



A STUDY ON INFECTION CONTROL AND PREVENTION IN THIRUVARUR MEDICAL CENTER

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ABSTRACT

Although the environment serves as a reservoir for a variety of microorganisms, it is rarely implicated in disease transmission except in the immune compromised population. Inadvertent exposures to environmental opportunistic pathogens (e.g., *Aspergillums* spp. and *Legionella* spp.) or airborne pathogens (e.g., *Mycobacterium tuberculosis* and Varicella-zoster virus) may result in infections with significant morbidity and/or mortality. Lack of adherence to established standards and guidance (e.g., water quality in dialysis, proper ventilation for specialized care areas such as operating rooms, and proper use of disinfectants) can result in adverse patient outcomes in health-care facilities. Hospital acquired infections (HAIs) are a major public health problem in developing countries and their prevention has been made a priority by the WHO. To better understand the barriers and help guide optimal implementation of hospital infection control practices (ICPs) in Ethiopia, we sought to gather baseline information regarding ICPA cross-sectional baseline evaluation of healthcare worker (HCW) knowledge, attitudes and practices of tuberculosis (TB) infection control (IC) and hand hygiene (HH) was completed between January-March 2012 at two Addis Ababa University teaching hospitals in Ethiopia. An anonymous, 76-item questionnaire was administered to HCWs (nurses and physicians). Knowledge items were scored as correct/incorrect. Attitude and practice items were collapsed from 5 to 3 point rating scales. Descriptive statistics were used to assess responses.

1. INTRODUCTION

Infection prevention and control is required to prevent the transmission of communicable diseases in all health care settings. Infection prevention and control demands a basic understanding of the epidemiology of diseases; risk factors that increase patient susceptibility to infection; and the practices, procedures and treatments that may result in infections.

The risk of acquiring a healthcare-associated infection is related to the mode of transmission of the infectious agent (e.g. CDI, SSI, CRE, MRSA, etc.), the type of patient-care activity or procedure being performed and the underlying patient's host defenses. Healthcare workers should be vaccinated against preventable diseases such as hepatitis B. Personnel at risk for exposure to tuberculosis should be screened per recommendations.

1.1. Background

The emergence of life-threatening infections such as severe acute respiratory syndrome (SARS) and re-emerging infectious diseases like plague and tuberculosis have highlighted the need for efficient infection control programmes in all health care settings and capacity building for health care workers so they can implement them. An infection control programme puts together various practices which, when used appropriately, restrict the spread of infection. It is therefore important for all health care workers, patients, their family members, friends and close contacts to adhere to the infection control guidelines strictly. It is also imperative for health care administrators to

ensure implementation of the infection control programme in health care facilities.

1.2. INFECTION CONTROL PRECAUTIONS

“Standard precautions” require that health care workers assume that the blood and body substances of all patients are potential sources of infection, regardless of the diagnosis, or presumed infectious status. Additional precautions are needed for diseases transmitted by air, droplets and contact. These are termed “additional (transmission-based) precautions”.¹ The terms “standard precautions” and “additional (transmission-based) precautions” have replaced previous terms such as universal blood and body fluid precautions, universal precautions and barrier nursing. While particular

1 Introduction Practical Guidelines for Infection Control in Health Care Facilities

2 care needs to be taken in the management of patients/clients known to have active infections it must be remembered that infection will not always be detected and complete safety can lie only in following the appropriate level of precautions.

2. REVIEW OF LITERATURE

A recent systematic review looked at hand antisepsis and the incidence of SSI. The study found that alcohol rub preparation was as effective as aqueous scrubs in reducing SSI (Mc Laws, Berry and Whit by 2009).

Patients in hospital, nursing homes and long-term care facilities are at high risk of developing infections that they did not have before admission. Most healthcare-associated infections are spread by direct contact, especially via the hands of healthcare workers. Traditionally, hand hygiene, such as washing hands before and after touching patients, has been considered the single most important way of reducing infections. Increasingly, the use of alcohol-based hand rub is used alongside or in replacement of traditional washing with soap and water. However, compliance with hand hygiene is poor (Verna et al 2008).

The likelihood of an SSI depends on a number of factors related to both the patient and the surgical procedure. There are three types of surgical site infection: Superficial, deep incisional and organ/space infections. As the names suggest the infections can affect simply the site of the wound itself causing redness, discharge and pain - a superficial wound

infection; deeper layers of the tissues perhaps causing an abscess or infections involving organs or joints. In all cases of true surgical site infection antibiotic therapy will be required and occasionally further surgery (Martone and Nichols 2007).

