

**A STUDY ON KNOWLEDGE, ATTITUDE & PRACTICE OF
HEALTHCARE WORKERS TOWARDS INFECTION
CONTROL PREVENTION AT THE MISSION HOSPITAL,
DURGAPUR**

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. PRAGYA MISHRA

Under the Supervision and Guidance of

DR. DHIRENDRA KUMAR

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Academic Year: 2019-2021

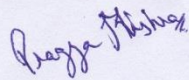


The Mission Hospital, Durgapur

2021

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **“A study on Knowledge, Attitude and Practice of health care workers towards Infection Control prevention at The Mission Hospital, Durgapur”** is the bonafide 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.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. Pragya Mishra

Date: 19/6/2021



Ref: TMH/HRD/OG/June -21/24

Date: 21.06.2021

To Whom It May Concern

This is to certify that **Dr. Pragma Mishra** has done her three months dissertation on "A study on Knowledge, Attitude & Practice of Health Care Workers towards Infection Control Prevention at The Mission Hospital, Durgapur" from 22.03.2021 to 21.06.2021.

During the period of dissertation she has been found sincere.

We wish her a successful future and career ahead.


Ramesh Lall
VP – HR


Dr. Partha Pal
Chief Medical Superintendent

Dr. Partha Pal
Chief Medical Superintendent
The Mission Hospital
Durgapur :- 12 (W.B.)
Regd. No.- 70288 (WBMC)

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LIST OF ABBREVIATIONS

HAI : Healthcare Associated Infection

HCW : Health-Care Worker

PPE : Personal Protective Equipment

ICMs : Infection Control Measures

BMWM: Bio-medical Waste Management

KAP: Knowledge Attitude & Practice

CHAPTER 1

1. Introduction

Infection prevention is a technique for separating the susceptible host from the pathogens. Infection control can also refer to any or all of the methods, procedures, and actions aimed at preventing or reducing the risk of infectious disease transmission in a health-care setting. Inadequate infection control encourages the spread of microorganisms that might cause healthcare-associated infections (HAI) in healthcare settings.

The most major route of infection transmission in tertiary care settings is through the contaminated hands of health care providers, such as physicians, nurses, and other personnel and Patients interact with a diverse group of healthcare providers. HAI is caused when Infection control procedures are not followed by health care personnel in a consistent manner.

As per the WHO, 7.1 million instances of HAI happen each year. One out of each 20 individuals suffers from nosocomial infection. Every year, 99,000 people die as a result of this. HAIs worsen a patient's overall health, leading to an increase in antibiotic prescriptions, resulting in higher expenditures for patients and the healthcare system, as well as antibiotic resistance. The prevalence of HAI in industrialized and developing nations is estimated to be 7.6% and 10.1 percent, respectively. In a single healthcare facility, staff practice, which is influenced by their knowledge, attitude and practice, plays critical role in infection control prevention.

Hospital Associated Infection

HAI is “An infection occurring in a patient during the process of care in a hospital or other healthcare facility which was not present or incubating at the time of admission. Pathogen transfer from one patient to another causes the majority of HAI, which is frequently caused by health-care providers who do not wash their hands after examining a patient or who do not follow basic hospital hygiene practices. Types of HAI are -Ventilator Associated Pneumonia(VAP), Catheter Associated Urinary Tract Infection(CAUTI), Central Line Associated Blood Stream Infection(CLABSI) & Surgical Site Infection (SSI).

Personal Protective Equipment

Aprons, gloves, masks, caps, goggles, and boots are examples of personal protective equipment (PPE). PPE is primarily used to protect employees and decrease the risk of microorganism transmission.

When to use PPE-

- Handling blood/infected body fluids, as well as objects on blood or body fluid-stained surfaces, and conducting vein puncture and other vascular access operations
- Contact with a patient (and his/her immediate surroundings)
- Where direct patient care is provided and there is a risk of disease dissemination, plastic aprons must be used to limit the amount of contamination of uniforms/clothing.
- Wherever possible, eye protection should be worn. Especially where-
 - The spray or splash of body fluids are more likely to happen
 - When it comes to dealing with chemicals
 - During the production of aerosols and sputum.
- Masks were worn to protect the wearer from being exposed to microorganisms through blood or body fluid spills.
- The decision to wear a mask should be based on the danger of exposure to body fluids.
- Surgical face masks keep preventing droplets larger than 0.5 microns from entering the environment. The wearer will be shielded from splashes if the mask is fluid resistant.

Biomedical Waste Management

Hospitals generate enormous amounts of wastes. So, To prevent the risk of injury/contamination from contaminated hospital waste to the patients, healthcare workers and the public waste management is done. Effective disposal of the large quantity of waste is best done by dividing the waste into categories and using different methods of disposal for the various categories.

Waste should be separated at the source of generation by the user. Color coded plastic bags should be used for each type of waste.

- All bio-medical waste is required to be autoclaved, burned, or buried in a deep burial pit. Accordingly, Keeping the waste handler's comfort in mind, two no. hard container and two nos. color-coded bags have been **suggested-**
 - **Red:** For Autoclaving
 - **Yellow:** For Incineration

Hand Hygiene

Hand washing consists of vigorously rubbing lathered hands together for at least 40 to 60 seconds, then rinsing thoroughly under a stream of clean water. To eliminate transient microbial contamination acquired from infected or colonized patients or environmental sources. To keep potentially pathogenic organisms from spreading.

Hands shall be washed-

- Upon arriving at the hospital, to eliminate microorganisms from the environment. or before leaving the hospital after finishing your shift to prevent bringing hospital germs home.
- Before and after performing personal functions such as eating, using the restroom, or blowing one's nose.
- Prior to and following any physical contact with a patient, preparing or serving a patient's meal or before and after collecting a patient's sample.
- Following any touch with the patient's mucous membranes, body fluids, blood, excretions or secretions, or any other possible infectious substances.
- Prior and after utilization of intravascular catheters, urine drainage systems, and breathing apparatus used for patient care.
- After removing or wearing gloves or whenever in confusion health care personnel should follow hand hygiene.
- After going away from contaminated area for example soiled utility room

This study may help in assessing the KAP of the HCW. Helps in analyzing gaps in their infection control practices and suggests measures to reduce those gaps.

CHAPTER 2

2.1 Review Of Literature

In 2012 cross-sectional method is used to conduct among medical students. For data collection self-administered questionnaire is used. 413 participants were there. SPSS was used to analyse data. from the private institution Students showed better knowledge than public institution students in relation to hand hygiene, needle stick injuries and surgical scrubbing, and show better practices regarding hand hygiene and surgical scrubbing. Correct hand rubbing defined by 48.9% students and 54.7% knows about minimal time for hand washing. 18.64% students are with history of NSI, 51.94% of them did not inform their superiors about it. NSIs are something that 83% of students believe they need additional training on. Medical student show positive behaviour and show interest in getting more knowledge and encouraged themselves to improve their practices. In this study weak area is knowledge regarding NSI.

