KNOWLEDGE, ATTITUDE, AND PRACTICE STUDY OF INFECTION PREVENTION AMONG STAFF OF A PRIVATE HOSPITAL IN GURUGRAM, HARYANA

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

by

Dr. Vaishali Mittal

Under the Supervision and Guidance of

Dr. Monika Choudhary

2021

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Knowledge, Attitude, and Practice Study of Infection Prevention among Staff of a Private Hospital in Gurugram, Haryana** is the Bonafede record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Dr. Vaishali Mittal

Date: 06.07.2021

PARAS HOSPITALS
Partners In Health

PHPL/HR – Comm./2021/241

May 31, 2021

WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr Vaishali Mittal** has successfully completed her training in the department of **Quality** from **March 22, 2021** to **May 31, 2021.**

During her training period, she was found to be sincere and dedicated towards her assignment.

We wish her all the best for her future endeavors.

For Paras Hospitals, Gurgaon

Authorized Signatory
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CERTIFICATE

This is to certify that dissertation titled **Knowledge, Attitude, and Practice Study of Infection Prevention among Staff of a Private Hospital in Gurugram, Haryana** is a record of the research work undertaken by Dr. Vaishali Mittal in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

Dr. Monika Choudhary	Mr. P.R. Sodani
(Faculty Guide)	(School Dean)
IIHMR University, Jaipur	IIHMR University, Jaipur
Date:	Date:

ABSTRACT

Background: Prevention of infection is important for both the patient safety as well as the for the safety of healthcare providers. This study, therefore, was conducted to assess the knowledge, attitude and practice of healthcare workers in a private hospital of Gurugram, Haryana.

Methods: This descriptive cross-sectional study was done in the private hospital in Gurugram, Haryana, on 100 staff including doctors, nurses, paramedical and housekeeping staff.

Results: The knowledge of the staff was assessed as good which was above 70%. Attitude of the staff was also seen to be positive with respect to infection control preventions. The practice of infection control measures was good, however, reporting and handling of NSI showed the scope of improvement.

Conclusion: Regular training and audits of the hospital staff in infection control measures and practices is recommended to further improve the knowledge, attitude and practices of the hospital staff in infection prevention and control.

Keywords: knowledge, attitude, practice, infection prevention and control, healthcare personnel

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Place: Jaipur

Date: 06.07.2021 Dr. Vaishali Mittal

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Abbreviations

HBV	Hepatitis B virus
HCW	Health Care Worker
HIV	Human Immunodeficiency Virus
CDC	Centers for Disease Control and Prevention
HCP	Health Care Practitioner
KAP	Knowledge, Attitude and Practice
HAI	Hospital Acquired Infection
IPC	Infection Prevention and Control
AMR	Antimicrobial Resistance
IP	Infection Prevention
PPE	Personal Protective Equipment
NSI	Needle Stick Injuries

CHAPTER 1

Introduction

Healthcare personnel practice some measures in healthcare facilities to decrease the transmission and acquisition of infection causing agents. Such measures are referred to as infection control. The mode and mechanism of transfer of an infectious agent forms the basis of infection control measures which include standard precautions against contact, droplet, and airborne transmission.

All the policies, activities, and procedures that aim to either minimize or prevent the risk of transmission of infectious diseases at health care facilities are known as infection control. With the emerging life-threatening infections like COVID-19 and other infectious diseases, there exists a need for effective infection control programs in all healthcare facilities along with the need for capacity building in healthcare workers to prevent the transmission of infectious diseases in the healthcare settings.

Healthcare workers are vulnerable to many infectious diseases while they are practicing the healthcare profession. As a result, they are at the verge of getting infected by various diseases due to workplace hazard. There are numerous measures that healthcare workers should be aware of to protect themselves against these infections. The principle that all body fluids including blood, secretions, excretions (except sweat), non-intact skin and mucous membranes might exhibit transmissible infectious agents forms the primary basis of most of the infection control measures. This type of exposure primarily takes place while performing major or minor surgical procedures, while rendering regular services to the patient such as physical examination by health care providers, sample collection for laboratory investigation, while disposing hospital waste and while conducting any accident or lifesaving emergency procedure.

The incidents of occupational exposure are often observed in hospitals settings mainly due to lack of knowledge and practice of infection control measures and precautions in these health care facilities. There may be variations in the knowledge amongst healthcare workers regarding the infection control precautions which may differ because of numerous different trainings delivered to them. Sometimes, there may be shortage of certain personal protective equipment, either due to lack of resources with the hospital or due to high demand during crisis (as in pandemics), that may

impact the infection control environment in hospital and poor compliance to the infection control protocols and measures.

HBV is a well-recognized occupational risk for health care workers. The exact scale of occupational risk in the health sector, according to World Health Organization, is not clear, partly, because of the stigma and blame that exists in link with the reporting of sharps injuries and partly because of the lack of availability of post-exposure prophylaxis.

