supply of color-coded liner bags. Best segregation practices are also implemented in some countries. The findings are in line with a study conducted in Ghana also reveals that both public and private hospitals segregated their waste into different categories, by first identifying the waste type and then separating non-infectious or general waste from general waste [15]. From the study findings; Participants responded that the ward have enough safety box supply (58.3%) agreed and (41.7%) disagreed. it was found out that participants have adequate supply of disposable syringes and gloves, 73.3% agreed while 26.7% disagreed. it was further revealed that respondents receive adequate supply of disposable syringes and gloves this was supported by 60%

who agreed and disagreed. most of participants revealed that injection safety is good for health workers 45% agreed, 16.7% revealed that it is good for patients while 27.5% agreed that it is good for both the patient and health worker benefit if an injection is safely administered. In Bangladesh, a study showed a high level of injection use and unsafe injection practices and immediate prevention initiatives needed to be

CONCLUSION

The knowledge of the respondents was high with majority of the respondents having adequate knowledge on prevention and control of hospital acquired infection. The workers had adequate information on prevention and control of hospital acquired infection.

promoted in primary care hospitals in Bangladesh and such interventions included making health care providers aware of the negative impact of their injections on the spread of BBV, training o safe injection practices and safe disposal of sharps, refresher courses and improving supervision of health facilities and monitoring the process aiming to improve injection safety practices on regular basis among others [16].

Although the proportion of workers who washed their hands between patients was high, they do not wash hands between patients. This indicated a lower level of compliance to prevention and control of hospital acquired infection.

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