In 2015 cross-sectional investigation was conducted at Saidu Teaching Hospital (STH), Swat, Khyber Pukhtoon Khwa, Pakistan. Sample size was 19, selected by random sampling. Data was collected using a pre-tested questionnaire. The average scores were compared using analysis of variance (ANOVA). Knowledge reported was 71% doctors with better attitude 85% and practice. 52% knowledge and poor practice and attitude 73% in nurses. 38% knowledge, poor practice and attitude 70% in paramedical staff. Lack of implementation is there. There is need of continuous training and medical education for refreshers. Need of proper implementation, monitoring and evaluation of the policies and guidelines.

In 2015 cross-sectional investigation was carried out at medical teaching hospital of Calicut District, Kerala, India. Interview with observational method with the help of pre-tested semi-structured Performa. As a result, 85.8% of respondents were aware of the need of properly disposing of used needles and syringes, but only 55.7 percent were actively doing so. Although 75.8% respondents were aware that needles should not be recapped after use, 35.4% respondents actually did so. All are aware of using personal protective equipments while handling the patients but only 77.1% use them. 61.8% wash hands after attending patients. 94.3% cleaned the area with a sterile swab before giving injection. Three coloured

bags were found in 35.7 percent of labs, wards, and OT. 19.2% are not immunized against hepatitis. 11.7% of workers were in contact with infected blood samples. Conclusion of the study is that there is need to improve in knowledge, practice and attitude of healthcare personnel for both self protection and patient protection. They should notify the infection control committee if they come into contact with infected samples by mistake.

In 2017 cross-sectional investigation was carried out Trinidad and Tobago. 300 respondents were there. Data collected through structured questionnaire and analysed through SPSS. 20.3% of participants were knowledgeable, 46.7% had a positive attitude, and 44% had good infection prevention practises, indicating that the results were less than adequate. The findings reveal that infection prevention knowledge, attitudes, and behaviours are usually lacking in the three hospitals. As a result, policies and mechanisms should be put in place to guarantee that HCWs get frequent training programmes that provide a thorough understanding of infection prevention and a positive mind set.

In 2018 cross-sectional research was done at Debre Markos referral hospital, Northwest Ethiopia. Among 150 health professional self-administered questionnaire distributed. Only 57.3 percent of respondents exhibited excellent infection prevention practices, despite the fact that 84.7 percent of healthcare professionals were deemed to be competent. Both knowledge and practise of infection prevention were strongly related with older age, more job experience, and better educational status.

In 2018 cross-sectional prospective investigation was carried out Trinidad and Tobago. Questionnaire is distributed among 80 participants and data was analyzed through SPSS. 86% of those polled were aware that the most prevalent mode of infection transmission is by the hand. Respondents aware about how to wash hands with the knowledge of six steps of hand washing method are 32.5%. 28% of physicians followed the hand washing six steps approach, with resident doctors accounting for the majority of the non-followers. 13.9% of non-physician and 7.5% of physician who participated had ever participated in an infection control training session. Conclusion of the study knowledge and awareness are beneficial, practice is lacking. To prevent nosocomial infections, a training course on ICM should be planned for all ICU health care employees.

In 2018 cross sectional investigation was done among Stomatology Students in Lima, Peru. 347 respondents were there students. Data collected through questionnaire of CDC. According to the findings before beginning treatment 72.05% respondents are in favour of utilising oral rinse. 72.62% respondents employed the autoclave as their primary sterilisation equipment. Isolation is vital in the control of infection, according to 95.10% of respondents. 46.40% respondents said that most infectious disease is tuberculosis. This study discovered a concerning low knowledge and attitudes concerning the prevention & control of infectious communicable diseases among clinical, preclinical, and hospital entering students. As a result, in the health sciences, importance should be given on learning of student about infection transference, above all on the emphasis of teaching these topics in a right manner in the first cycles so that students do not fail to remember the fundamental knowledge of bio safety and infection control prevention in the future.

In 2019 cross-sectional investigation was done at Gondar University referral hospital, northwest Ethiopia. Technique of proportional random sampling used. 282 participants were there. To collect data systematic self-administered questionnaire used, which was then analyzed using SPSS. There is difference in knowledge of the participants due to their education level, training opportunity, work experience, and personal characteristics. The transmission of infectious agents is understood by 98.6% of people. 98.9% have knowledge about handling used needles. 77.3 percent know how to do a risk assessment of the work environment. A significant rate of needle stick injuries was observed. PPE and other items used for infection control and prevention should be available in sufficient quantities and on a consistent basis at the hospital. There should be a structure in place to raise awareness, such as providing job aids and providing periodical training on basic how to wash hands.

In 2019 cross-sectional research is done. A descriptive study is carried out. 80 responses collected. For data collection standardized self-administered questionnaire used. Knowledge and attitude, as well as knowledge and practice scores, have a linear correlation. Generally, there was no link between an individual's attitude and their practice scores. Result of this study is that major staff had knowledge 51.25%, 58.75% self-reported practice, 68.75% is observed practice and 72.50/5 of staff had positive attitude towards infection control and prevention. According to the findings, the majority of nurses had average understanding

and practice of infection control, as well as a good attitude toward it. There is need of training of staff nurses in relation to HAI based on successful educational models.

2.2 Research Question

How aware are the Operation Theater staff regarding Infection Control Practices at The Mission Hospital, Durgapur?

2.3 Research Objective

1. To assess knowledge, attitude and practice of OT staff regarding infection control practices at The Mission Hospital.
2. To identify the lacunae in infection control practices.
3. To suggest measures to reduce these gaps.

CHAPTER 3

3. Methodology

3.1 Study Design- Hospital based Cross-sectional study was conducted.

3.2 Study area- Operation Theaters of The Mission Hospital, Durgapur, West Bengal

3.3 Study tool- Pre-tested self-administered structured questionnaire was distributed among the OT staff.

3.4 Study period- 3 months (March22 to June21, 2021)

3.5 Sampling technique- Convenient sampling was done.

3.6 Sample size- The total number of staff in OT was 120 out of which 83 responses were collected (69%).

Inclusion criteria –

- Surgeon, nurse, technician and anesthesiologist of OT.
- Staff that are willing to take part in the research.

Exclusion criteria - General Duty Assistant, housekeeping and all the staff other than OT.

