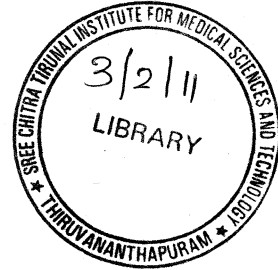


A STUDY TO ASSESS KNOWLEDGE REGARDING STANDARD PRECAUTIONS AMONG NEURO NURSES



Project report

*Submitted in partial fulfillment of the requirements
for the*

Diploma in Neuro Nursing

Submitted by

Ms. Pratheeksha.R

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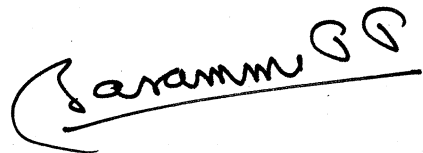
**Sree Chitra Tirunal Institute for Medical Sciences and
Technology, Trivandrum**

(NOVEMBER 2010)

CERTIFICATE FROM SUPERVISORY GUIDE

This is to certify that Ms.Pratheeksha has completed the project work on “A STUDY TO ASSESS THE KNOWLEDGE REGARDING STANDARD PRECAUTIONS AMONG NEURO NURSES” under my direct supervision and guidance for the partial fulfillment for the Diploma in Neuro Nursing in the University of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum.

It is also certified that no part of this work report has been included in any other thesis for procuring any other degree by the candidate.



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CERTIFICATE FROM THE CANDIDATE

This is to certify that the project report on “A STUDY TO ASSESS THE KNOWLEDGE REGARDING STANDARD PRECAUTIONS AMONG NEURO NURSES” is a genuine work done by me at the Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum under the guidance of Dr.Saramma.P.P, Senior Lecturer in Nursing, SCTIMST, TVM. It is also certified that this work has not been presented previously to any university for award of degree, diploma, fellowship or other recognition.

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Examiners

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Place:

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AIIMS	All India Institute of Medical Sciences
BMA	British Medical Association
BSc.Nursing	Bachelor of Science (Nursing)

CDC	Center for Disease Control and prevention
GNM	General Nursing and Midwifery
HAI	Hospital Acquired Infection
HD	HemoDialysis
HHRC	Hand Hygiene Resource Center
NMICU	Neuro Medical Intensive Care Unit
NMWD	Neuro Medical Ward
NSICU	Neuro Surgical Intensive Care Unit
NSWD	Neuro Surgical Ward
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipments
SARS	Severe Acute Respiratory Syndrome
SCTIMST	Sree Chitra Tirunal Institute for Medical Sciences and Technology
WHO	World Health Organization

ABSTRACT

Topic: A study to assess the knowledge regarding Standard Precautions, among Neuro Nurses.

Background: Nurses are the principal group of health care personnel in all health care settings. Nurses' lack of knowledge may be a barrier in prevention of infections. **Aim:** The objectives of the study were to assess the Neuro nurses knowledge regarding Standard Precautions, to assess the relationship between Neuro nurses knowledge regarding Standard precautions and selected variables. **Method:** This study was conducted in NSICU, NMICU, NMWD and NSW of SCTIMST; Trivandrum. Forty Neuro nurses were selected conveniently for this study. The total period of the study was from August to November 2010. A validated self-prepared questionnaire was used to assess the knowledge. **Results:** 52.5% of samples had good knowledge, 32.5% of samples had very good knowledge, 12.5% of samples had average knowledge and 2.50% of samples had below average knowledge. This study revealed that the mean knowledge score of sample in neuromedical units was significantly higher than the sample in neurosurgical units.

Conclusion: The knowledge regarding Standard Precautions for nurses working NMWD and NMICU is better than nurses working in NSW AND NSICU.

CHAPTER-1

INTRODUCTION

1.1 Introduction

Infections, arise in the hospitals, are termed as hospital associated infections. Such infections have also been called as ‘Nosocomial Infections’ and sometimes ‘Hospital Acquired Infections’. As more healthcares are now provided in ambulant patients the term ‘Healthcare Associated Infections’ (HAI) is also used. (WHO., 2002)

A Nosocomial infection also called Hospital Acquired Infection can be defined as an infection occurring in a patient in a hospital or other healthcare facility in whom the infection was not present or incubating at the time of admission. This include infections acquired in the hospital but appearing after discharge and also occupational infection among staff of the facility. (WHO., 2002) A wide variety of microorganism can be transmitted in healthcare setting, including bacteria, viruses, fungi and mycoplasmas. (BMA., 2006)

When taking care of nurses against environmental infections and diseases, they must take standard precautions to stay healthy. Centers for Disease Control and

Prevention (CDC) recommend that everyone should use standard precautions whenever come into contact with body fluids.

1.2 Background of the study

Standard principles for preventing healthcare associated infections in hospital and other acute care settings.

All healthcare practitioners to the care of every patient should apply this guidelines on infection control precautions. The recommendations are divided into 4 distinct interventions:

>Hand hygiene.

>Use of Personal Protective Equipments.

>Safe use and disposal of sharps.

>Hospital environmental hygiene.

>Hand hygiene.

Hands must be decontaminated immediately before each and every episode of direct patient contact or care and after any activity or contact that could potentially result in hands becoming contaminated.

Hands that are visibly soiled, or potentially grossly contaminated with dirt or organic material, must be washed with liquid soap and water.

Hands must be decontaminated, preferably with an alcohol based hand rub unless hands are visibly soiled, between caring for different patients or between different care activities for the same patient.

Before regular hand decontamination begins, all wrist and ideally hand jewellery should be removed. Cuts and abrasions must be covered with waterproof dressings. Fingernails should be kept short, clean and free from nail polish.

An effective hand washing technique involves 3 stages:

~Preparation.

~Washing and rinsing.

~Drying.

Preparation requires wetting hands under tepid running water before applying liquid soap or an anti microbial preparation. The hand wash solution must come into contact with all of the surfaces of the hand. The hands must be rubbed together vigorously for a minimum of 10-15 seconds, paying particular attention to the tips of fingers, thumbs and the areas between the fingers.

Hands should be rinsed thoroughly, before drying with good quality paper towels.

When decontaminating hands using an alcohol hand rub, hands should be free from dirt and organic material. The hand rub solution must come into contact with all surfaces of hand. The hands must be rubbed together vigorously, paying

particular attention to the tips of the fingers, thumbs and the areas between fingers, until the solution has evaporated and the hands are dry.

>Use of Personal Protective Equipments.

Gloves must be worn for invasive procedures.

Disposable plastic aprons should be worn when there is a risk that clothing may become exposed to blood, body fluids, secretions or excretions, with the exception of sweat.