Knowledge, attitude, and practice is an important cognitive tool in public health regarding health prevention and promotion. The study is conducted to measure the knowledge, attitude and practice of infection control precautions among the health care workers in a private hospital in Gurugram, Haryana.

Researches all over the world show that there exists enormous inadequacy in majority of health care workers' knowledge, attitude and practice toward standard precautions which is not favorable and safe enough to the expected standard. There is huge discrepancy in the knowledge of infection prevention measures and practices among healthcare workers. As this leads to endangered patient and staff safety in healthcare organizations, it becomes necessary to regularly assess the knowledge, attitude and practices of healthcare workers towards infection control measures so that appropriate and timely preventive and corrective actions can be taken to ensure high quality of healthcare services to all the stakeholders of healthcare organization.

The objectives of this study are:

- To assess the knowledge of infection control protocols among healthcare workers.
- To measure the attitude of healthcare workers towards infection control protocols.
- To observe the infection control protocols practiced by healthcare workers.

CHAPTER 2

Literature Review

(E. Yakob 2015) This study was conducted in Mizan-Aman General Hospital, Southwest Ethiopia with a sample size of 135 healthcare workers. Cross-sectional study design was employed. Self-administered questionnaire was used to collect data. "Data was entered in to Epidata 3.1 and transported to SPSS version 17 for analysis. Results showed that out of 135 respondents, 57(42.2%) of HCWs think that they apply standard precaution always. About two-third (65.6%) of them had ever participated in training program. All of the respondents know that dirty needle and sharp materials could transmit disease causing agents. More than three fourth (76.3%) of health care workers think that they were at risk of acquiring HIV in their workplace. Among HCWs 59(43.7%) of them disposed sharp materials in open pails, 91(67.4%) in sharp and liquid proof container without removing syringe. Ninety-five (70.4%) HCWs know that gloves and gowns were required for any contact with patients. Among respondent 63(46.8%) of HCWs practice standard blood and body fluid precautions always. One hundred three (76.5%) of HCWs wear gloves last time while they took blood sample. Ninety-two (68.7%) of HCWs wash their hands before examining the patients and 84(62.5%) of HCWs recap needle immediately after using them. The study concluded that majority of health care workers' knowledge, attitude and practice toward standard precaution were not sufficient, favorable and safe enough to the expected standard. Strengthening and integrating universal precaution with routine services through provision of training and introducing health care workers infection prevention standard of practice, protocol, rules, and regulation are recommended".

(Oe Amoran 2013) This study was conducted in Hospital setting in Nasarawa State, Northern Nigeria with a sample size of 421 healthcare workers. Proportional sampling technique was used. This study was an analytical, cross-sectional study. "A structured self-administered questionnaire was used to collect relevant information from the healthcare providers working in Nasarawa State from January to February 2009. To describe patient characteristics, proportions and medians were calculated. For categorical variables, proportions using chi-square tests were compared. A logistic regression model was produced with infection control as outcome variable to identify associated factors. Results showed that out of 421 heath care workers interviewed, majority (77.9%) correctly described universal precaution and infection control with 19.2, 19.2, and 28.0%, respectively

unable to recognize vaccination, postexposure prophylaxis, and surveillance for emerging diseases as standard precaution for infection control. About 70.1% usually wear gloves before handling patients or patients' care products, 12.6% reported wash their hand before wearing the gloves, 10.7% washed hands after removal of gloves, and 72.4% changed gloves after each patient. Only 3.3% had a sharp disposal system in their various workplaces. Majority (98.6%) of the respondents reported that the major reason for noncompliance to universal precautions is the nonavailability of the equipment. There was a statistically significant difference in the practice of standard precaution among those that were exposed to blood products and body fluid compared to those that had not been exposed in the last 6 months ($\chi(2) = 3.96$, $P = 0.03$), public healthcare providers when compared to private health workers ($\chi(2) = 22.32$, $P = 0.001$), among those working in secondary and tertiary facilities compared to primary healthcare centers ($\chi(2) = 14.64$, $P = 0.001$) and urban areas when compared to rural areas ($\chi(2) = 4.06$, $P = 0.02$). The only predictor of practice of standard precaution was exposure to blood and body fluid in the last 6 months odds ratio (OR) = 4.56 (confidence interval (CI) = 1.00-21.28). This study concluded that inadequate workers' knowledge and environment related problems, including the lack of protective materials and other equipment and utilities required to ensure safety of HCWs is a crucial issue that need urgent attention. Institution of a surveillance system for hospital acquired infection to improve consistent use of standard precautions among health workers is recommended in Nigeria and other low-income countries in Africa".