3.7 Steps taken to carry out this study-

- 1) The infection control practices were observed and the Infection control measures policies in the organization reviewed.
- 2) The factors were chosen after doing a literature study and consulting with senior personnel and the infection control department.
- 3) Pre-tested self-administered structured questionnaire were used to examine four different domains of ICMs with 20 items about the concept of hand hygiene (4 items), PPE (6 items), BMW (3 items) and HAI (7 items).
- 4) Collection of the lists of the staff in the operation theater.
- 5) Explaining the respondents about the survey.
- 6) In MS Excel, data was recorded for each question statement for each respondent.
- 7) Cause and effect analysis was made to know the potential factors that causing the effect.

The respondents were classified into the following groups based on their knowledge and practice-

Table 3.7.1: category on the basis of respondents attitude and practice classified

Knowledge and practice level	Category
Excellent	70% and above
Good	50-69%
Poor	30-49%
Very poor	Below 30%

3.8 Ethical concerns-

- Throughout the study data confidentiality was maintained
- Personal information about the employees was kept private.
- Data obtained was use for dissertation purpose only.
- No one was forced to take part in the research.

CHAPTER 4

4. Result

Table 4.1: Percentage and frequency distribution of the study participants (n=83)

Response	Frequency	Percentage
Surgeons	11	13.25%
Anesthesiologist	6	7.22%
Nurse	38	45.78%
Technician	28	33.73%

In order to assess the knowledge and practice of the staff of the operation theater questionnaire was distributed out of which 83 responses were collected. These comprised of 11 (13.25%) Surgeons, 6 (7.22%) Anesthesiologist, 38 (45.78%) Nurses and 28(33.73%) Technicians as shown in Table 4.1 & Fig 4.1.

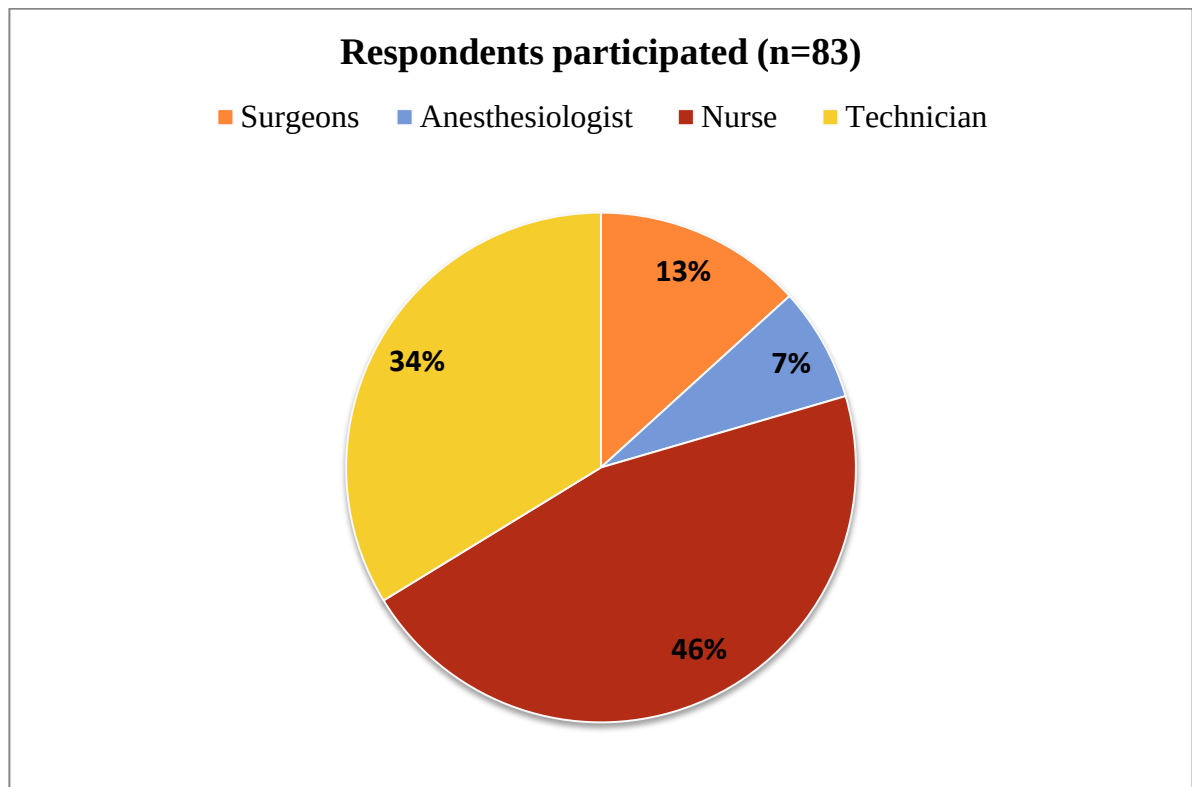


Fig 4.1: Percentage distribution of the study participants (n=83).