Facemasks and eye protection must be worn where there is a risk of blood, body fluids, secretions or excretions splashing into the eyes and face.

Gloves, aprons and face masks must be disposed of as clinical waste and hands decontaminated after the gloves have been removed.

>Safe use and disposal of sharps

Needles must not be recapped, bent, broken or disassembled before use or disposal.

Used sharps must be discarded into a sharps container.

>Hospital Environmental Hygiene.

The hospital environment must be visibly clean, free from dust and soilage and acceptable to patients, their visitors and staff.

Increased levels of cleaning should be considered in outbreaks of infection where the pathogens concerned survive in the environment and environmental contamination may be contributing to spread.

The use of hypochlorite and detergent should be considered in outbreaks of infection where the pathogens concerned survive in the environment and environmental contamination may be contributing to spread.

Shared equipment used in the clinical environment must be decontaminated appropriately after each use.

All health care workers need to be aware of their individual responsibility for maintaining a safe care environment for patients and staff. Every healthcare worker needs to be clear about their specific responsibility for cleaning equipment and clinical areas. (Pratt et al., 2006)

Hand hygiene

Hand washing for Hand hygiene is the act of cleansing the hands with or without the use of water or another liquid, or with the use of soap, for the purpose of removing soil, dirt and/or microorganisms. The CDC has stated: “It is well documented that one of the most important measures for preventing the spread of pathogens is effective hand washing”. (WHO., 2008)

Two million people each year become ill as a result of a hospital-acquired infection. Proper hand hygiene is critical to the prevention of these infections –

which contribute to the death of nearly 90,000 hospital patients per year and 5 billion in medical expenses. (HHRC., 2009)

Improved hand hygiene really reduces the spread of bacteria in healthcare settings. A scientific study performed in a hospital nursery found that babies acquired staphylococci more frequently when cared by nurses who didn't wash their hands than babies cared by nurses who washed their hands between patient contacts with an anti-microbial soap. Numerous studies show that proper hand hygiene reduces the spread of bacteria in various healthcare settings. (HHRC., 2009)

Needle stick injuries

A needle stick injury is a percutaneous piercing wound typically set by a needlepoint, but possibly also by other sharp instruments or objects. Commonly encountered by people handling needles in the medical setting, such injuries are an occupational hazard in the medical community. These events are of concern because of the risk to transmit blood-borne diseases through the passage of the Hepatitis B virus (HBV), the Hepatitis C virus (HCV) and the Human Immunodeficiency Virus (HIV), the virus which causes AIDS (CDC., 2009)

Needle stick injuries are a common event in the healthcare environment. The frequency of such events has been estimated to be about 8,00,000 cases in the USA alone in 1999. It is estimated that annually as a consequence there are

66,000 infections with HBV, 16,000 with HCV, and 1000 with HIV worldwide. In addition, a needle stick injury may lead to significant stress and anxiety for the affected injured person. Taking care of a needle stick injury is costly, estimated to be about \$2,500 in the short-term in the US. Estimates of the risk of a single injury indicate a risk of 300 HBV infections (30% risk), 30 HCV infections (3% risk) and 3 HIV infections (0.3% risk) per 1000 respective exposures. (CDC., 2001)

Personal Protective Equipment

Personal Protective Equipment refers to protective clothing or other garment designed to protect the wearer's body from injury by blunt impacts, electrical hazards, heat, chemicals and infection. Personal Protective Equipment is defined in the regulations as "all equipment which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety. The use of PPE is to reduce employee exposure to hazards. Respirators such as gas masks and particulate respirators filter chemicals and gases or airborne particles. (PPE at work regulations 1992)

Proper use of PPE is designed to protect healthcare workers from pathogen exposure during patient care. The importance of PPE was underscored during the recent outbreak of Severe Acute Respiratory Syndrome (SARS).

PPE is designed to protect the skin and mucus membranes of the eyes, nose and mouth from exposure to blood. Primary PPE used in oral healthcare settings includes gloves, surgical masks, protective eyewear, face shields and protective clothing (e.g.: -gowns and jackets). Wearing gloves, surgical masks during exposures to blood-borne pathogens are mandated by OSHA (Occupational Safety and Health Administration).

Table 1.1

Recommendations of infection control guidelines for healthcare providers

1. Wear a surgical mask and eye protection with solid side shields or a face shield to protect mucous membranes of eyes, nose and mouth during procedures likely to generate splashing or spattering of blood or other body fluids.
2. Change masks between patients or during patient treatment if the mask becomes wet.
3. Clean with soap and water, or if visibly soiled, clean and disinfect reusable facial protective equipment between patients.
4. Reusable PPE should be cleaned with soap and water and when visibly soiled, disinfect between patients, according to the manufacturer's directions.

The Occupational Safety and Health Administration (OSHA) standard for preventing occupational transmission of blood-borne pathogens was revised in 2001. This standard mandated that any employer whose employees are potentially exposed to blood from needles and other sharps must implement sharps safety devices wherever feasible. In addition, employees at risk need to be provided appropriate PPE. The nurse needs to minimize or eliminate exposure to infectious material. When that is not possible appropriate PPE must be selected. These include gloves, clothing and facial protection.

The new guidelines issued by CDC in 1996 involve a two level approach: -

<Standard precautions, which apply to all clients and patients attending healthcare facilities.

<Transmission based precautions, which apply only to hospitalized patients.

(Perry et al)

Because most people with blood-borne viral infections such as HIV and HBV do not have symptoms, nor can they be visibly recognized as being infected, standard precautions are designed for the care of all persons-patients, clients and staff. Standard precautions apply to blood and all other body fluids, secretions and excretions (except sweat), non-intact skin and mucous membranes.

Applying standard precautions has become the primary strategy to prevent nosocomial infections in hospitalized patients.

Table 1.2 gives protocols for protective barriers for preventing infections in clients, patients and healthcare workers:

Table 1.2

Consider every person (patient or staff) as potentially infectious and susceptible to infection.
Wash hands: The most important procedure for preventing cross contamination.
Wear gloves before touching anything wet: broken skin, mucous membranes, blood or body fluids, soiled instruments and contaminated waste materials or before performing invasive procedures.
Use physical barriers if splashes and spills of any body fluids.
Use antiseptic agents for cleansing skin or mucous membranes.
Use safe work practices such as not recapping or bending needles.
Safely dispose infectious waste materials to protect those who handle them and prevent injury or spread of infection to the community.
Process instruments, gloves and other items after use by first decontaminating and thoroughly cleaning them.