(Sha 2015) This study was conducted in a medical teaching hospital of Calicut district, Kerala, India with sample size of 120 healthcare workers by convenient sampling method. This cross-sectional study was conducted by using a pretested semi-structured proforma, by interview cum observational technique. "Results showed that of the 120 participants, the majority (85.8%) was aware of disposing used needles and syringes in puncture-resistant containers but only 55.7%were actually practicing it. Three-fourths (75.8%) of the participants were aware about not recapping the needles after use but on observation, only 35.4% were practicing this. All healthcare workers were aware about the indication for using masks and gloves while handling patients, while only 77.1% were using them. It was also found that only 61.8% washed their hands after attending every patient, 94.3% cleaned the area with a sterile swab before giving injections and only 35.7% of the labs/wards/operation theatres had three colored bags. Few (11.7%) of the workers have already

been exposed to infectious blood samples and some (19.2%) are still not immunized against Hepatitis B. The study, therefore, concluded that there is a need for improvement in the Knowledge, attitude and practice of infection control measures among healthcare workers for both self and patient's protection. They should also get themselves immunized against Hepatitis B and report accidental exposure to infectious samples to the infection control committee."

(Mehrdad Askarian 2006) This study was conducted in Shiraz Medical School, Iran with a sample size of 468 health care workers by cluster sampling method. "In this study, different groups of medical students at the Shiraz Medical School were asked to complete a questionnaire. The survey had 2 components: demographic inquiries and questions designed to assess the knowledge, attitude, and practices regarding contact isolation precautions used in Iranian hospitals. Results showed that out of a total of 468 (of 622) useable surveys analyzed, responses to knowledge and attitude questions concerning isolation precautions in general were acceptable as being in accordance with the CDC guidelines (Mean scores approximate 66.3% and 63.4% of the total possible scores, respectively). However, self-reporting behaviors indicated an overall lack of compliance with expected practices (approximately 19.1% of a total possible perfect score). As an inference, this study suggests that knowledge of transmission routes and a positive attitude toward infection control measures alone are not sufficient to induce acceptable compliance (behavior) with current recommendations".

(Tzong-Shiann Ho 2013) This study was conducted in Tainan City in southern Taiwan with 264 HCPs. This was a cross-sectional survey conducted using a structured quiz in 264 HCPs (response rate, 76%), in Tainan City in southern Taiwan. "The quiz consisted of 10 questions regarding the control measures, notification, and clinical practices of dengue diseases. Scores of KAP and demographic characteristics of HCPs were analyzed. Results showed that one hundred thirty-four physicians and 130 nurses comprise the 264 HCP responders. Forty-three physicians (32%) and 80 nurses (61.5%) were practicing in medical centers, and they scored higher than nonmedical center peers on quizzes on notification (1.18 vs. 0.93 points, $p < 0.01$) but lower on control measures (3.52 vs. 3.22 points, $p < 0.01$). Fifty-seven physicians (42.5%) were experienced in reporting suspected dengue cases, and 13.1% of nurses had reported dengue cases. Three-fourths of HCPs failed to respond to the timing of dengue case notification, whereas nurses scored higher than physicians (0.34 vs. 0.16, $p < 0.01$). In addition, 57.2% of the HCPs failed to respond correctly

to the timing of typical skin rashes occurring in the patients with dengue. More than half of the HCPs considered Taiwan an endemic area of dengue diseases. This pilot study, thus, showed a lack of acquaintance with notification timing and important clinical features of dengue among HCPs in southern Taiwan. Future continued medical/nursing education should place more emphasis on these factors to improve dengue control in this demographic area".

(ASM Anwarul Kabir 2018) "This study was conducted in tertiary care hospital in Dhaka with 234 healthcare professionals. The aim of this study was to investigate the level of knowledge, attitudes, and practices of staff nurses about preventing the spread of hospital acquired infections (HAIs) at tertiary care Hospital of Dhaka city. This descriptive cross-sectional study was done among nurses having two years' experience from two tertiary level hospitals in Dhaka city during January to June 2017. Self-administered questionnaire containing different set of questions regarding knowledge, attitude and practice on HAI were used as a tool for data collection. Questionnaire was supplied to all staff nurses available at different in-patient wards of these two hospitals. Only 234 staff nurses who completed and returned the questionnaire were included in this study. Data were analyzed using Microsoft excel 2013 software. Staff nurses were found to have good knowledge, moderately positive attitude but poor practice in prevention of hospital acquired infections. About 95% of the participants considered that prevention of HAIs were a valuable part of their role. About 65% of the staff nurses had received formal training regarding hand hygiene. The 100 % of participants felt that they would be less likely to transmit infection to the patients if they performed hand-hygiene. About 64% of them argued that hand hygiene agents were not readily available in current settings. Regarding practice, only 6% performed hand hygiene before patients contact and 27% of the staff nurses reported that they often forgot to perform hand hygiene. The finding of this study revealed a good knowledge of infection prevention among the majority of participants with relatively minimal level of practice. For strengthening the knowledge, attitude and practice towards HAIs, there is in need of developing regular training program and monitoring on performance feedback regarding hand hygiene is recommended."