4.1 Knowledge and practice of the staff-

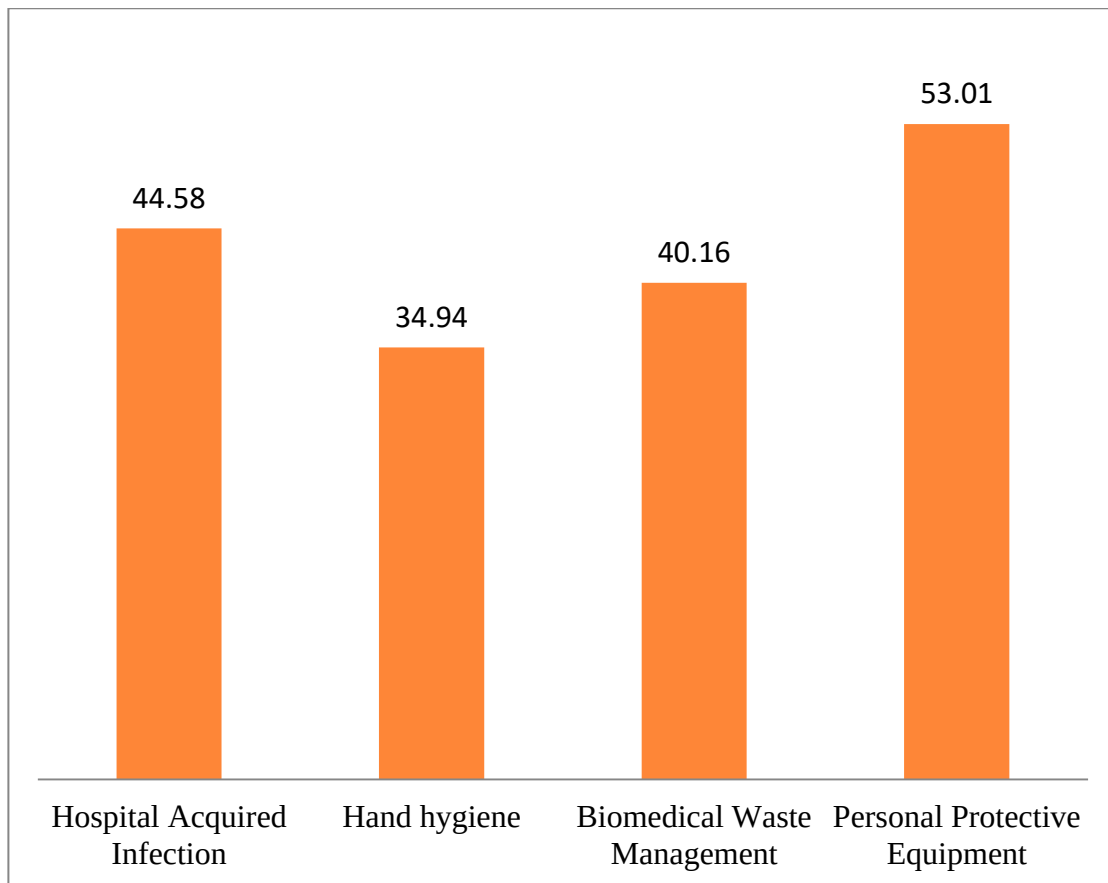


Fig 4.1.1: Overall knowledge and practice among the respondents in the four domains (n=83)

The responses collected were analyzed and it was observed that among 83 respondents 53.01% had good knowledge and practice regarding correct use of Personal Protective Equipment. 40.16% had correct knowledge regarding proper disposal of Biomedical Waste which is little on the lower side. 34.94% of the respondents were aware of proper Hand Hygiene practices which is quite low, 44.58% of the respondents had adequate knowledge regarding the Hospital Acquired Infection as shown Fig 4.1.1.

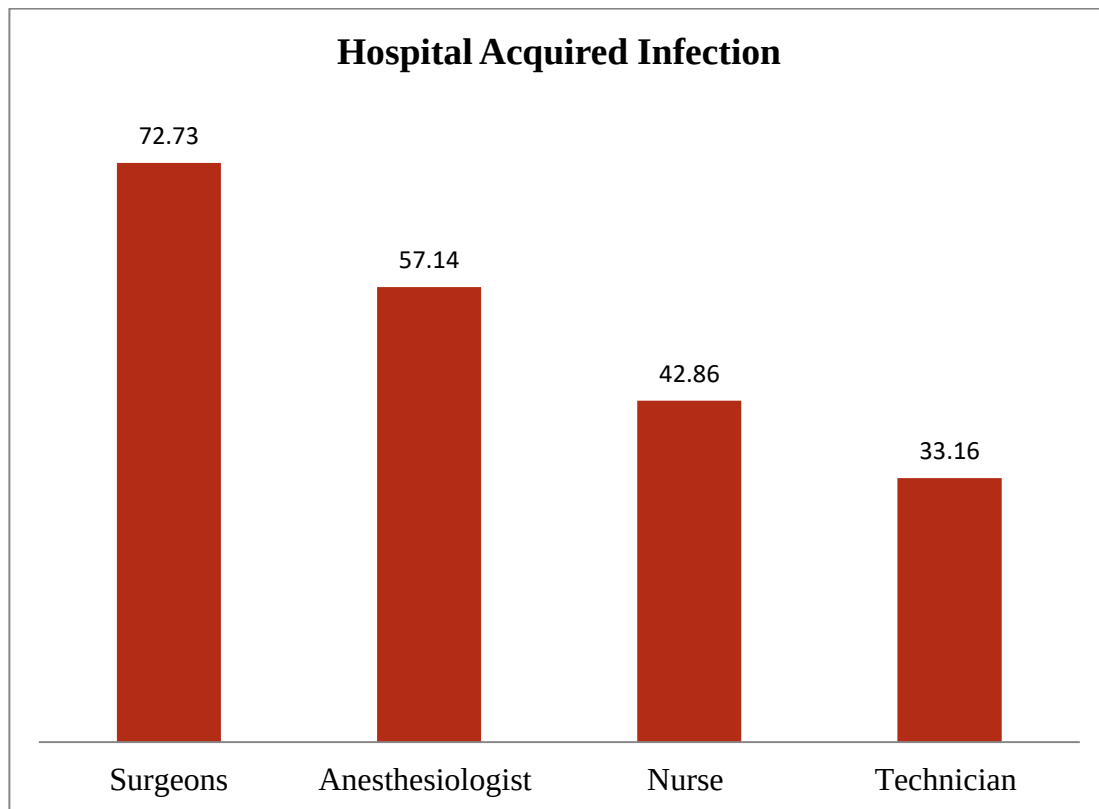


Fig 4.1.2: Percentage distribution of health care personnel who answered the questions correctly under Hospital Acquired Infections (n=83)

To assess the knowledge and practice in relation to Hospital Acquired Infection the questionnaire consists of 7 item of HAI. Among 83 respondents the knowledge and practice with respect to Hospital Acquired Infection was found to be excellent (72.73%) in surgeons. good (57.14%) in anesthesiologists and poor in nurses (42.86%) and technicians (33.16%). So the above Fig 4.1.2 shows lack of knowledge and practice regarding Hospital Acquired Infection among nurses and technicians. While a big chunk of Anesthetists also lacked adequate knowledge regarding the same.