3. EXECUTION OF RESEARCH DESIGN

3.1 RESEARCH METHODOLOGY

The process used to collect information and data for the purpose of making business decisions. The methodology may include publication research, interviews, surveys and other research techniques, and could include both present and historical information

3.2 RESEARCH DESIGN

Research design adopted for this research is “**Descriptive Research** “. It includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present.

3.3 SAMPLING FRAMEWORK

The population is finite and “**Simple random sampling method**” will be adopted for selecting samples from the finite one. Total number of population is 678 my sample size is 100

3.4 STATEMENT OF PROBLEM

Infection control faces radical changes at the beginning of the third millennium. The first part of this review focuses on problems not yet solved, such as

- Surveillance systems, which should be active and extremely flexible
- Infection outbreaks in hospitals and strategies to avoid them
- Hand washing and alternatives such as rapid hand antisepsis
- Water and food in the hospital as potential reservoirs of nosocomial pathogens
- Upgrading of infection control programs to turn them into systems to improve the quality of care
- Fatal Gram-negative bacteria in hospitals from developing countries, which can be avoided with better standards of care
- The elemental role of the microbiology laboratory in the prevention and control of infections.

3.5. CONCEPTUALIZATION**VACCINATIONS.**

- The staff at a healthcare organization may sometimes be the cause of the spread of infections. They come into contact with patients with different types of diseases and may contract infections, according to the CDC.
- As a result, organizations must make sure that recommended vaccinations are being administered to their staff as recommended. "Keeping healthcare professionals healthy pays dividends," says Mr. Schweon. It results in decreased transmission risk to co-workers and patients.

SURVEILLANCE.

Through surveillance, organizations should gather data regarding infection patterns at their facility. They should also regularly assess current infection prevention protocols. Having a robust infection surveillance program helps organizations measure outcomes, assess processes of care and promote patient safety, says Mr. Schweon. Sharing the data that the infection surveillance program gathers is the next step. "Communicate, display and discuss all process and outcomes measures with all stakeholders," says Dr. Kenneley.

4. DATA ANALYSIS AND INTERPRETATION

The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist

Table.1. Gender wise distribution response

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------|-----------|---------|---------------|--------------------|
| Valid Male | 29 | 29.0 | 29.0 | 29.0 |
| Valid female | 71 | 71.0 | 71.0 | 100.0 |
| Total | 100 | 100.0 | 100.0 | |

Interpretation

From the data above specified, 29% are male respondents and 71% are female respondents. According to the analysis most of the respondents are female.

among data groups. The data after collection has to be processed and analyzed in accordance with the outline laid down in research plan or research design. This is essential for a scientific study and for ensuring that we have all relevant data for making comparisons and analysis. Technically processing of data implies editing, coding, classification and tabulation of collected data so that they are available for analysis.

Analysis particularly in case of surveys involves estimating the values of unknown parameters of the population and testing of hypothesis for drawing inferences. "Thus in the process of analysis, relationships or differences supporting or conflicting with original or new hypothesis should subject to statistical tests of significance in order to determine with what validity data can be said to indicate any conclusions."

DESCRIPTIVE STATISTICS

Descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way such that, for example, patterns might emerge from the data. Descriptive statistics are simply a way to describe our data. "Descriptive analysis is largely the study of distribution of one variable. This study provides us with profiles of companies, work groups, persons and other subjects on any of a multiple characteristics such as size, compositions, efficiency, preferences etc."