(Hamid Reza Naderi 2017) "This study was conducted in Tertiary University Hospital in North-Eastern Iran with sample size of 334 healthcare providers by probability sampling and stratified sampling techniques. The aim of this study was to evaluate the knowledge, attitude and practice of nurses and physicians in the field of infection control at a tertiary university hospital in north-

eastern Iran. In this prospective cohort study, a researcher-based questionnaire was used to assess the knowledge and attitude of the participants. Additionally, a checklist completed by several trained observers, was used to evaluate their practice, based on the opportunities and overall performance of the subjects. Totally 334 people (including 180 nurses and 154 physicians) were evaluated. Only 1.5% of respondents had low knowledge level. There was no significant difference between the knowledge level of physicians and nurses (p= 0.101). Also, 97.7% of subjects had a positive attitude towards infection control issues. In general, poor practice was only detected in 8.7% of the participants. Nevertheless, in issues such as hand hygiene upon entering the ward, removing rings or watches during hand washing and hand washing with soap and water for 15-30 seconds, less than 20% of them had proper performance. The study demonstrated that the knowledge and attitude of physicians and nurses towards infection control issues in hospital seem acceptable. However, the percentage of poor practice compared with attitude and knowledge was higher. Despite overall favorable practice, the participants' performance was poor with respect to certain important issues that deserve special attention".

(Jaydeep J. Devaliya 2017) This study was conducted in civil hospital for urban setting and CHCs and PHCs for rural setting of Ahmedabad district. 100 HCWs from Rural and 200 HCWs from Urban area were sampled by simple random sampling technique. This is a cross sectional study conducted in urban and rural health care settings of Ahmedabad district to assess the knowledge, attitude and practice of health care workers. "In the study 300 HCWs including Doctors, Nurses, Technicians and Servants were interviewed. Pre-tested questionnaire was used to collect the data regarding knowledge of infection control methods and various waste disposal practices. Only 51% of health care workers were aware about the Isolation ward and 60% of HCWs were aware about hospital infection control committee. 87% nurses were correctly disposing gloves in urban health care settings. All the HCWs were using disposable syringe. Even in urban settings also 33% of doctors and 20% of nurses were recapping needle after using it. Constant reinforcement of knowledge should be done and regular training should be given to change the behavior regarding biomedical waste disposal".

(Renu Gupta 2020) This study was conducted in public and private quaternary-, tertiary- and secondary-level hospitals, Delhi, India with 328 nurses. This study was conducted to assess the knowledge, attitude and practices (KAPs) for IPC amongst nurses.

“A cross-sectional, multicentric, hospital-based survey was conducted on 328 nurses from January to November 2018 using a self-administered questionnaire from public and private quaternary-, tertiary- and secondary-level hospitals. The overall score for infection control practices was low, with knowledge score being 51%, attitude 73% and good practices score 57%. The gaps were identified across all components with major gaps in the knowledge of care of devices (74%), barrier nursing/isolation precautions (60%), indications of using hand rub (55%), understanding the meaning of healthcare-associated infections, AMR (50%) and optimum use of personnel protective equipment (44%). In attitude and practices, injection safety emerged as the weakest area, with >40% of nurses being neither aware nor practicing the correct techniques of reconstituting, administering injectable medicines and maintaining asepsis. There is an urgent need of rigorous, regular, restructured, standardized training programmes focusing on the weak areas for nurses in healthcare settings. Training programmes need supervision and provision of enabling environment in healthcare settings to facilitate the implementation of evidence-based IPC guidelines”.

(Teshiwal Deress Yazie, Knowledge, attitude, and practice of healthcare professionals regarding infection prevention at Gondar University referral hospital, northwest Ethiopia: a cross-sectional study 2019) This study was conducted in Gondar University referral hospital, northwest Ethiopia. 282 healthcare providers were taken in the study by proportional random sampling method. The aim was to assess the levels of knowledge, attitude, and practices of the healthcare professionals towards safety at Gondar University referral hospital. “An institution based cross-sectional study was conducted from February to June 2018. Among 282 study participants, 230 (81.6%), 181 (64.2%), and 162 (57.4%) had adequate knowledge, favorable attitude, and adequate practice scores, respectively. More than half (55.3%) of the study participants were untrained. There was a high (26.6%) prevalence of needlestick injury; however, the use of post-exposure prophylaxis after potential exposures was very limited. Generally, the levels of knowledge, attitude, and practice scores among the study participants were low. Therefore, there should be adequate and consistent supply of personal protective devices and other materials used for infection prevention and control. In addition, there should be awareness raising mechanism, including the provision of job aids and periodic training. Further, comprehensive studies should be conducted by including different types and levels of health facilities”.