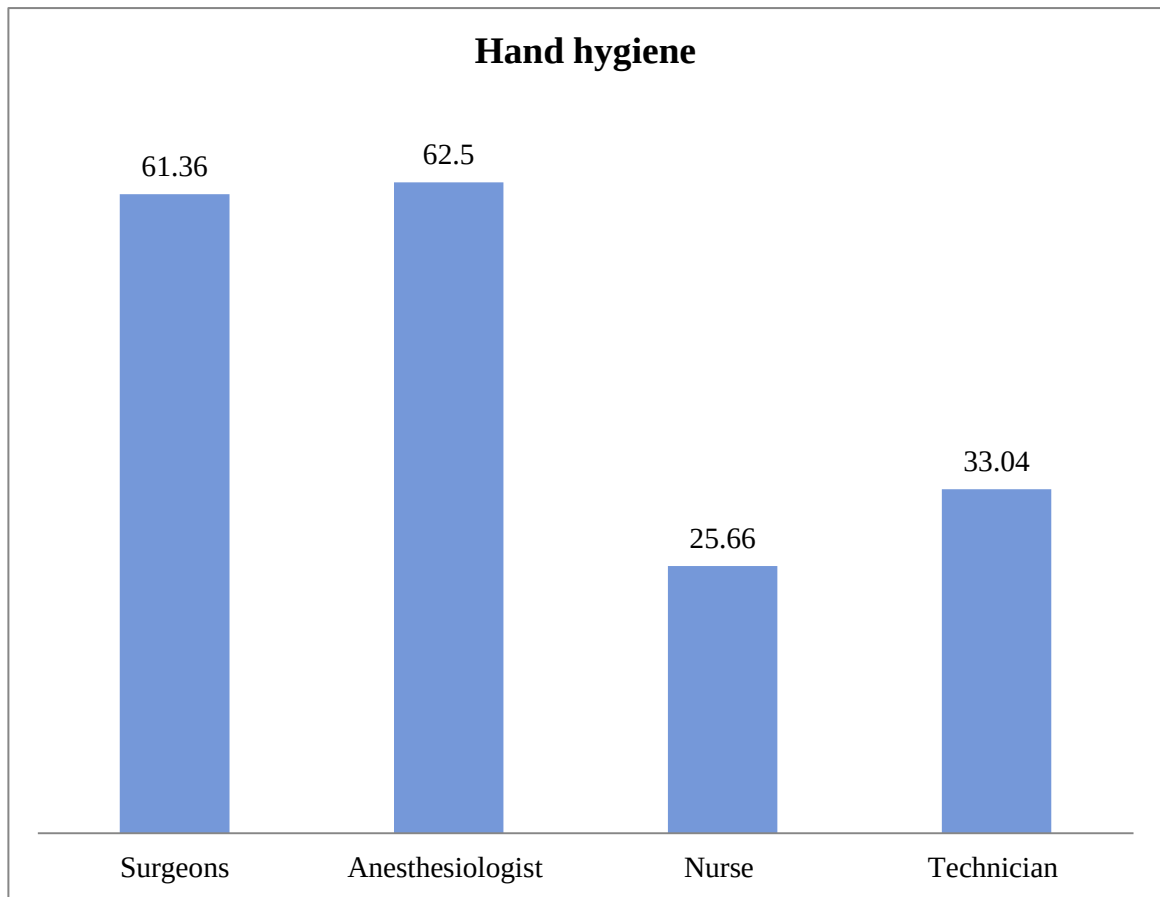


Fig 4.1.3: Percentage distribution of respondents who answered the questions correctly under knowledge and practice of Hand Hygiene (n=83)

In order to know about Hand Hygiene knowledge and practice among the respondents 4 items were included in the study tool. So it was observed that among 83 respondents the knowledge and practice of hand hygiene was found to be good in surgeons (61.36%), anesthesiologists (62.5%), poor in technicians (33.04%) and very poor in nurses (25.66) as shown in Fig 4.1.3. The surprisingly low percentage among the nursing staff and the technicians is a much cause for concern also a majority of the responses among surgeons and anesthesiologists need to undertake proper Hand Hygiene practices.

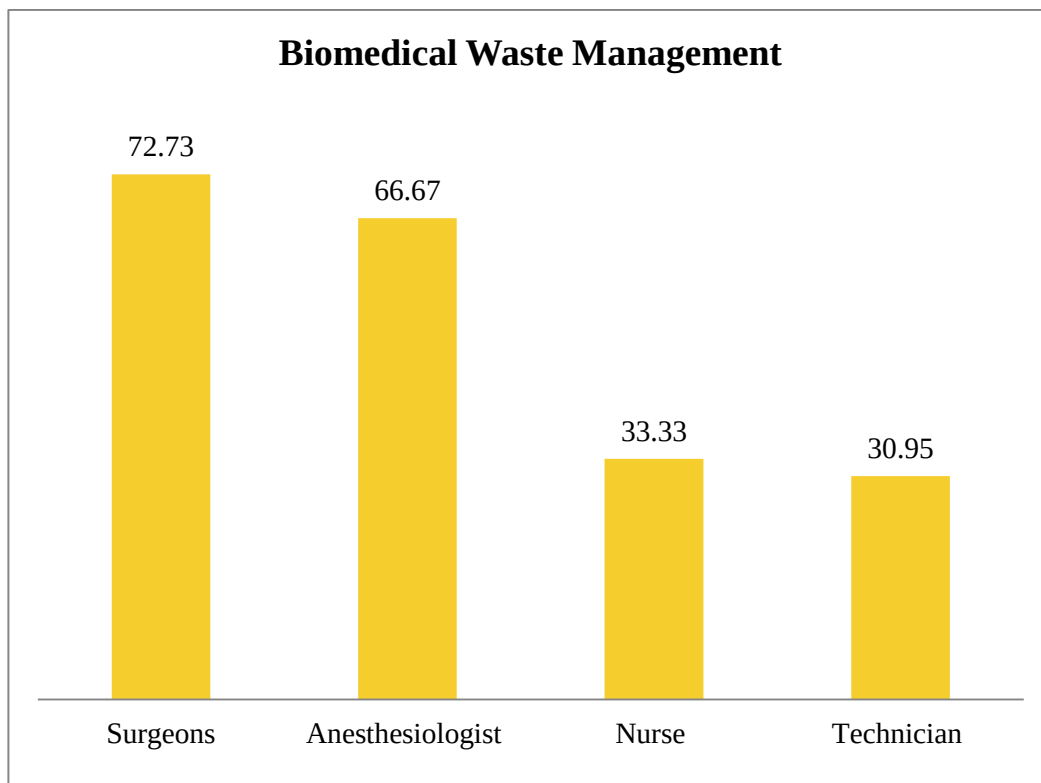


Fig 4.1.4: Percentage distribution of respondents who answered the questions correctly under disposal of Biomedical Waste Management (n=83)

In the above Fig 4.1.4 out of total 83 respondents the knowledge and practice regarding proper disposal of Biomedical Waste and its management was found to be excellent (72.73%) in surgeons, good (66.67%) in anesthesiologists and poor in nurses (33.33%) and technicians (30.95%). The exceedingly lower count among the nursing staff and the technicians is worrisome which makes proper disposal of Biomedical Wastes a really difficult task.