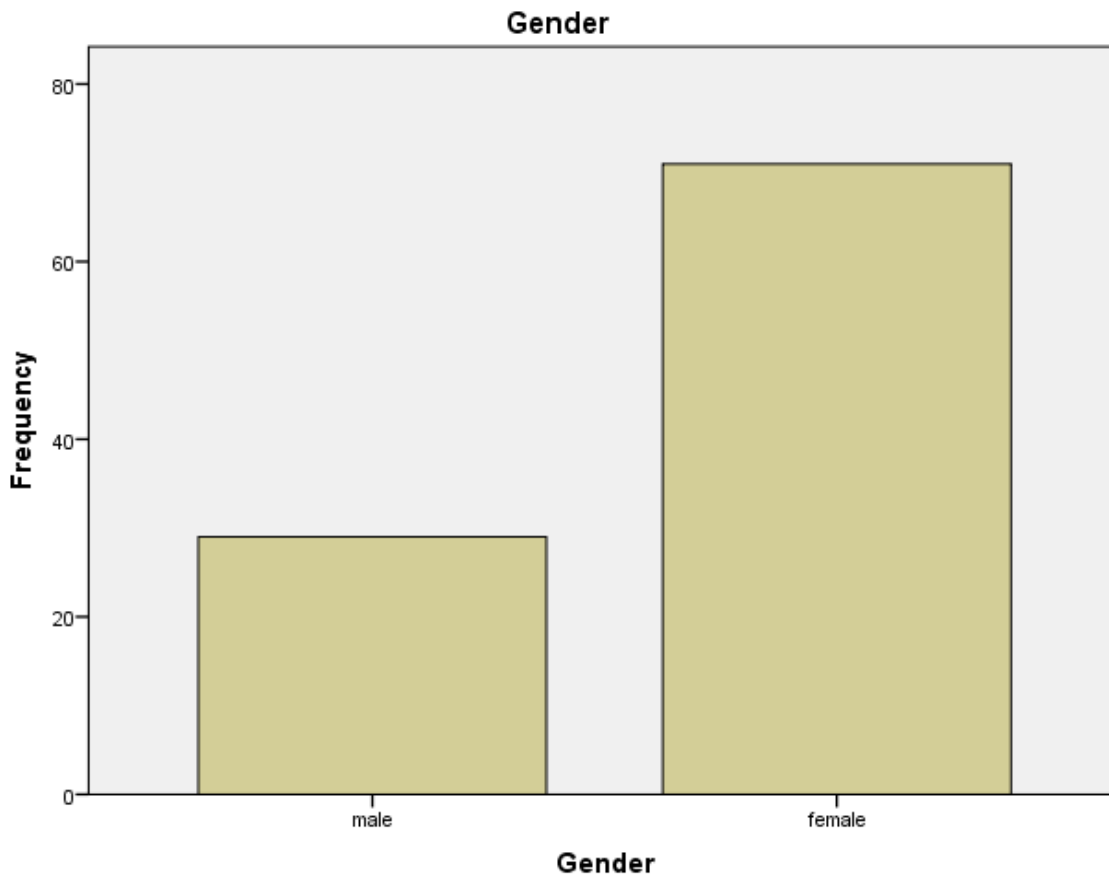


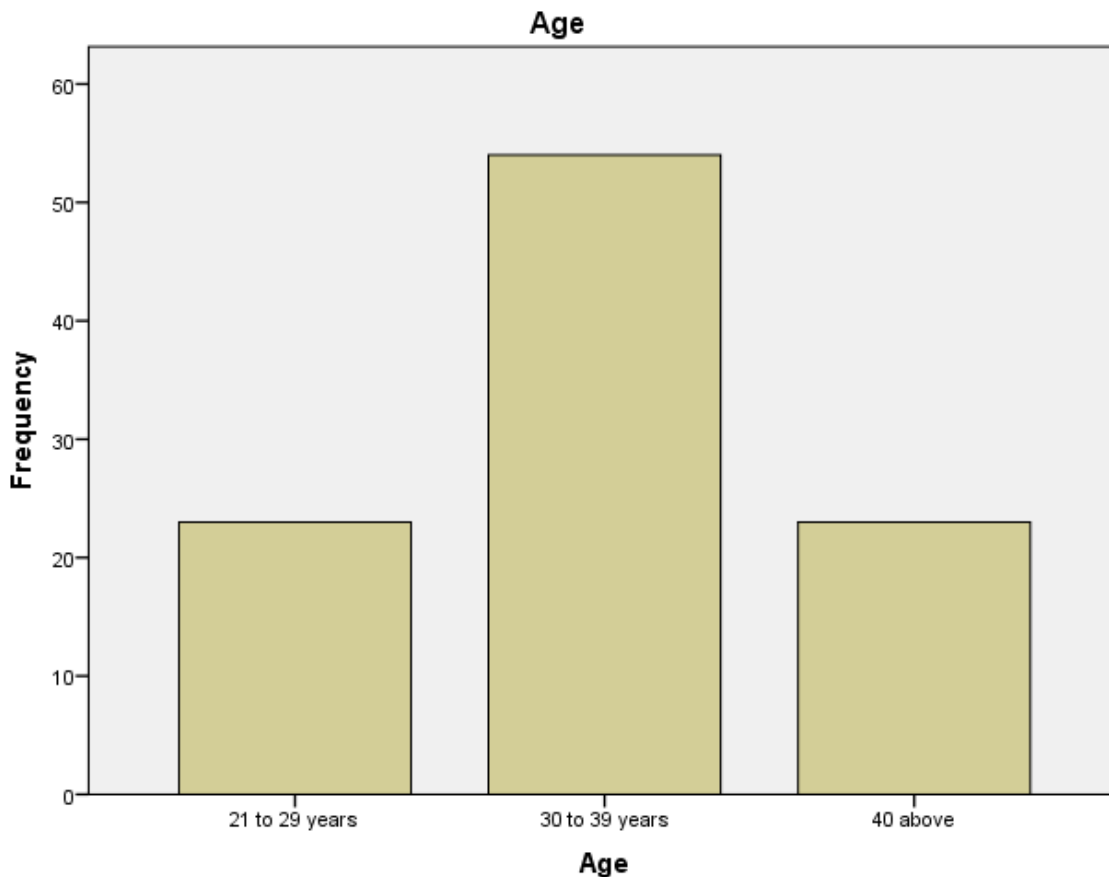
Table.2. Age wise distribution response

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Valid 21 to 29 years | 23 | 23.0 | 23.0 | 23.0 |
| 30 to 39 years | 54 | 54.0 | 54.0 | 77.0 |
| 40 above | 23 | 23.0 | 23.0 | 100.0 |
| Total | 100 | 100.0 | 100.0 | |

INTERPRETATION

In the above table 23% respondents are come under 21 to 29 years of age, 54% respondents are come under 30 to 39 years of

age, 23% respondents are come under above 40 years of age. According to the analysis most of the respondents are come under the age of 30 to 39 years of age.

**Degrees of freedom**

$$\begin{aligned}
 &= c-1 \times r-1 \\
 &= 4-1 \times 2-1 \\
 &= 3 \times 1 \\
 &= 3
 \end{aligned}$$

Calculated value 0.86491

Table value 7.81

Calculated value is lower than the table value. So we reject the null hypothesis and accept the alternative hypothesis

HYPOTHESIS

HO: There is no significance relationship between Age and Have you received some form of training or orientation about infection prevention and control?

H1: There is a significance relationship between Age and Have you received some form of training or orientation about infection prevention and control?

5. FINDINGS SUGGESTION AND CONCLUSION**5.1 FINDINGS**

- Based on the findings of the study, 29% are male respondents and 71% are female

respondents. According to the analysis most of the respondents are female.

- In the above table 23% respondents are come under 21 to 29 years of age, 54% respondents are come under 30 to 39 years of age, 23% respondents are come under above 40 years of age. According to the analysis most of the respondents are come under the age of 30 to 39 years of age.
- In the above specified data 25% respondents are doctors and 75% respondents are nurse. Based on the analysis most of the respondents are nurse in the hospital.
- 77% respondents assured is that the hospital has conducted infection control program regularly and the follow the policies and guidelines correctly
- Most of the respondents specified that there is no active infection control team in the hospital because of the irregularity of the teams in the hospital.