CHAPTER 3

Methodology

The study was conducted in a private hospital in Gurugram, Haryana for a period of 2 months. Descriptive cross-sectional study design was employed. 100 healthcare providers were included in the study (including all doctors, nurses, paramedics, and housekeeping staff). Multistage sampling technique was used. First stage is selection of departments and units which has been done by simple random sampling. Then, for the departments which are more than one in number like the wards, theatre and outpatient departments, have been selected by simple random sampling. The next stage selection of the respondents is cluster sampling. Therefore, the entire staff (including doctors, nurses, paramedical staff and housekeeping staff) from various departments have been included in this study. Contents of the questionnaire include demographical variables, knowledge, attitude and practice of infection prevention measures. Self-administered questionnaires were used to collect data.

All the staff was analyzed separately and was compared based on their knowledge and perception towards the infection control precautions. Discrete variables were presented as frequencies. The knowledge score obtained was estimated as per following criteria: Each correct answer was scored 1 while wrong answer or nonresponse was scored zero. Total knowledge score = total correct answers divided by total possible correct answers multiplied by 100%. A score of less than 50% was considered poor, 50% to 70% was considered fair while 70% and above was considered good.

3.1 Research Question

- How knowledgeable is the staff of the hospital about IP practices?
- What is the attitude of the staff towards Infection control measures?
- What are the practices amongst the healthcare workers of the hospital under study?

CHAPTER 4

Results

4.1 Socio-Demographic Status: The socio-demographic status reflects the age, category and experience of the staff. This helps in comparing the level of knowledge of staff among various demographics.

4.1.1 Category of Staff: The analysis was done on the basis of department and category of staff. The various categories included were doctors, nursing staff, paramedic staff and housekeeping staff in various departments of the hospital in Gurugram.

