

Knowledge, Attitude and Practices of Healthcare Providers Regarding Infection Control at Tertiary Care Hospital

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ABSTRACT

Background: Nosocomial infections are the major cause of high morbidity and mortality in developing countries like Pakistan. Standard precautions; based on good self-care practices, adequate knowledge and positive attitude can decrease the consequences of nosocomial infections.

Objective: The objective of the study is to know about the knowledge, attitudes and practices of health care providers regarding infection control in Hayatabad Medical Complex Peshawar.

Method: This was descriptive cross-sectional study conducted at Hayatabad Medical Complex Peshawar. In the health care providers we included doctors, nurses, pathologists and paramedics. Convenient sampling technique was used. After taking informed consent, the adopted questionnaires were filled from participants regarding knowledge, attitudes and practices about infection control.

Results: Out of total 88 health-care workers, 44.3 % were male and 55.7% were females. On average, 83% of the participants are knowledgeable about the mode of transmission of infectious diseases while 96.6% of the participants responded that transmission based precautions help in infection control however, 98.9% of the respondents say PPE and following of standard precautions play a vital role in infection control. On average, 56% of health care workers say that there is a lack of PPE and 92% of HCWs wash their hands before and after the procedure. The overall use of PPE was 80.7 % however 75 % of the HCWs did the practice of recapping the needles after using.

Conclusion: The overall knowledge, attitude and practices of the responding health care providers were good.

Keywords: Knowledge; Attitude; Practices; Nosocomial infection

INTRODUCTION

Nosocomial infections or hospital acquired infections are infections that affect patients in a hospital facility or other health-care facility and that they are not present or incubating at the time of admission to a hospital or the health-care facility¹. The purpose of infection control practices is to reduce the incidence of nosocomial infection². The disease that is caused by bacteria, fungi, virus or parasites is called infectious disease³. In the developed countries, the prevalence rate of hospital acquired infection ranges from 3.5 % to 12% and it ranges from 5.7 % to 19.1% in the less developed countries¹. Sufficient knowledge, positive attitude and good practices in infection control and prevention by the nurses can decrease the infection rate in hospitals⁴. Knowledge is defined as “information, facts and skills acquired through experience or education; the theoretical or practical understanding of a subject, in that circumstances knowledge is about infection control”. Nurses needs training, workshop programs and specific education sessions for their practical job skills improvement due to lack of knowledge⁵. Attitude is defined as “it is the way you think, feel and behave about something in that circumstances attitude is about infection control”. The chief source of the cross infection is the hands of the working staff and are controlled by good hand

hygiene practices⁶. Practices are defined as “it is to do something regularly as part of your normal behavior in that circumstances practice is about infection control”. Various infectious diseases like HBS, HCV and HIV spread between the patients when the practices of the injection protocol are not safe⁷. The rate of the nosocomial infection will be high when inadequate knowledge, bad attitude and poor practices towards infection control is practiced^{8, 9}. Health care professionals must have sufficient information about numerous methods for their self-protection¹⁰. The best way of prevention of infection is bringing changes in the attitude of health care workers¹¹. The overall knowledge, attitude and practices regarding infection control of the less experienced professionals and house officers were good then those of more experienced dental professionals¹². There are 42.2% of the participants follows standard precaution, 56.6% contributed in training and workshops program, 43.7% discard the needles and other sharps, 68.7% done hand washing before and after procedures and 62.5% recapped the needles after usage properly¹³. The participants have adequate knowledge level (84.5 %), safe practices (54.2%) and positive attitude (55.6%). The participants need to improve their knowledge, attitude and practices to the level of national guide lines in spite good knowledge, attitude and practices¹⁴. The purpose of the study was to evaluate the knowledge,

attitude and practices of the health care providers towards infection control; because, if we improve KAP of health care providers regarding infection, we can control the infectious diseases and improve the health of the people.

MATERIALS AND METHODS

The study was cross-sectional conducted at Hayatabad Medical Complex, a major tertiary care hospital of Peshawar, Khyber Pakhtunkhwa. The study duration was five months, from September 2017 to January 2018. The study population was all the health-care workers including doctors, nurses, paramedical staff and health-technicians. A total of 88 participants were included in this study. Convenient sampling technique was used for data collection. A self-administered validated tool was adopted comprising of two sections. The first section was covering the participants' background information; gender, age and profession. The second section was comprised of three sub-sections including Knowledge section, attitude section and practice section. Hard copies of printed questionnaires (In English language) were distributed among the study participants. IRB approval was secured and informed consent was taken from the participants. Data was analyzed with SPSS version 22. For categorical variables; we calculated frequency and percentage and draw tables. For continuous variables we took mean, median, mod, standard deviations and range and draw tables.