Under standard precautions blood, all body fluids and all body substances of patients are considered to be potentially infectious. (CDC, 1997)

In Neurology Department of SCTIMST, nursing staff and other healthcare workers are coming to contact with blood and body fluids. Adherence to standard precautions is recommended for prevention of infection.

1.3 Need and significance of the study

Nurses are exposed each day to a variety of health and safety hazards. The use of appropriate infection control precautions to protect against transmission of blood-borne and other occupational microbial pathogens should be a routine component of healthcare provision. Center for Disease Control and Prevention recommends that everyone should use standard precautions whenever come into contact with body fluids.

At anytime anyone's blood, body fluids, secretions, excretions, mucus membranes or non-intact skin can carry germs that are harmful to others.

Prevention of transmission of pathogens in hospitals is based primarily on standard precautions. Internationally, standard precautions are regarded as fundamental in prevention and control of infection and effective in protecting patients and nursing professionals. In a press release on 13 October 2005 WHO state that "Preventable Hospital Infections are a major cause of death and disability for the patients".

Healthcare associated infections are an important issue of patients who are critically ill. In NSICU during August 2009, eight patients were identified to

have infections such as six lung infections, one surgical site infection, six urinary tract infections and three meningitis. Adequate knowledge regarding standard precautions can reduce the mortality and morbidity rates.

1.4 Statement of the problem

A study to assess knowledge regarding standard precautions among neuronurses.

1.5 Objective of the study

- 1.To assess the knowledge regarding standard precautions among neuronurses.
- 2.To assess relationship between neuronurses' knowledge and selected variables.

1.6 Operational Definitions

Knowledge: Knowledge is defined as the awareness and understanding of the facts, truths or information gained in the form of experience or learning. In this study knowledge of neuronurses about Standard Precautions is measured using a self-prepared validated questionnaire.

Standard Precautions: Standard Precautions are defined as a set of precautions that the Centers for Disease Control and Prevention (CDC) has called for in order to minimize the risk of infection from a patient or spread of infection among patients.

1.7 Methodology

The survey approach is used in this study. After obtaining permission from the authorities, data will be collected from staff nurses working in NSICU, NMICU, NSW, and NMWD of SCTIMST with a self-prepared multiple-choice questionnaire. The questionnaire is related to the knowledge regarding Standard Precautions. The duration of the study is from August to November 2010.

1.8 Delimitation

The study is limited to staff nurses working in Neuro Department.

1.9 Summary

This chapter deals with introduction, back-ground of the study, need and significance of the study, statement of the problem, definition of the terms, objective of the study, methodology and limitations.

1.10 Organization of the report

The chapter 2 deals with summary of related review of literature. Chapter 3 deals with methodology of the study. Chapter 4 deals with analysis and interpretation of the results. Chapter 5 consists of summary, conclusion, implication and limitation of the study and recommendations. This report also includes a selected bibliography and appendix.

CHAPTER-2

REVIEW OF LITERATUR

2.1 Introduction

Review of literature is an important aspect of any research project from beginning to end. It gives character insight into the problem and helps in selecting methodology, developing tool and also analyzing data.

The review of literature relevant to this study is presented in the following section.

2.2 Studies related to knowledge and practice among healthcare workers regarding standard precautions.

2.3 Studies related to practice of standard precautions among healthcare workers.

2.2 Studies related to knowledge and practice among healthcare workers regarding standard precautions.

Beghdadli et al (2008)., conducted a survey to examine knowledge and practices regarding standard precautions among nurses in a university hospital in Western Algeria. A questionnaire was administered to 450 nurses in the hospital work place setting. A total of 133 nurses, 81 women and 52 men participated in the survey. Personal and professional data, hand washing frequency, glove-wearing practices were collected. A large majority (95%)of nurses reported washing their hands after removing gloves, and 69% of them reported washing their hands

between two patients. Male nurses wear gloves more often than females (respectively 77% and 53%). Sharp instruments were correctly disposed of in a puncture resistant container more of the time. Recapping has been reported by two-thirds of survey respondents. Lack of standard precautions adherence is primarily due to the lack of awareness and knowledge as well as insufficient supply of equipments and materials for good hand hygiene maintenance. The authors highlighted the urgent need to implement a programme to improve standard precautions adherence among nurses and to increase supply of hand washing and drying materials.

Chan et al (2007)., conducted a study to examine the relationship on knowledge, attitude and practice levels of operating room staff towards the standard precautions and transmission-based precautions. During January 2006, 113 staff working in the operating room of a public hospital completed a self-reported questionnaire. Outcome measures, demographic information, knowledge, attitude and practice scores were collected. Two-step cluster analysis yielded two clusters. Cluster 1 subjects were younger, had a higher educational attainment level and worked at a more senior level than Cluster 2 subjects. They reported good knowledge, positive attitudes and practices. Cluster 2 subjects were characterized by relatively poor knowledge, negative attitudes and practices. This study clearly profiles knowledge, attitudes and practice patterns

of operating room staff, which may benefit healthcare educators in planning and developing appropriate educational programmes, may help organizations to provide a safe work place climate and may aid healthcare workers to learn the importance of personal responsibility in preventing infectious disease transmission to patients, co-workers and even themselves. Tailoring interventions to fit specific groups of the operating room staff is needed to improve compliance with the standard and transmission-based precautions.

Gupta et al (2007)., conducted a study to assess the knowledge and practice of staff nurses on infection control measures and the relationship between knowledge and practice. A descriptive study of exploratory nature was conducted in June-July 1999 at Main Hospital, AIIMS. Subjects for study were registered staff nurses working in medical, surgical wards and Intensive Care Unit. Subjects were selected by systematic random sampling. Questionnaire comprising of 3 sections pertaining to personal data, knowledge and practice with a set of 35 questions was developed and pilot tested before the final observations were made. In the study sample, out of the total of 50 staff nurses, 66% were diploma nurses and 34% of them were graduates. None of the subjects were post-graduate. On the basis of the study, authors concluded that there exists a positive relationship between knowledge and practice. Both are directly proportional to each other. This indicates that with improved

knowledge, we can also improve the practice, which should be of major concern in the present day health care scenario.

2.3 Studies related to practice of standard precautions among healthcare workers.

MaryRocha et al (2010)., conducted a study to evaluate the practice of hand washing, use of gloves and the handling and disposal of needle sticks and other sharp objects among nursing and medical students. This is a descriptive observational study, which used a questionnaire and a checklist. Knowledge of standard precaution measures was evaluated in 48/48(100%)nursing students and 93/112(83%) medical students. Knowledge of hand hygiene procedures was higher than what was observed in the clinical practice in both groups of students, (X²; p<0.001).