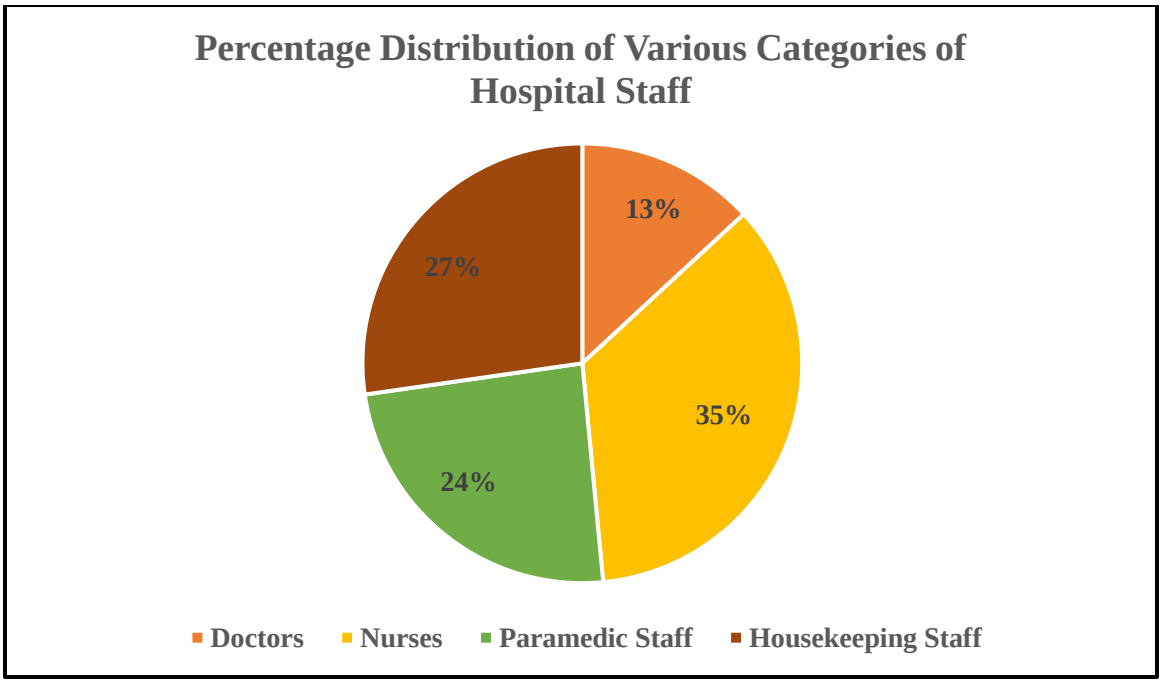

Figure 4.1 Percentage Distribution of Various Categories of Hospital Staff

4.1.2 Age of Staff: The distribution of staff (study population) as per age is shown in the following graph.

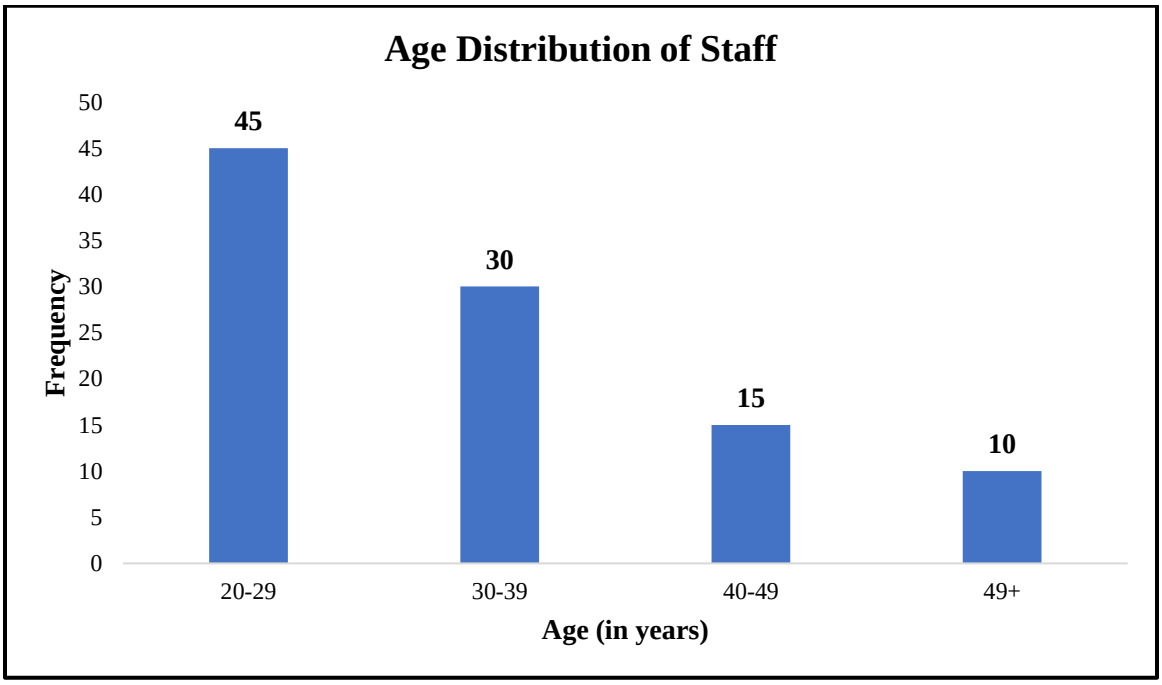

Figure 4.2 Age Distribution of Staff

4.1.3 Experience of Staff:

Figure 4.3 Experience of Staff

4.2 Knowledge of Staff about Infection Precautions: Numerous questions were asked to the staff of hospital and the combined results were obtained from all the staff included in study population. This was done to assess the knowledge of the hospital staff.

The results obtained are as shown below:

Table 4.1 Knowledge of the Staff

Questions	Responses (in percentage)
Ever heard about infection control precautions?	90%
The main source of information from where you have heard about infection control precautions.	
Colleagues	8%
Educational Books	44%
Formal Training	37%
Have not heard	5%
Others	6%
Components of Infection Control Precaution	
Hand Hygiene	78%
Personal Protective Equipment	75%
Needle and Sharp Injury Prevention	73%
Waste Disposal	70%
Safe Infection Practice	72%
Respiratory Hygiene Etiquettes	61%
Handling Body Fluids	86%
Advantages of Infection Control Precautions	
Protect both healthcare personnel and patients	74%
Reduce spread of communicable disease	80%
Reduce hospital acquired infection	72%
None of the above	24%
Moments of Hand Hygiene	
After contact with blood, body fluids or excreta	35%
Before performing any aseptic procedure	32%
After removal of gloves	33%
Before touching patients	26%
None of the above	0%
All of the above	67%

Table 4.1 shows that out of 100 health care providers in the hospital, 90 were aware of the infection control precautions. From the results, it can be seen that the main source of information from where the staff heard about infection control precautions were educational books (44%) and formal

training (37%). More than half of the staff was aware of the components of infection control precautions and advantages of infection control precautions. 67% of the staff had knowledge about all the moments of hygiene. So, the overall knowledge of the staff can be interpreted to be good from the decision criteria.

4.3 Attitude of the Staff: The attitude of staff was measured on the basis of preset statements mentioned below. This was done to examine what the staff of the hospital thinks about infection control measures and how much it is significant for them.