- 54% respondents agreed that they have encountered outbreaks
- Based on the finding most of the respondents agreed that there is a infection

control awareness but there is a no proper team for infection control

SUGGESTION

- The basic physical facilities such as drinking water, sanitation facilities, communication facilities and physical safety and security need to be improved in the hospitals.
- The hospital should improve the infection control activities
- 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 formulates a programme for frequent hand washing training and sensitization to all staff, that the hospital ensures that there proper and easily accessible running water infrastructure near the areas of work in all departments.
- Finally, the study revealed that the Infection prevention and control committee in the hospital is not active and thus many workers do not have access to policies on infection prevention and control.

5.2 CONCLUSION

Hospital acquired infections are a threat to population health and are not going away any time soon. Due to frequent contact between health care workers and patients, pathogens can be transmitted from one patient to another if good quality hand hygiene is not maintained. It is the responsibility of health care workers to keep the patients in their care safe by modeling effective and frequent hand washing practices. A national update from Nurse.com (2009) states that one of the actions needed by nurses to manage HINI flu is frequent hand washing. Nurses need to have a proactive voice in the promotion of current best practices for hand washing hygiene. The Journal of Hospital infection (2001) explains how multifaceted approaches including a combination of education, written material, intervention, reminders and continued performance feedback, can have an important effect on hand washing compliance and rates of hospital-acquired infection. Nurses can take a leadership role in all healthcare settings to foster an organizational

culture that promotes and reflects a strong obligation to patient safety through effective hand washing.

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