Compliance with the use of sterile and non-sterile gloves, and handling and disposal of needle sticks and other sharp objects was higher than the knowledge of these procedures among nursing students, and a statistically significant difference was observed with regards to sterile glove usage (X²; p=0.009). Regarding medical students, there was no statistical difference between knowledge and practice. Performance of both groups in terms of knowledge of hand hygiene showed a dichotomy between the teaching and the practices of

these standard precautions. The authors concluded that the results have shown a deficiency in the teaching-learning process for the other measures evaluated.

Garner et al (2010)., conducted a study to measure the percentage of healthcare staff reporting sharps injuries in the preceding 12 months, and to explore what they knew about standard precautions. In five randomly selected government hospitals in Kabul a total of 950 staff participated in the study. Data were analyzed with Epi info 3. Seventy three percent of staff (491/676) reported sharps injury in the preceding 12 months, with remarkably similar levels between hospitals and staff cadres in the 676(71%)people responding. Authors concluded that basic knowledge about standard precautions was found insufficient across all hospitals and cadres.

Arenas et al (2003)., conducted a study to investigate the degree of compliance with hand hygiene and use of gloves by healthcare workers in haemodialysis (HD) units, and the factors that influenced adherence to hand hygiene protocols. During the month of November 2003, one person observed the healthcare staff in each nine different dialysis units, during 495 randomly distributed 30min observation periods that covered all steps of a haemodialysis session (connection, dialysis and disconnection). The observers noted the number of potential opportunities to implement standard precautions and the number of occasions on which the precautions were actually taken. There were a total of

977 opportunities to wear gloves for, and to wash the hands following, a patient-oriented activity, and 1902 opportunities to wash hands before such an activity. Gloves were actually used on 92.9% of these occasions. Hands were washed only 35.6% of the time after patient contact, and only 13.8% of the time before patient contact. Poor adherence to hand washing was associated with the number of shifts per HD unit per day and with higher patient-to-nurse ratios. The personnel's knowledge of patients' infectious status did not modify their adherence to hand hygiene practices. The authors concluded that overall adherence of healthcare workers to recommended hand-washing practices is low. Whether or not programmes promoting higher hand hygiene standards and the potential use of alcohol-based hand cleansers will improve hand hygiene practices in HD units requires further investigations.

Davis et al (2009)., conducted a study to quantify risks of sharps injuries and other blood and body fluid exposures among home healthcare nurses and aides, to identify risk factors, to assess the use of sharps with safety features, and to evaluate underreporting in workplace-based surveillance. They conducted a questionnaire survey and workplace-based surveillance, collaborating with 9 home health care agencies and 2 labor unions from 2006 to 2007. Approximately 35% of nurses and 6.4% aides had experienced at least 1 sharps injury during their health career. Medical procedures contributing to sharps

injuries were injecting medications, administering finger sticks and heel sticks, and drawing blood. Sharps with safety features were not used frequently. Underreporting of sharp injuries to the workplace-based surveillance system was estimated to be about 50%. Authors concluded that sharps injuries and other blood and body fluid exposures are serious hazards for home healthcare nurses and aides. Improvements in health hazards intervention are needed.

Khalid et al (2008), conducted a study to ascertain practices of medical students regarding needle stick injuries. A cross sectional survey was conducted among the consenting medical students of 3rd, 4th and 5th years at a teaching hospital of Karachi, Pakistan. Convenience sampling was used. Pre-tested questionnaires were administered to approximately 70% of each class. The response rate of the survey was 85.7%. Sixty-one students (33.9%) were from 3rd and 4th year each while 58 students (32.2%) were from 5th year. Only 16.4% 3rd year students, 29.5% 4th year students and 36.2% final year students knew the full details of the needle stick injury prevention protocols. Forty seven (26.1%) students had received a needle stick injury in the past; however, only 14 students (29.7%) had reported the incident either to their consultant or the Infection Control Office. The domains of attitude and practices need to be improved as the frequency of needle stick injuries was also observed to increase with the increasing year of medical education.

SUMMARY

From the selected studies, we can understand that the authors selected the knowledge and practices regarding standard precautions among various settings.

Most of the studies shown that basic knowledge about standard precautions were insufficient across all hospitals and the authors highlighted that with improved knowledge we can also improve the practice.

Keywords for related search and number of articles

Keywords	Free Articles
Knowledge regarding standard precautions	58,800
Practice regarding standard precautions	89,900

CHAPTER –3

METHODOLOGY

3.1 Introduction

This chapter provides a brief description of different steps taken to conduct this study. It deals with the research approach, research design, setting, the sample and sampling technique, development of tool, description of tool, pilot study, data collection procedure and plan of analysis.

3.2 Research approach

This survey approach was selected as the objective of the study was to assess Knowledge regarding Standard Precautions among Neuro Nurses in NSICU, NSW, NMICU and NMWD at Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST), Trivandrum.

3.3 Settings of the study

The study was conducted in NSICU, NSW, NMICU and NMWD at Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST), Trivandrum.

3.4 Sample and Sampling Techniques

A purposive sampling technique was used to collect the samples. The samples were selected from the nursing staff working in NSICU, NSW, NMICU and NMWD of Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST), Trivandrum. The size of the sample was 40. The duration of study period was from August 2010 to November 2010.

3.5 Criteria for sample collection

3.5.1 Inclusion Criteria

Nursing staff working in NSICU, NSW, NMICU and NMWD of Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST), Trivandrum.

3.5.2 Exclusion Criteria

Nursing staff not willing to participate in the study.

3.6 Development of Tool

Data collection tool refers to instrument, which was constructed to obtain relevant data. An extensive review and study of literature helped in preparing items for tool. The investigator used a self-prepared questionnaire as tool for the study. Experts of Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST), Trivandrum validated the tool.

3.7 Description of Tool

The tool used in the present study consisted of two parts.

Part 1

Consists of Sociodemographic data such as age, sex, professional qualification, place of work, experience in years and additional qualification.

Part 2

Multiple-choice questions to assess knowledge about Standard Precautions consists of

- Hand hygiene,
- Hospital Acquired Infections,
- Needle stick injuries,
- Immunization,
- Blood and Body fluid isolation, and
- Sterilization of equipments.

There are 27 questions. Each correct answer carries one mark, wrong answers carry zero marks and unanswered questions also will be given zero. Marks will be converted into percentage.

Less than 70%=Below average

70-79%=Average

80-89%=Good

90-100%=Very Good

3.8 Pilot Study

A pilot study was conducted to find out the feasibility and practicability of the tool and methodology. Ten nursing students were taken for pilot study. The time taken for answering the questionnaire was about 10-15 minutes.