Operational Definition:

Good knowledge: If the healthcare workers correctly answered >70% of the knowledge questions

Poor knowledge: If the healthcare workers correctly answered <70% of the knowledge questions.

Favorable attitude: If the healthcare workers correctly answered >70% of the questions about attitude.

Unfavorable attitude: If the healthcare workers correctly answered <70% of the questions about attitude.

Good practice: If the healthcare workers properly practiced >70% of the practice questions.

Poor practice: If the healthcare workers practiced <70% of the practice questions.

RESULTS

In this study, totally 88 participants were included. There were 44.3% males and 55.7 % female participants, while the age of the participants shows that 69.3% were in between 20-30 years of age, 19.3% were between 30-40 years of age and 11.4 % were between 40-50 years of age. The profession of the participants shows that 37.5 % were doctors, 50.0% were nurses, 3.4 % were pathologists and 9.1% were paramedics. (Table 1) According to the awareness level of the participants, 98.9% of the participants are aware of the infectious diseases while 1.1% of the participants were unaware of the infectious diseases. 96.6% participants have the opinion that infection can be controlled through application of transmission based precaution while only 3.4 % of the participants have the opinion that infection cannot be control by following transmission based precaution. 98.9 % of the participants say that hand washing help to prevent the infection, but 1.1 % of the participants says that hand washing cannot help in infection control. According to the participants that among the health care providers who are more prone to the

infectious diseases nurse 53.4 %, doctors 13.6 %, paramedics 14.8 % and pathologist 18.2 % are prone to infectious diseases. 98.9% of the participants say that PPE and standard precautions have vital role in infection control but 1.1 % of the Participants say that PPE and standard precautions have no role in infection control. The participant's opinion about the ways through which the infectious diseases can be transmitted from person to person that 8% infection through droplets, 8% infection through direct contact, 1.1% infection through indirect contact and 83 % infection can spread through all of them. 98.9 % of the participants told that aseptic technique is necessary to control the infection while 1.1 % of the participants say that aseptic techniques are not necessary to over infection. 91 % of the participants have positive attitudes towards the use of PPE, hand washing and face mask during the care of the patient while 9 % have negative attitudes towards the use of PPE, hand washing and face mask during of the patient. The opinion of the health care providers about necessity of PPE by laboratory staff for their self- protection show that 56.8 % of the participants were agree while 22.7 % of the participants were strongly agree and 20.5 % of them were disagree. The results show the opinion of the health care workers about those health care works who more prone to the infection, 10.2 % have the opinion that they have less chances of getting infection and 89.8 % have opinion that have high chances of getting infection. The feelings of the health care providers about getting infections while working in the health care facilities show that 11.4 % feel that they are at minimal risk while 31.8 % feel that they are at moderate risk and 56.8 % of the health care providers feel that they are higher risk of getting infection. The results show the use of universal precautions that is followed by health care providers during their procedure in which, 2.3 % use PPE and face mask while 5.7 % wash their hand, 6.8 % wears gloves and 85.2 % use all of them (PPE and face mask, washing hand and wearing gloves). When asked from the participants about the application of infection control concept in professional practice, 62.5 % of the participants were agree while 20.5% of the participants were strongly agree and 17.0% of the participants were disagree about the application of infection control concept in professional practice. The problem that is faced by the health care providers in their daily practice, the results show that 36.4 % of the health care workers forgot to use personal protective equipment's and 63.6 % of the health care has unavailability of personal protective equipment's for their use in daily practices shown in graph# 04. According to the participants about practice hand washing 92 % of the health care workers wash their hands before and after the caring of patient or procedure but 8 % of the participants do not wash their hand before and after the caring of patient or procedure. The use of personal protective equipment's in various hospital units the results show that 9.1 % use in ICU and wards, while 6.8 % use in minor OT, 3.4 % use in labor room, and 80.7 % use in all of them. The practice of disposing syringes by health care workers after using, 89.8% of the participants done the disposing of syringes while 9 % of the participants did not practice the disposing of syringes after using.