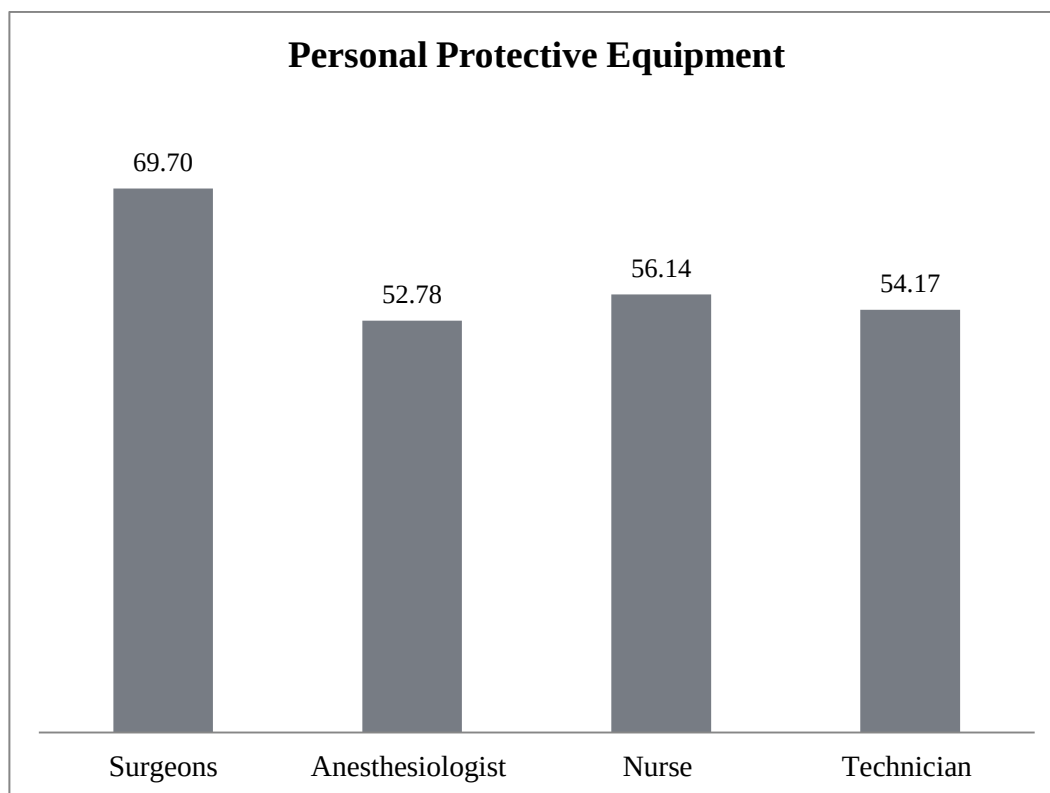


Fig 4.1.5: Percentage distribution of respondents who answered the questions correctly under use of Personal Protective Equipments (n=83)

In the above Fig 4.1.5 out of total 83 respondents, a majority of the surgeons (69.70%) had proper knowledge and correct practice regarding use Personal Protective Equipments which is excellent. More than half of anesthesiologists (52.78) were also aware of the correct use Personal Protective Equipments which is good. Also major chunk of nursing staff (56.14%) and technicians (54.17%) were well acquainted with the knowledge and practice of use of PPE which is also considered good .

4.2 Attitude of the staff

On the basis of following statements the infection control was observed. Because of these statements, it was simple to determine what is the attitude of the operation theatre crew is toward infection control prevention and how essential it is to them.

Table 4.2.1: Attitude of the respondents towards infection control prevention (n=83)

Attitude	Strongly agree	Agree	Indifferent	Disagree	Strongly disagree
hospital staff should be provided with regular training	86%	7%	6%	0%	1%
Infection control precautions help in reducing the occupational hazards , related to you and the patients	74%	17%	2%	7%	0%
Infection control precautions are not really important in hospital	3%	6%	0%	24%	68%
Infection control precautions are mainly related to the critical areas of the hospital	43%	16%	5%	25%	11%

The willingness to learn about infection control prevention and have a good attitude about it. Was observed as most of the staff strongly agrees(86%) for the need of regular or periodic training. It also showed strongly agree (74%) attitude towards that there is reduction in occupational hazard in relation to staff and patients due to infection control prevention methods. Respondents strongly disagree (68%) on that these precautions are not important to follow for the hospital. Respondents strongly agree (43%) that prevention techniques are for critical areas.

4.3. Discussion

This study reveals that the knowledge and practice of use of PPE is more as compared to HAI, hand hygiene and BMW among the respondents. Surgeons and anesthesiologists show excellent knowledge and develop good practice in four domains as compared to nurses and technicians. Cause and effect analysis is done to know the reasons behind these poor knowledge of infection control prevention among the respondents.