3.9 Data Collection

For data collection, formal permission was obtained from the authorities. Data was collected during the month of October 2010. The investigator first introduced and explained the need and purpose of study. The nursing staff was interviewed with the self-prepared tool. The time taken for answering the questionnaire was about 15 minutes.

3.10 Plan of Analysis

The investigator developed a plan for data analysis after the pilot study. The data obtained from the nursing staff was analyzed by descriptive statistics and is presented in the form of bar and pie diagram.

3.11 Summary

The Chapter presented the research approach used for the study research design of the study, setting of the study, sample and sampling techniques, development of description of tool, pilot study, data collection procedure and plan of analysis.

CHAPTER-4

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

Analyses are a process of organizing and synthesizing data in such a way research questions can be answered. The questionnaire was based on hand hygiene, hospital acquired infections, needle stick injuries, blood and body fluid isolation, immunization and sterilization of equipments. Interpretation refers to a process of making sense of the result and examining the implications of the findings in a broader context. This chapter deals with analysis and interpretation of data collected from 40 staff nurses working in NSICU, NMICU, NSWD and NMWD of SCTIMST, Trivandrum. The aim of this study was to assess the Neuro Nurses' knowledge regarding Standard Precautions.

The findings of the study was arranged and analyzed under the following sections.

4.2 Distribution of sample according to demographic data.

4.3 Neuronurses' knowledge regarding Standard Precautions.

2.2 Distribution of sample according to demographic data.

The age of the nurses ranged from 23 to 52 with a mean of 34.85.

Table 4.1 Distribution of samples by age

Age Group	Frequency	Percentage
21-30 years	14	35
31-40 years	19	47.5
41-50 years	5	12.5
51-60 years	2	5

The data given Table 4.1 shows that majority of nurses (82.5%) were below the age of 40 years.

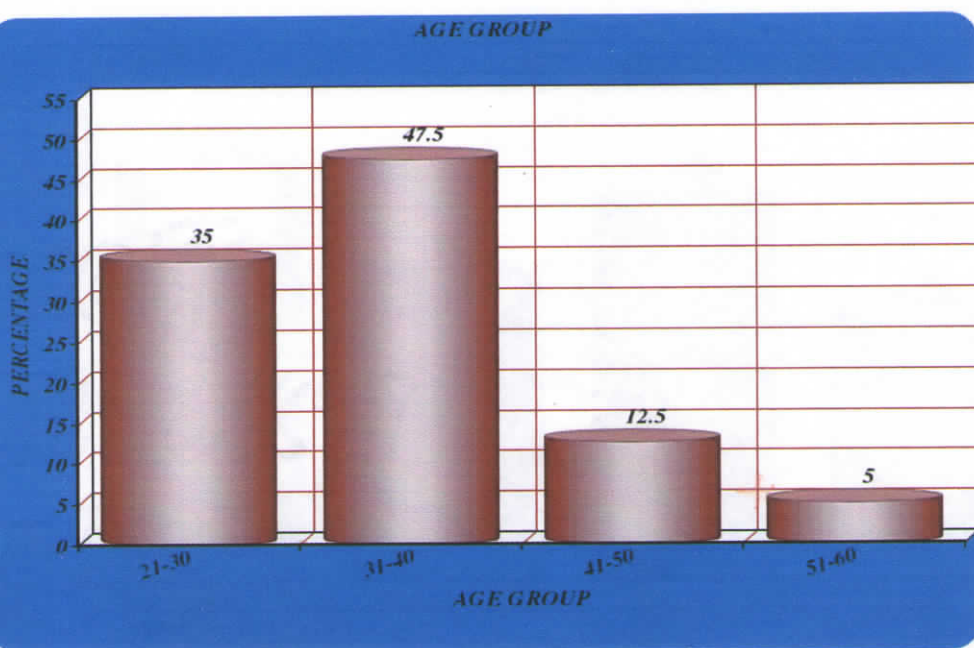


Figure 4.1 shows the distribution of samples by age.

Distribution of sample according to area of work is given in Table 4.2

Table 4.2 Distribution of samples by area of work.

Area of work	Frequency	Percentage
NSICU	12	30
NMICU	9	22.5
NMWD	11	27.5
NSWD	8	20
TOTAL	40	100

Table 4.2 shows that distribution of samples 30% from NSICU, 22.5% from NMICU, 27.5% from NMWD and 20% from NSWD.

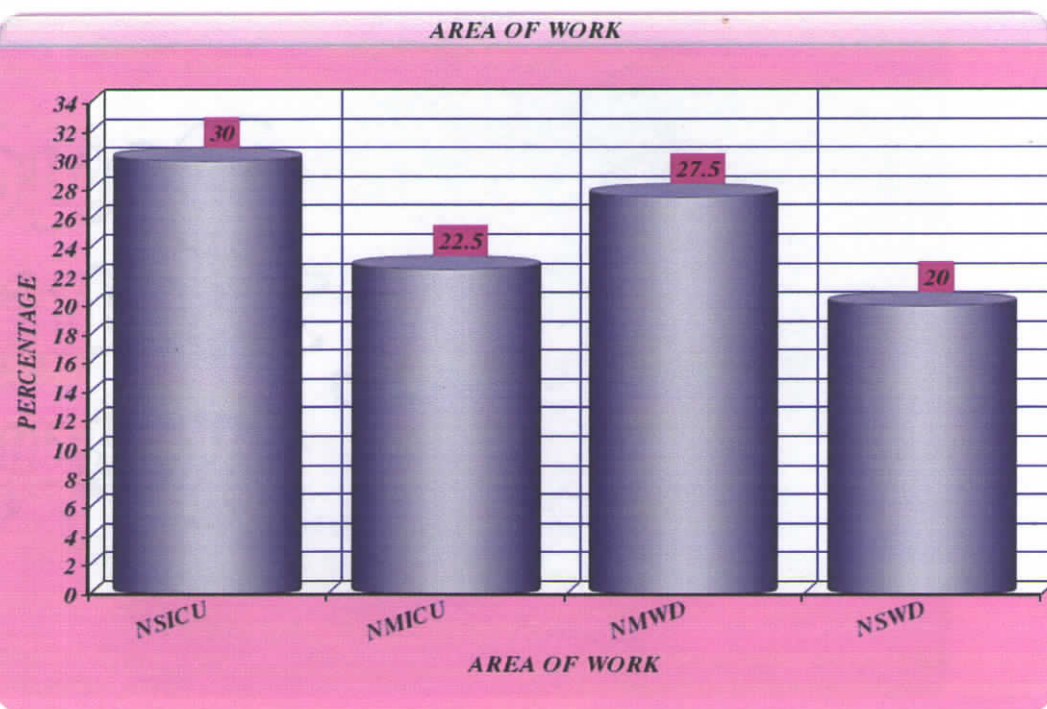


Figure 4.2 shows the distribution of samples according to the area of work.