According to the participants their satisfaction from work environment regarding hygiene, 55.7 % of the them were fairly satisfied regarding hygiene, 22.7 % of the them were strongly satisfied and 21.6 % of the them were not satisfied from their working environment regarding hygiene. The result shows that 75% of the participants done the participants of recapping needles after using while 25% of the participants did not done practice of recapping needles. When asked about practice of standard precaution, 43.2 % of the health care workers say that they have got infection while not practicing standard precautions in their daily practice while 56.8 % have not get infection while not practicing standard precautions.

Table 1: Demographic features of the participants

Variable	Frequency	Percentage
Gender:		
Male	39	44.3
Female	49	55.7
Age:		
20-30yrs	61	69.3
30-40yrs	17	19.3
40-50yrs	10	11.4
Profession:		
Doctors	33	37.5
Nurses	44	50.0
Pathologists	3	3.40
Paramedics	8	9.10

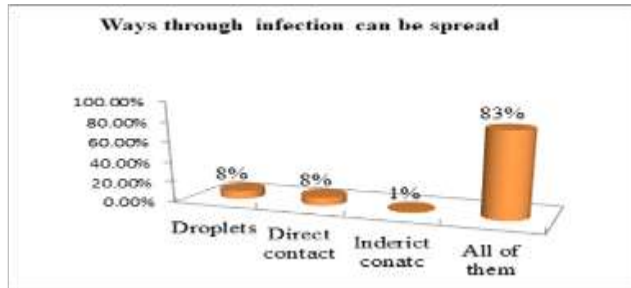


Figure 1: Participants response about infection spread

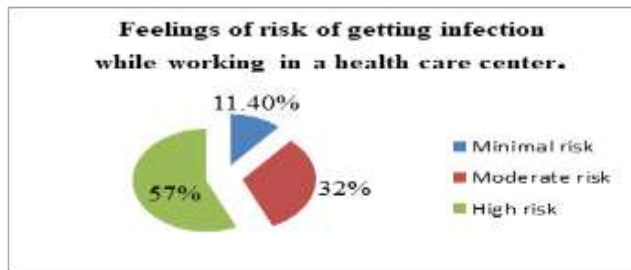


Figure 2: Participants response about risk of getting infection

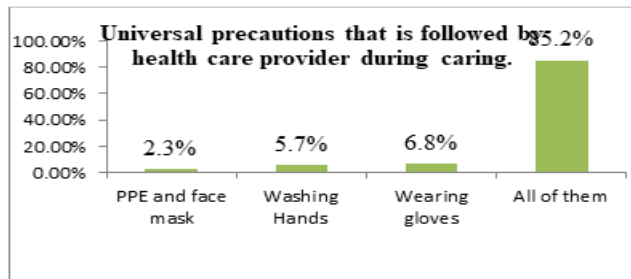


Figure 3: Participants response about PPE

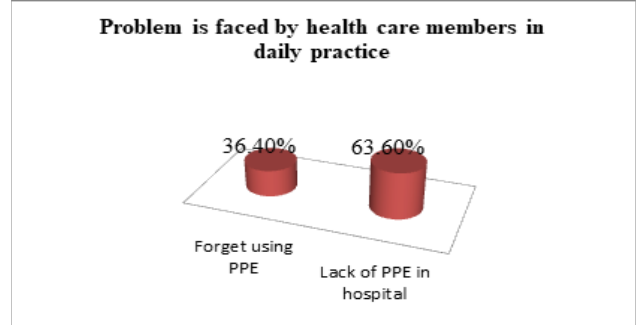


Figure 4: Participants response about problems faced in daily practice

DISCUSSION

All over the world the common problem is the hospital acquire infection. Very limited data is available in the literature about knowledge, attitude and practices among health care providers regarding infection control. That is why new knowledge, good practices and positive attitude are necessary for the health care providers to control the infection. In this study we assessed the knowledge, attitude and practices among health care providers regarding infection control in Hayat Abad Medical Complex Peshawar.