Table 4.2 Attitude of Staff towards Infection Control Precautions

Attitude	Strongly Agree	Agree	Indifferent	Disagree	Strongly disagree
Regular training should be provided to the hospital staff	90%	6%	3%	0%	1%
Infection control precautions help in reducing the occupational hazards, related to you	76%	14%	4%	6%	0%
Infection control precautions are not really important in hospital	0%	3%	0%	30%	67%
Infection control precautions are mainly related to the critical care of the hospital	44%	15%	4%	24%	13%

Table 4.2 shows that 96% of the staff believed that regular training should be provided to the hospital staff. 90% of the staff believed that infection control precautions help in reducing the occupational hazards, related to them. 97% of the staff denied the statement that infection control precautions are not really important in the hospital. 59% of the staff believed that the infection control precautions are mainly related to the critical care of the hospital whereas 37% of the staff disagreed with this statement. Therefore, the overall attitude of the staff from the results can be interpreted as positive towards infection control precautions.

4.4 Practice of the Infection Control Precautions:

Table 4.3 Practice of Infection Control Precautions among Healthcare workers

Practice	Agreed (in percentage)
Hand washing is done before and after coming in contact with the patients or any procedure done on patients	94%
Autoclaving of all used equipment (especially in operation theatre and labor room) is done after every procedure	80%
Proper PPE is used in a particular department (operation theatre, labor room, lab, etc.)	87%
Manufacturers' instructions are followed while diluting disinfectants used in cleaning hospital services	80%
Disposal of used needles and syringes among doctors, nurses and laboratory technicians -	
Recap needle and discard both syringe and needle	94%
Discard both syringe and needle into the safety box without recapping	6%
Disconnect and discard needle and replace with new needle for another drug administration on the same patient	91%
Immunization of Hepatitis B	90%
Awareness of handling and reporting NSI	60%
Practice of disposing waste material appropriately	63%

From Table 4.3, it is seen that 94% of the staff agreed with the statement that they practice handwashing before and after coming in contact with the patients or any procedure done on the patient. 80% of the staff agreed with the statement that autoclaving of all used equipment (especially in operation theatre and labor room) is done after every procedure. 87% of the staff agreed that proper PPE is used in a particular department (operation theatre, labor room, lab, etc.) and 80% of the staff agreed that manufacturers' instructions are followed while diluting disinfectants used in cleaning hospital services. The practice of disposal of used needles and syringes among doctors, nurses and laboratory technicians showed that 94% of the staff recap needles and discard both syringe and needle, 91% of the staff agreed that they disconnect and discard needle and replace with new needle for another drug administration on the same patient

and 90% of the staff is Hepatitis B immunized. More than half of the staff exhibit awareness of handling and report NSI (60%) and practice disposing waste material appropriately (63%). Therefore, though, the NSI incident reporting and appropriate waste material disposal practices seem to be fair, the overall practice of the hospital staff can interpreted as good.

CHAPTER 5

Discussion

Knowledge, attitude and practice of the staff was observed to be satisfactory.

The knowledge assessment of the staff indicates that 90% of the healthcare workers in the hospital were aware of the infection control precautions. The main source of information was found to be educational books and formal training. Majority of the healthcare staff was aware of the components of infection control precautions, moments of hand hygiene and advantages of infection control precautions. Knowledge of the staff was thus, assessed to be good with respect to infection control precautions. The attitude of the staff was seen to be positive from the results obtained. 96% of the staff agreed with the statement that regular training should be provided to the hospital staff, 84% of the staff believed that infection control precautions help in reducing the occupational hazards related to them while 97% of the hospital staff disagreed with the statement that infection control precautions are not really important in the hospital. Practice of the staff was found to be good as shown in Table 4.3. The comparative study of our literature review suggests that although, the practices were satisfactory on an overall basis, a scope of improvement through trainings exists.

The strength of this study is that the survey was collected from evert department of the hospital. Additionally, my tenure in the quality department gave me a bird's eye view of the compliance with the relevant guidelines in the day-to-day operations of hospital which helped me to conduct this study.

However, the limitation of this study remains that the feedback was taken on voluntary basis and therefore, the findings can be discounted to eliminate survey bias. Additionally, since the feedback was taken during the peak of second wave of COVID-19 in India, that occurred in April-May, it must be noted that some of the respondents could not have fully utilized their cognition and awareness during the survey due to limited time availability.

Looking at the results of this study, it is recommended that continuing medical and nursing education should place more emphasis on awareness of needle stick injuries and the significance of their incident reporting. Clinical, departmental and medical audits should be conducted frequently within the organization. This would help to monitor infection control practices by the

healthcare personnel in the hospital. Feedbacks from both the patients as well as clinicians should be thoroughly analyzed by the Quality Department so as to keep a check on patient safety and infection control practices by the hospital staff including doctors, nurses, housekeeping staff, etc.

Regular trainings should be provided to all the categories of hospital staff separately such as nursing training and clinician trainings. This should be done with the help of properly framed educational deliverables. Proper IEC materials should be displayed at appropriate points and places in the hospital presenting infection control practices such as biomedical waste disposal and management, NSIs prevention, handling and reporting, etc. Internal and external audits will help to regulate and improve these practices.