Distribution of samples according to the professional qualification is given in

Table 4.3.

Table 4.3 Distribution of samples by professional qualification

Professional Qualification	Frequency	Percentage
GNM	23	57.5
BSc.Nursing	17	42.5
TOTAL	40	100

Table 4.3 shows that 57.5% of samples having professional qualification of GNM and 42.5% having BSc.Nursing.

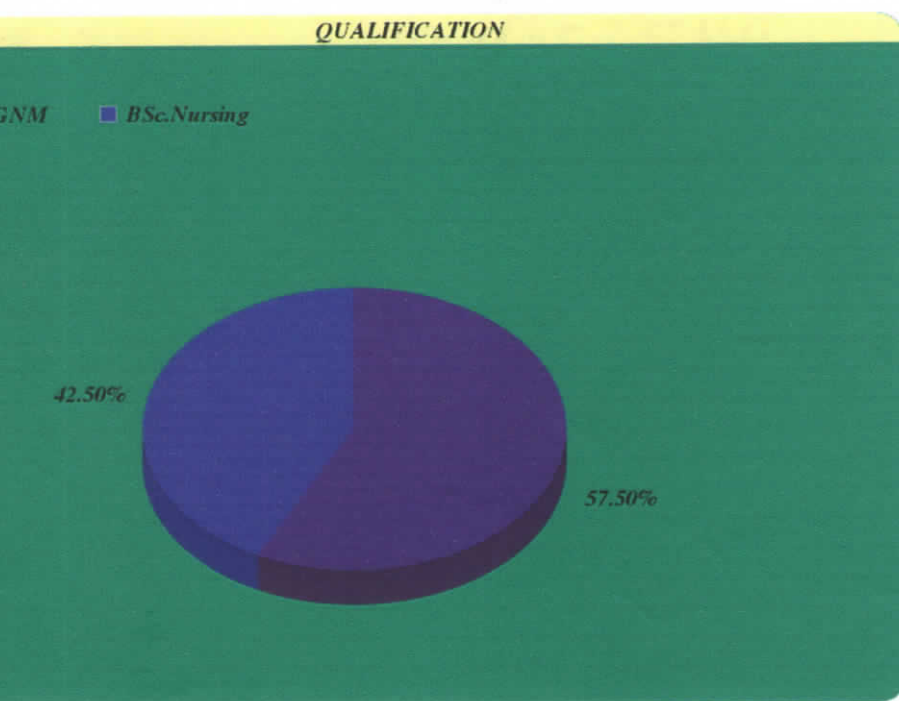


Figure 4.3 Pie diagram shows the distribution of samples according to professional qualification.

Distribution of samples according to experience is given in Table 4.4.

Table 4.4 Distribution of samples by experience

Experience	Frequency	Percentage
<10 years	18	45
11-20 years	19	47.5
21-30 years	3	7.5
TOTAL	40	100

Table 4.4 shows that 47.5% of samples having experience between 11-20 years, 45% having experience <10 years and 7.5% having experience between 21-30 years.