The results of our study show that 92% of the health care providers wash their hands before and after performing the procedures. The results of our study are supported by (Yakob, E. et al. 2015)¹³; the finding of their study shows that 68.7% health care workers done hand washing before and after procedures. Another study supports our findings the result of this study show that 99% of health care workers perform hand washing practices¹⁵. The results of our study show that 75% of the health care providers done recapping of needles after using and another study support our results (Yakob, E. et al. 2015)¹³ shows 62.5% health care providers performs the recapping of needles. The results of our study show that 91 % health care providers using gloves, masks and performing hand washing during caring the patient to reduce the cross infection. This study results show resemblance to another study results which is 97%¹⁵. The results of our study show that overall use of personal protective equipment's is 80.7% in different health care units of the hospital. But according to another study the overall use of personal protective equipment was 35.6%¹⁴. The major limitation of our study is small sample size. A study based on large sample size and multiple centers should be conducted to get better results.

CONCLUSION

The overall knowledge, attitude and practices of the respondent's health care providers were good. They all have good knowledge level like awareness about infectious disease, aware about the necessity of hand washing and personal protective equipment's in infection control. They have positive attitude toward infection and control. The respondents have good practices like hand washing before and after the procedure, use of PPE while caring the patients, recapping of needles and proper dispose of syringes. We also concluded that there is unavailability of

personal protective equipment's for the health care workers to use during the caring of the patient.

Recommendations: Training and workshop sessions should be arranged with time for the health care workers about infection control. The hygienic care should be maintained. All the facilities and equipment's like gloves, masks, gowns or lap quotes, sanitizers and antiseptic solutions for hand washing needed for infection control should be properly available for the health care providers in order to control the infection.

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REFERENCES

1. Organization WH. Health care-associated infections fact sheet. World Health Organization. 2015;4.
2. Ojulong J, Mitonga KH, lipinge S. Knowledge and attitudes of infection prevention and control among health sciences students at University of Namibia. *Afr Health Sci*. 2013;13(4):1071-8.
3. Agrebi S, Larbi A. Use of artificial intelligence in infectious diseases. *Artificial intelligence in precision health*: Elsevier; 2020. p. 415-38.
4. Chitimwango PC. Knowledge, attitudes and practices of nurses in infection prevention and control within a tertiary hospital in Zambia: Stellenbosch: Stellenbosch University; 2017.
5. Sessa A, Di Giuseppe G, Albano L, Angelillo IF. An investigation of nurses' knowledge, attitudes, and practices regarding disinfection procedures in Italy. *BMC Infect Dis*. 2011;11(1):1-7.
6. Lemass H, McDonnell N, O'Connor N, Rochford S. Infection prevention and control for primary care in Ireland: a guide for general practice. 2014.
7. Ghany MG, Morgan TR, panel AlhCg. Hepatitis C guidance 2019 update: American Association for the Study of Liver Diseases–Infectious Diseases Society of America recommendations for testing, managing, and treating hepatitis C virus infection. *Hepatology*. 2020;71(2):686-721.
8. Jain M, Dogra V, Mishra B, Thakur A, Loomba PS. Infection control practices among doctors and nurses in a tertiary care hospital. *Annals of Tropical Medicine & Public Health*. 2012;5(1).
9. Hayeh PA, Esena RK. Infection prevention and control practices among health workers at Ridge regional hospital in Accra Ghana. *International Journal of health science research*. 2013;3(8):47-55.
10. Jain A, Mandelia C, Jayaram S. Perception and practice regarding infection control measures amongst healthcare workers in district government hospitals of Mangalore, India. *International Journal of Health & Allied Sciences*. 2012;1(2):68.
11. Ocran I, Tagoe DNA. Knowledge and attitude of healthcare workers and patients on healthcare associated infections in a regional hospital in Ghana. *Asian Pacific Journal of Tropical Disease*. 2014;4(2):135-9.
12. Mohiuddin S, Dawani N. Knowledge, attitude and practice of infection control measures among dental practitioners in public setup of Karachi, Pakistan: cross-sectional survey. *J Dow Univ Health Sci*. 2015;9(1):3-8.
13. Yakob E, Lamaro T, Henok A. Knowledge, attitude and practice towards infection control measures among Mizan-Aman general hospital workers, South West Ethiopia. *J Community Med Health Educ*. 2015;5(5):1-8.
14. Gulilat K, Tiruneh G. Assessment of knowledge, attitude and practice of health care workers on infection prevention in health institution Bahir Dar city administration. *Sci J Public Health*. 2014;2(5):384-3.
15. Paudyal P, Simkhada P, Bruce J. Infection control knowledge, attitude, and practice among Nepalese health care workers. *Am J Infect Control*. 2008;36(8):595-7.