Organizational culture should be made more friendly with respect for every employee so that staff does not fear in reporting incidents and seeking timely help from appropriate authority. No blame culture along with learning organization type environment should be developed within the hospital so that knowledge is shared freely among all the healthcare providers. Incentive system can be incorporated for staff like nursing, paramedics, housekeeping staff and laboratory technicians. Those who are observed to be compliant with all standard practices against infection control should eb appropriately incentivized to motivate everyone in the hospital. Regular interdepartmental meetings should be conducted to discuss, plan and execute actions to promote infection control knowledge, attitude and practices among healthcare providers in the hospital. Mock drills and simulation exercises will help to give the staff vision of real-world incidents and the ways to handle them appropriately with respect to infection control practices.

All these measures, if planned and executed correctly, will help to improve further the standards and quality of infection control practices by the healthcare providers in the hospital.

CHAPTER 6

Conclusion

From the results obtained, the study concludes that majority of the hospital staff exhibits required knowledge, positive attitude and follows standard practices that are compliant with the guidelines essential for patient and staff safety in the entire health care setting of the hospital. Key infection control precautions like proper handwashing techniques with the moments of hand hygiene, safe needle and sharps disposal, HBV immunization etc., are adequately practiced by the health care personnel in the hospital. However, awareness of handling and reporting NSI and proper disposal of waste are the two areas which can be further improved. Regular trainings and active audits both clinical and medical will help to monitor and further improve the knowledge, attitude and practices of the health care personnel in the hospital in the domain of infection control practices. Proper patient and staff feedback collection and analysis by the quality department in the hospital would help to keep a check on infection control practices. Mock drills and simulation exercises are another suggested measure to control and improve the process.

Appendix

Questionnaire

Name: _____
Name of Hospital: _____
Designation: _____
Contact No: _____
Email ID _____

Age
□ 20-29
□ 30-39
□ 39-40
□ 40-49
□ 49+

Years of Experience
□ 1-5 Years
□ 6-10 Years
□ 10-15 Years
□ 15+

1. Ever heard about the infection control precautions?
□ Yes
□ No

2. Main Source of Information from where you have heard about the Infection Control Precautions.
□ Formal Training
□ Educational books
□ Colleague
□ Others
□ Have not heard

3. Components of Infection control precautions :
□ Hand Hygiene
□ Personal Protective Equipment
□ Needle and sharp injury prevention
□ Cleaning, Disinfecting and sterilization
□ Waste disposal

□ Safe infection Practice
□ Respiratory Hygiene etiquettes

4. Examples of Body fluids which needs to be guarded from direct contact to anyone?

_____

5. Advantages of Infection Control Precautions?
□ Protect Both Healthcare and Patients
□ Reduce Spread Of communicable Disease
□ Reduces Hospital Acquired Infection
□ None of the above

6. Moments of hand Hygiene Includes
□ After contact with blood, body fluids or excreta
□ Before performing any aseptic procedure
□ After glove removal
□ Before touching a patient
□ Before exiting the patient's care area

7. Regular Training should be provided to the hospital staff
□ Strongly Agree
□ Agree
□ No difference
□ Dis agree
□ Strongly Disagree

8. Infection control precautions help in reducing the occupational hazards, related to you:
□ Strongly Agree
□ Agree
□ No difference
□ Dis agree
□ Strongly Disagree

9. Infection Control Precautions are not really important in hospitals
□ Strongly Agree
□ Agree
□ No difference
□ Dis agree

 Strongly Disagree

10. Infection control Precautions are mainly related to the critical area of the hospital
 Strongly Agree
 Agree
 No difference
 Dis agree
 Strongly Disagree

11. Hand washing is done after and before coming in contact with the patients or any procedure done patients
 Yes
 No
 Sometimes

12. Autoclave of all the equipment's used(Especially in OT and Labour room) are done after every procedure
 Yes
 No
 Maybe

13. Is proper PPE is Used in a particular department(OT, Labour room, LAB etc)
 Yes
 No
 Maybe

14. manufacturers' instructions are followed while diluting disinfectants used in cleaning hospital surfaces
 Yes
 No
 Maybe

15. Disposal of used needles and syringes among doctors, nurses and laboratory scientists
 Recap needle and discard both syringe and needle
 Discard both syringe and needle into the safety box without recapping
 Disconnect and discard needle and replace with new needle for another drug administration on the same patient.

16. Are you Hepatitis B immunised ?
 Yes

 No

17. Are you aware how to handle and report NSI

 Yes

 No

Source: Knowledge, attitude and practice study of Infection preventions among staff of Private SHCOs in Churu District of Rajasthan by Silva Joshi

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