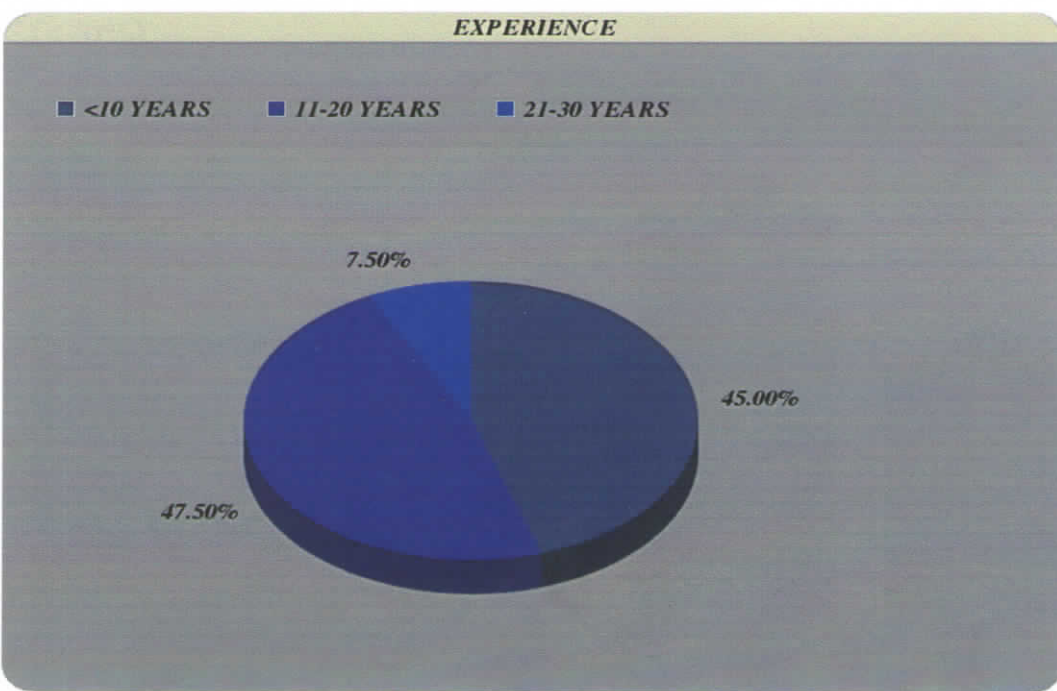


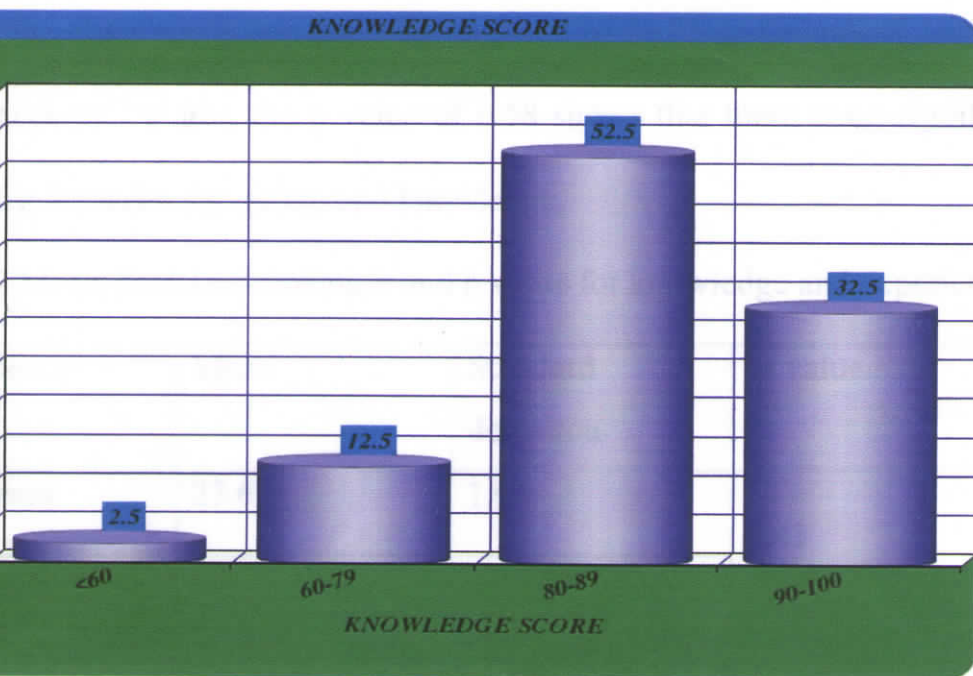
Figure 4.4 Pie diagram shows distribution of samples according to experience.

uro Nurses' knowledge regarding Standard Precautions.

le 4.5 Distribution of samples according to their knowledge scores.

Knowledge	Frequency	Percentage
Very poor (<70%)	1	2.50
Average (70-79%)	5	12.5
Good (80-89%)	21	52.5
Very Good (90-100%)	13	32.5
Total	40	100

Knowledge score of the sample ranged from 16 to 27, which corresponds to 100 percentage; since the maximum obtainable score was 27. Table shows that 52.5% of samples had good knowledge (80-89%), 32.5% of samples had very good knowledge (>90%), 12.5% of samples had average knowledge (70-79%) and 2.50% of samples had below average knowledge (<70%).



4.5 shows distribution of samples according to their knowledge scores.

Table 4.6 Mean, Standard deviation and p value for knowledge and age group.

Age in Years	Mean Knowledge	Standard deviation	p-value
<30 years	23.57	1.83	0.58
>30 years	23.15	2.44	

Table 4.6 shows the relationship between age group and mean knowledge score. The younger age group had a mean score of 23.57 and standard deviation 1.83 and the older age group had a mean score of 23.15 and standard deviation 2.44. In students' 't' test, the p value of 0.58 shows that there is no significant relationship between age group and knowledge.

Table 4.7 Mean, Standard deviation and p value for knowledge and experience.

Experience	Mean	Standard deviation	p- value
<10 years	23.61	1.94	0.43
>10 years	23.04	2.45	

Table 4.7 shows the relationship between knowledge and experience. In the younger age group with experience <10 years, the mean score was 23.61 and standard

deviation was 1.94. In the group with experience >10 years, the mean score was 23.04 and standard deviation was 2.45. In students' 't' test the p value of 0.003 shows that there is no significant relationship between knowledge and experience.

Table 4.8 Mean, Standard deviation and p value for knowledge and area of work.

Area of work	Mean	Standard deviation	p-value
NEUROSURGICAL	22.4	2.3	0.009
NEUROLOGICAL	24.2	1.79	

Table 4.8 shows the relationship between knowledge and area of work. Samples from the neurosurgical side had a mean score of 22.4 and standard deviation of 2.3, samples from the neurological side had a mean of 24.2 and standard deviation of 1.79. In students' 't' test the p value is 0.009 shows that there is a significant relationship between knowledge and area of work. The nurses working in neuromedical ward and neurosurgical ward were having significantly higher mean knowledge score regarding standard deviations than nurses working in the neurosurgical ward and ICU.

4.4 Summary

This chapter deals with the analysis and interpretation of data collected from 40 Neuro Nurses of SCTIMST, Trivandrum. Descriptive and inferential statistics were used for the analysis. Bar diagram and Pie diagram were used to illustrate the findings of the study.

CHAPTER-5

SUMMARY, CONCLUSIONS, DISCUSSION and **RECOMMENDATIONS**

5.1 Introduction

A brief account of the study is given in this chapter, which cover objectives, findings of the study and possible application of the result. Recommendation for the future research and suggestion for improving the present study are also presented.

5.2 Summary

This study was conducted with the objectives to assess the knowledge among Neuro Nurses regarding Standard Precautions and to identify the relationship between knowledge on standard precautions and selected variables. A review of related research literature helped the investigator to get a clear concept about the topic undertaken, as well as to develop tools, methodology of the study and to decide plan of analysis.

The study was conducted in NSICU, NMICU, NSWD and NMWD of SCTIMST; the size of sample was 40. Staff nurses who were working in

CU, NMICU, NSW and NMWD were included in this study. The duration of the study was from August 2010 to November 2010. A self-prepared questionnaire was used for collecting data; it contained 27 questions about knowledge regarding Standard Precautions and demographic data were also collected. The data was analyzed and interpreted using descriptive and inferential statistics.

Objectives of the study

1. To assess the knowledge regarding standard precautions among neuronurses.

2. To assess relationship between neuronurses' knowledge and selected variables.

Limitation

The study is limited to staff nurses working in NSICU, NMICU, NSW and NMWD of SCTIMST. The sample size is only 40.

Major findings of the study

The knowledge of 40 neuro nurses regarding Standard Precautions ranged from 59% to 100%. 52.5% of samples had good knowledge (scored 80-89%), 32.5% of samples had very good knowledge (scored >90%), 12.5% of samples had average knowledge and 2.50% of samples had below average knowledge. The age of the nurses ranged from 23 to 52 years with a mean of 34.85. Students' 't' test shows that there is significant relationship between knowledge and area of

work. There was a statistically significant higher mean knowledge score of nurses in medical side, i.e.; samples in surgical side had a mean score of 22.4 and samples in medical side had a mean of 24.2.

5.6 Recommendations

Keeping in mind the findings and limitations of the study, the following recommendations were made for future research.

- ◆ Similar study can be repeated in other intensive care units and wards of this institute.
- ◆ Similar study can be repeated by increasing the size of the sample.

5.7 Discussion

There are many studies related to knowledge regarding Standard Precautions among nurses. The present study emphasized to assess the knowledge regarding Standard Precautions among Neuro Nurses using a self-prepared questionnaire. The present study revealed that the knowledge of neuronurses regarding standard precautions is above seventy percentage. Majorities were having more than eighty percentage score. There was significantly higher mean knowledge score among nurses in neuromedical units than nurses working in neurosurgical units. Gupta et al (2007)., conducted a study to assess the knowledge and practice of staff nurses on infection control measures and the relationship between knowledge and practice. On the basis of the study, authors concluded

that there existed a positive relationship between knowledge and practice. Both were directly proportional to each other. This indicates that with improved knowledge, we can improve the practice, which should be of major concern in the present day health care scenario.