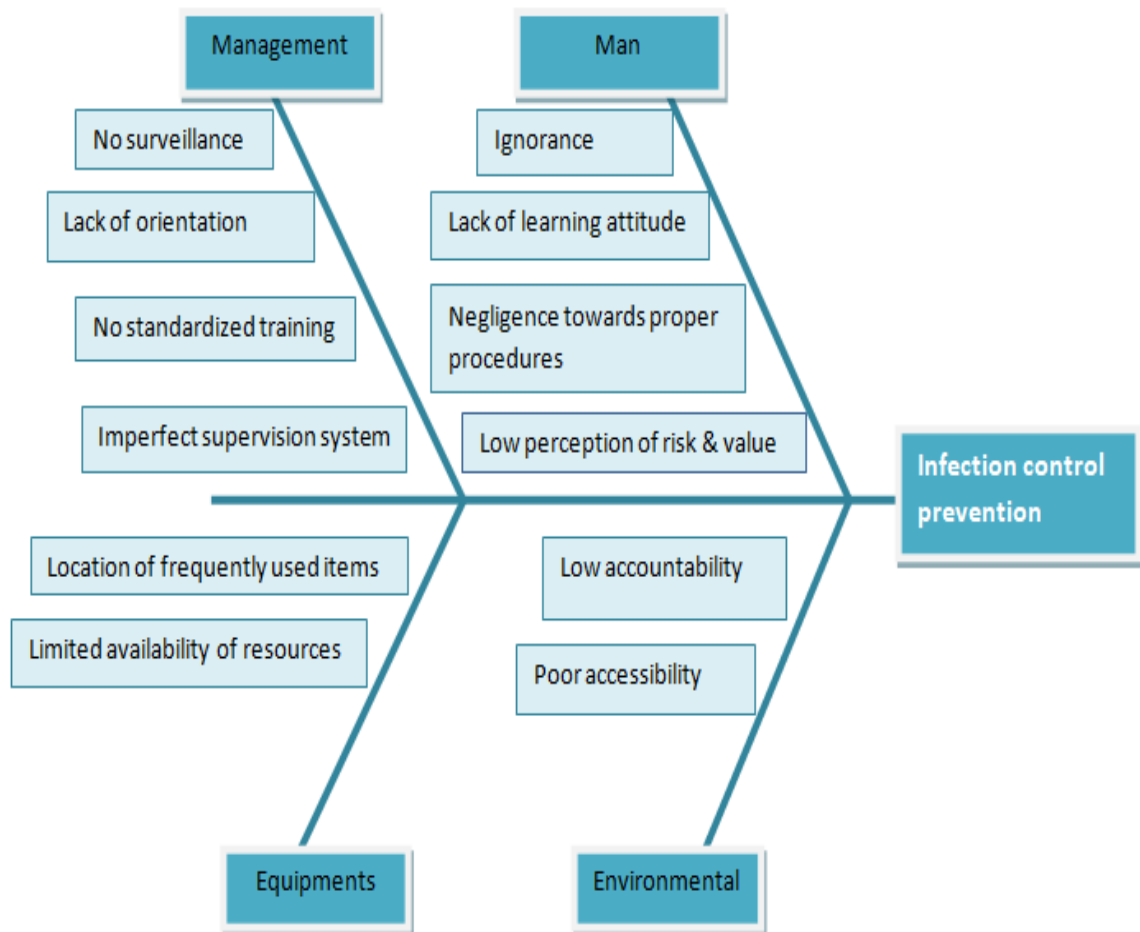


Fig 4.3.1: Cause and affect diagram of low KAP of infection control prevention among respondents

Causes that lead to increase in these gaps are-

4. Reasons that HCWs do not report injuries include: lack of knowledge, self-blame for their own injuries, careless and lacks of follow-up
5. Lack in data collection, evaluation and follow up in the surveillance of HAI.
6. Negative attitude among nurses towards Infection Control Practices, major cause of this attitude was their perception that IPC is additional workload as opposed to an important aspect of safety and quality healthcare.
7. Lack of time due to heavy work load.
8. Improper disposal waste is due to lack of knowledge in identification of waste, non-availability of waste transportation trolley and non-availability of the waste disposable color coded container.
9. Non availability of the personal protective equipments like, gloves, apron, eye protector and mask.
10. Negligence attitude of the workers towards following the protocols of proper hand hygiene technique. They forgot to follow hand hygiene.
11. Sometime the location of the sink was far from the reach or non-availability of the hand wash or sanitizer.
12. Due to lack of orientation experience or no orientation at all affects the way of communicates, lack of morale and poor performance.
13. Lack of responsibility and non-adherence to the policy and guideline of infection control practices due to their not interested attitude.

CHAPTER 5

5.1 Recommendations

In order to promote compliance, suitable infection control behaviors and strategies, instructions and education is suggested for staffs. Information on the following topics should be included:

- Hand hygiene methods – hand rub and hand wash techniques and 5 moments for hand hygiene.

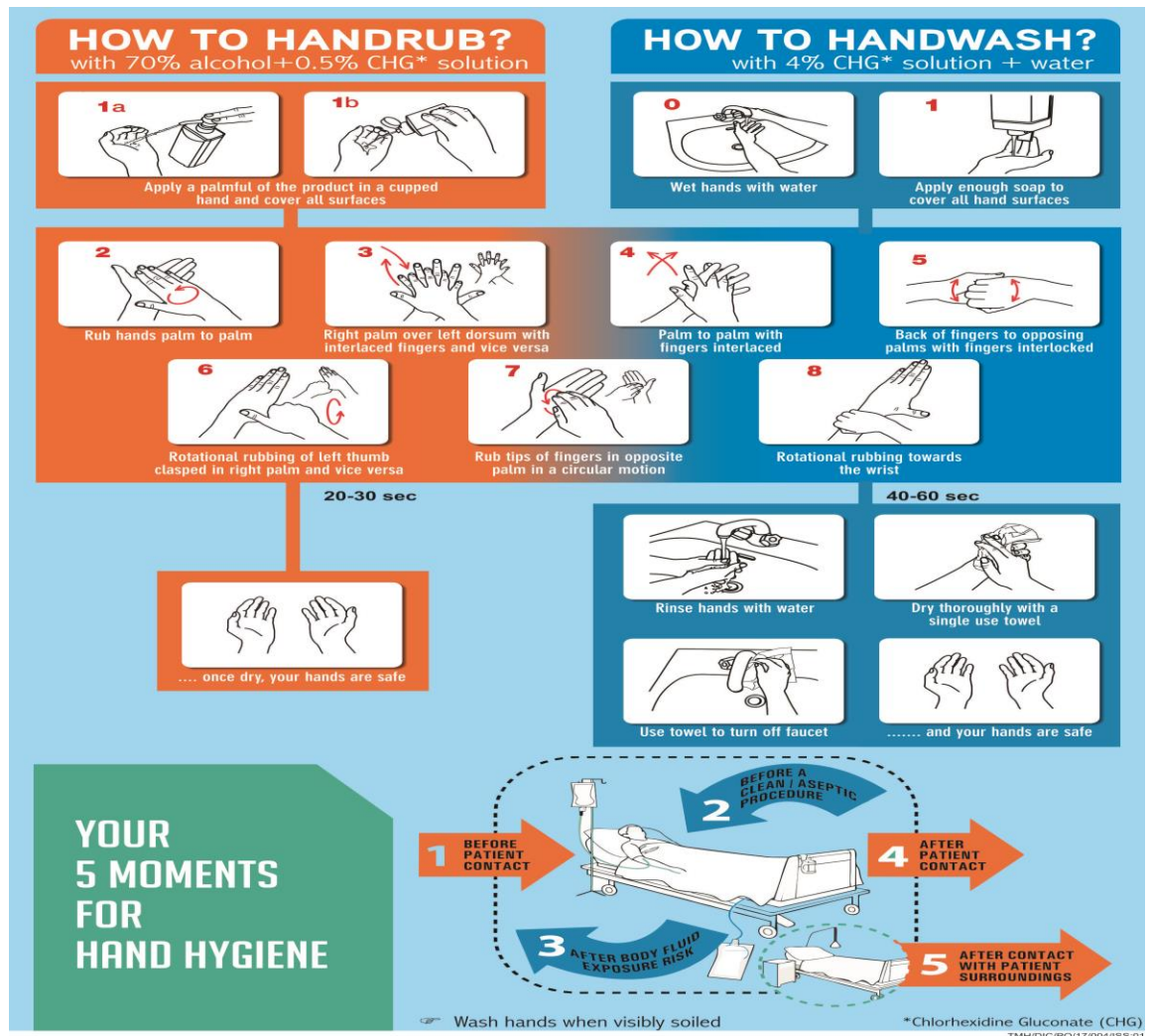


Fig 5.1.1: Hand rub & hand washing technique and 5 moments of hand hygiene

- Proper use of personal protective equipments
- Use of aseptic techniques for all procedures
- Different types of Isolation practices

- Preventive measures for common hospital acquired infections
- Infection surveillance
- Management of used linen
- Modes of transmission for pathogenic bacteria, blood borne viruses, and other microorganisms as appropriate.
- Prevention and management of vaccinable diseases like HBV.
- Biomedical waste segregation & disposal.