5.8 Conclusion

Based on the findings of the study, the following conclusions were drawn. The knowledge of neuronurses on standard precautions is above average and the nurses working in the neuromedical units were having better knowledge than nurses in the neurosurgical units. There was no significant difference between knowledge of nurses regarding Standard Precautions with regard to their age, professional qualification, and experience.

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**A questionnaire to assess the knowledge regarding
Standard Precautions.**

SOCIODEMOGRAPHIC DATA:-

AGE : Years

SEX : Male Female

QUALIFICATION : GNM BSc.Nursing MSc.Nursing

ADDITIONAL QUALIFICATION IF ANY:

PLACE OF WORK: NSICU NSWD NMICU NMWD

YEARS OF EXPERIENCE: Years

PART-A

{Please mark (√) the most appropriate answer for the following questions.}

1.Hospital acquired infections are the result of self-infection, cross-infection &environmental infection.

- a) Yes.
- b) No.
- c) I don't know.

2.The single most important measure for preventing Hospital-Acquired Infections is hand hygiene.

- a) Yes.
- b) No.
- c) I don't know.

3.Immunization against Hepatitis B is a standard precaution.

- a) Yes.
- b) No.
- c) I don't know.

4.Patients receiving immunosuppressive therapy are more susceptible to Hospital Acquired Infections.

- a) Yes.
- b) No.
- c) I don't know.

5.Sterilization is a process of killing of microorganism including spores.

- a) Yes.
- b) No
- c) I don't know.

6. Hospital Acquired Infections (HAI) is synonymous to nosocomial infections.

- a) Yes.
- b) No.
- c) I don't know.

7. The most important factor involved in hand washing is friction.

- a) Yes.
- b) No.
- c) I don't know.

8. Following a procedure, hand washing is necessary after removing gloves.

- a) Yes.
- b) No.
- c) I don't know.

9. Standard precautions apply only to all body fluids.

- a) Yes.
- b) No.
- c) I don't know.

10. Correct technique for drying hands after surgical hand washing is rotatory motion from finger to elbow using sterile towel.

- a) Yes.
- b) No.
- c) I don't know.

PART-B

{Please mark (✓) the most appropriate answer for the following questions}

1. Alcohol based hand rubs have good or excellent antimicrobial activity against all of following except:

- a) Viruses.
- b) Fungi
- c) Gram –ve bacteria.
- d) Bacterial spores.

2. Alcohol-based hand rubs are indicated for all of the following clinical situations except:

- a) When hands are visibly soiled.
- b) Pre-operative cleaning of hands by surgical personnel.
- c) Before inserting urinary catheters, intravascular catheters or other invasive devices.
- d) After removing gloves.

3. Each of the following statements regarding alcohol-based hand rubs is true except:

- a) It reduces bacterial counts on the hands of health care personnel more effectively than plain soaps.
- b) It can be made more accessible than sinks or other hand washing facilities.
- c) It requires less time to use.
- d) It is effective only if applied for more than 60 seconds.

4. Which statement indicates best understanding of the correct protocol for blood & body fluid isolation?

- a) Masks should be worn with all client contact.
- b) Gloves should be worn for contact with non-intact skin & mucous membranes.
- c) Isolation gowns are not needed.
- d) A private room is always indicated.

5. Which of the following is the 1st priority in preventing infections when providing care for a client?

- a) Hand hygiene.
- b) Wearing gloves.
- c) Using a barrier between client's article and nurse.
- d) Wearing gowns and goggles.

6. Normal skin flora usually consists of:

- a) Clostridium difficile.
- b) Gram +ve enterococcus.
- c) Staph-epidermidis.
- d) Staph-aureus.

7. Use airborne precautions for patients known or suspected to have serious illnesses for the following conditions except:

- a) Measles.
- b) Varicella.
- c) Tuberculosis.
- d) Impetigo.

8. Which is the proper way of disposal of used needles and sharp materials?

- a) Recapping.
- b) Bending of needles and sharp objects.
- c) Dispose in puncture resistant containers.
- d) All of the above.

9. Wear clean non-sterile gloves for the following except:

- a) Handling blood, secretions, and excretions.
- b) Laboratory specimen.
- c) Transporting patients.
- d) Washing instruments.

10. Use contact precautions for the following infections except:

- a) Methicillin Resistant Staphylococcus Aureus (MRSA) +ve.
- b) Vancomycin Resistant Enterococcus (VRE) +ve.
- c) Pertussis.
- d) Typhoid.

11. The appropriate concentration of available chlorine to decontaminate spillage of blood is:

- a) 1%.
- b) 5%.
- c) 0.05%.
- d) 0.5%.

12. Most of the blood borne infections acquired in the work place is the result of:

- a) Blood transfusion.
- b) Preventable accidents with sharps.
- c) Cleaning instruments.
- d) None of the above.

13. Which of the statement about surgical attire is correct:

- a) If shoe covers are not available, staff may walk around the operating room with bare feet.
- b) Caps and masks worn in the operating room should be sterile.
- c) Sterile surgical gloves should be considered contaminated if gloved hands drop below the level of waist.
- d) Always remove first glove completely and then remove second glove with bare hand.

14. Which of the following are considered as medical waste?

- a) Used bandages.
- b) Unused syringes.
- c) Trash from hospital kitchen.
- d) All of the above.

15. Proper disposal of medical waste:

- a) Reduces number of insects.
- b) Reduces risk of injury.
- c) Minimizes spread of infections.
- d) All of the above.

16. For droplet precautions wear surgical mask within:

- a) 6 feet of the patient.
- b) 5 feet of the patient.
- c) 4 feet of the patient.
- d) All of the above.

17. When withdrawing medication from a multidose vial, you can reduce the risk of transmitting infections between clients by:

- a) Using a new or correctly processed needle, but using the same syringe.
- b) Using a new or correctly processed syringe, but using same needle.
- c) Using a new or correctly processed needle and syringe.
- d) All of the above.

ANSWER KEY

PART – A

- 1. a)
- 2. a)
- 3. a)
- 4. a)
- 5. a)
- 6. a)
- 7. a)
- 8. a)
- 9. b)
- 10. a)

PART-B

- 1. d)
- 2. a)

3. d)

4. b)

5. a)

6. c)

7. d)

8. c)

9. c)

10. c)

11.a)

12.b)

13.c)

14.a)

15.d)

16.a)

17.c)