Fig 5.1.2: Color coding of bins for hospital BMW

- Management of blood and body fluid exposure including sharp injuries.
- Reprocessing of reusable instruments including washing and sterilization methods
- Infection control procedures for beginning, protection, and preservation of access area and active housekeeping staff to prevent microorganism transference, including suitable approach.
- Environmental surfaces and equipment must be cleaned and disinfected.
- For monitoring and preventing issues, testing results of routine serologic for HCV and HBV, bouts of bacteremia, hepatitis B vaccination status and loss of access caused by infection, and other unfavorable events are all recorded in one location.

- Carrying out random surveillance when necessary and applying methods of random surveillance for checking sterilization, disinfection and the environment.
- Implement infection control policies and procedures within their area of responsibility.
- Ensures that their personnel adhere to the Hospital Employee Health Program.
- Representatives from the hospital's various components/functions work together to implement the infection control programme.
- Leaders at the hospital make sure that the infection control programme has enough resources (Infection control budget).
- Procurement of the equipments and materials required for the infection control prevention.
- Proper orientation of the new staff entered in the hospital to make them aware regarding infection control practices of the hospital.
- Use of the information, education and communication material as intervention for dissemination of knowledge and positively modifying attitude and behavior.
- Availability of hand wash and PPEs whenever and wherever is required.
- Onspot demonstration should be given whenever the staff found doing false practices.
- Corrective and preventive action to eliminate the cause of non-conformities and to prevent recurrence of the non-conformities.

Surveillance of HAI-

- Data collection: Infection Control nurse (ICN), Employee Health/HR, Quality Assurance personnel.
- Data evaluation: Infection Control Dept., Training cell
- Follow-up: The Infection Control Committee and appropriate unit, department, service, or committee.
- Health care worker issues will be the primary responsibility of HRD. Infection Control Committee will provide consultation and support.

5.2. Conclusion

As the knowledge & practice regarding the use of PPE is high so the hospital should maintain this by providing reconcilable PPE and other products for infection control and prevention .The result demonstrate poor knowledge and practices in relation to infection control prevention in the these province hand hygiene, BMWM and HAI.

The study has indicated that majority of surgeons and anesthesiologists had adequate knowledge about infection control measures. Individual variables such as serving year, the effects of advanced age, educational status, infection prevention training and adherence, and health facility characteristics on infection prevention knowledge, attitude, and practise were all found to be significant.

Infection prevention and control strategies must be improved among nurses and technicians for both staffs and patient's protection.

Therefore, the hospital, in collaboration with other stakeholders, must ensure that health care employees' knowledge and practice are kept up to date n regard to infection control prevention task with pre-service or in-service training, obtaining the required materials for infection prevention, professional education is being developed, In order to enhance HCWs' commitment to infection prevention, it is advised that they be introduced to infection prevention standards of practise and receive ongoing mentoring and supervision.

Training of accurate hand washing, disposal of biologically hazardous materials in a safe manner and PPE delivery techniques as well as inspection of trainees' behaviors by trainers to measure their degree of capability against minimum admissible levels. Sustained implementation, regular monitoring and assessment is necessary.

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Annexure

For the OT staffs at the Mission Hospital, a questionnaire was created to determine the knowledge, practise, and attitude of healthcare workers on infection control prevention.

How aware are you about the infection control practices. Please spend few minutes on this questionnaire. We hope that by completing this survey, we will be able to provide you with better infection control facilities.

1. VAE(ventilator associated events) is defined as nosocomial pneumonia occurring in a patient after _____of mechanical ventilation.
A.48 hrs
B.52 hrs
C.64 hrs
D.24 hrs
2. Oral care to be done with _____to prevent from VAE.
A. Betadine
B. Chlorhexidine
C. Normal water
D. Normal saline
3. Skin disinfectant used for central line insertion is_____.
A. Chlorhexidine 4%
B.Chlorhexidine 2%
C. Chlorhexidine 0.5%
D. Spirit
4. Peptic ulcer prophylaxis is used as prevention of VAE
A. True
B. False
5. Use of gloves while handling central line to prevent CLABSI.
A. True
B. False
6. Empty urinary catheter bag when it is _____full to prevent backflow of urine.
A. $\frac{2}{3}$
B. $\frac{1}{2}$
C. $\frac{3}{4}$
D. None of the above

7. Which of the following PPE(personal protective equipments) are used while insertion of central line-

- A. Gloves and gown
- B. Gloves and mask
- C. All of the PPEs
- D. Only gloves

8. Access hub should be cleaned with_____ to prevent central line/ peripheral line infection.

- A. Hand rub
- B. 70% alcohol
- C. 60% alcohol
- D. Chlorhexidine 2%

9. Skin is disinfected with _____ before taking blood culture.

- A. Alcohol swab + betadine
- B. Betadine+chlorhexidine 2%
- C. Chlorhexidine 0.5%
- D. Normal saline

10. Which of the following hand rub are being used at our hospital to prevent infection?

- A. Trico slam
- B. Chlorhexidine+ alcohol based
- C. Formalin based
- D. Methyl based

11. How often you clean your hand after touching a patient-

- A. Often
- B. Always
- C. Sometimes
- D. Never

12. Hand hygiene is not required if you use gloves when providing care.

- A. True
- B. False

13. For how many seconds to perform hand rub and hand wash consecutively?

- A. 10-15 secs & 20-40 secs
- B. 40-50 secs & 55-60 secs
- C. 20-30 secs & 40-60 secs
- D. 30-60 secs & 50-60 secs

14. Blood stained Cotton and gauze pieces to be thrown into_____ color waste bag.

- A. Red
- B. Yellow
- C. White
- D. Blue

15. Needles to be thrown into_____to avoid needle stick injury.

A. Red

B. Yellow

C. White

D. Blue

16. When emptying a urinary catheter collection bag, wearing gloves, a gown, and a face shield would be appropriate.

A. True

B. False

17. Infected plastic wastes like IV sets, syringes, blood bags to be thrown into _____ color waste bag.

A. Red

B. Yellow

C. White

D. Blue

18. Hand washing/ hand rub step - Number it according to steps-



19. Gloves should be used on all residents in the same room as long as they are not visibly soiled.

A. True

B. False

20. PPE should be worn during all resident care activities.

A. True

B. False