

# Assess the Effectiveness of Structured Teaching Programme on Universal Precaution among Class IV Employees Working at Aarupadai Veedu Medical College and Hospital, Puducherry, India

S. Maheswari<sup>1,\*</sup>, G. Muthamilselvi<sup>2,\*</sup>

<sup>1</sup>Nursing Tutor, Vinayaka Missions College of Nursing, Kirumampakkam, Puducherry

<sup>2</sup>Principal, Vinayaka Missions College of Nursing, Kirumampakkam, Puducherry

\*Corresponding author: Chinnupapa241@gmail.com, vmcon\_principal@yahoo.in

Received July 01, 2014; Revised July 21, 2014; Accepted July 27, 2014

**Abstract** A King of the dreamers lies in the hospitals. The physical, biological environment is very important determinant of the recovery from disease and prevention of nosocomial infection. Patient recovery depends upon the environment, health atmospheric condition (temperature, humidity, air) clean and odorless, adequate lighting day and night without glare, quite environment, privacy of the patient, applying effective sanitary measures, ensure regular sprays in areas, potential for infestation and breeding places. Class IV employees plays a major role in the prevention of disease and promotion of health, if Class IV employees are knowledgeable they will impose this knowledge in their work. So, investigates assess the knowledge about Universal Precaution among class IV employees and it was found that they had lack of knowledge and their pretest knowledge percentage was 51 %. To enhance their knowledge effective Structured Teaching Programme was given. After STP the knowledge percentage was 93 %. The data reveals that their knowledge and demographic variables like monthly income (8.3), religion (4.59), place of residence (6.5) and year of experience (3.0) had association. Investigators suggested that though the effectiveness was highly significant, continuous reinforcement will enhance the knowledge among the Class IV employees.

**Keywords:** *Universal Precautions, effectiveness, knowledge, association, class IV employees*

**Cite This Article:** S. Maheswari, and G. Muthamilselvi, "Assess the Effectiveness of Structured Teaching Programme on Universal Precaution among Class IV Employees Working at Aarupadai Veedu Medical College and Hospital, Puducherry, India." *American Journal of Nursing Research*, vol. 2, no. 2 (2014): 26-30. doi: 10.12691/ajnr-2-2-3.

## 1. Introduction

Universal Precautions are simple standards of infection control practice to be used in the care of all patients, at all times, to reduce the risk of transmission of blood borne infections. They include careful handling and disposal of "sharps", hand washing with soap and water before and after all procedures, use of protective barriers such as gloves, gowns, masks, goggles for direct contact with blood and other body fluids, proper disinfection of instruments and other contaminated equipments and proper handling of soiled linen.

In recognition of the increased awareness and presence of infectious disease among the general public which Gila Regional EMS system serves, every effort will be made by all pre – hospital personnel to prevent the transmission of disease to employees or between patients. The procedures outlined in this document are mandated for all personnel while performing their regular duties as patient care providers. The Occupational Safety and Health

Administration (OSHA) require certain procedures and tasks. The employer may be fined for failure to assure compliance with these procedures. Hence this studies done to create awareness among class IV employees regarding Universal Precautions.

## 2. Need for the Study

Universal Precautions emphasizes the need for workers and students to consider all blood and body fluids as potentially infected with HIV, HBV and other blood borne pathogens and to adhere rigorously to infection control precaution for minimizing the risk of exposure. They are to be used at any time that bloody fluids or extracts of the above handled within the laboratory. Since the advent of HIV in our population, there has been great concern about the transmission of the disease and the following precautions are intended to protect from all blood – borne pathogens.

Universal Precautions (UPs) and more recently Standard Precautions have been widely promoted in high-

income countries to protect health care workers (HCWs) from occupational exposure to blood and the consequent risk of infection with blood borne pathogens. In low-income countries, the situation is very different: UPs are often practiced partially, if at all, thereby exposing the HCWs to unnecessary risk of infection.

Statistics had shown that a study to assess high risk of needle stick injury and explored the health staff in Afghanistan may be at high risk of needle stick injury and occupational infection with blood borne pathogens. 950 staff participated in the study. 73% of staff reported sharp injuries in 12 months. Most at risk were gynecologist / obstetricians (96.1 %) followed by surgeon.

A study the compliance, and reasons for noncompliance, with Universal Precautions and the associated circumstances of mucocutaneous blood exposure (MCE) among Danish physicians. Of 9,384 questionnaires, 6,256 (67%) were returned, and 6,005 were eligible for analysis. Only 35% of respondents were compliant with the basic principle of Universal Precautions. Compliance with specific barriers in the preceding week among "surgeons and pathologists" and "other physicians" was as follows: gloves, 63.0% and 23.4%; masks, 55.2% and 17.6%; and protective eyewear, 11.5% and 4.0%, respectively. Common arguments for non-compliance were "interferes with working skills," "forget," "wear spectacles," "not available," "too much trouble to get," or "gloves do not fit." Detailed descriptions of 741 mucocutaneous blood exposure (MCEs) were obtained. Blood splashes in the eyes (n = 320) was the most common MCE in surgical specialties and pathology, whereas blood on the hands (n = 290) was most common in other specialties. In 20% of MCEs of the eyes, the exposure occurred despite the use of spectacles. An estimated 84% to 98% of MCEs potentially would have been preventable had appropriate barriers been worn. More than one half of MCEs were preventable by two interventions only: compulsory use of protective eyewear during operations and use of gloves during insertion of peripheral intravenous catheters.

Essentially, Universal Precautions are good hygienic habits such as hand washing and the use of gloves and other barriers, correct sharps handling and aseptic techniques. Universal Precautions are designed for doctors, nurses, patients and health care support workers who are required to come into contact with patients or bodily fluids. This study focus on Universal Precautions and try to reduce the incidence of nosocomial infection.

Under Universal Precautions, all patients are considered to be possible carriers of blood – borne pathogens. The guideline recommends wear handing gloves when collecting or handling blood and body fluids contaminated with blood, wearing face shields where there is danger of splashing on mucous membranes and disposing of all needles and sharp objects in puncture – resistant containers. Universal Precautions are the infection control techniques that were recommended following the AIDS outbreak in the 1980's. Every patient is treated as infected and therefore precautions are taken to minimize risk.

Nurses are faced with professional hazards such as needle pricks and blood-borne infections in their day to day activities in the work place. This study is aimed at finding out the knowledge and practice of universal precautions among nurses at the Central Hospital, Benin City, Edo State, Nigeria. One hundred and fifty-five (155)

nurses participated in the cross-sectional study. The nurses were selected using the stratified random sampling method. The nurses had a poor knowledge about universal precautions as only 34.2% of nurses had heard about universal precautions. There was also a poor observance of universal precautions. Knowledge of measures to be taken after the occurrence of occupational accidents/injuries was also poor, as only 26(16.8%) nurses would report puncture injuries to the clinic, only 13(8.4%) nurses would screen patients for HIV antibody after consent when they sustain work related accident/injuries. Twelve (7.7%) nurses would screen patient to determine hepatitis B status of patient while only 8(5.2%) nurses would go for medical check-up/ immunization with hepatitis B vaccine.

### 3. Objectives

1. To assess the knowledge on Universal Precautions among Class IV employees working at AVMC&H, Puducherry.
2. To assess the effectiveness of Structured Teaching Programme on Universal Precautions among Class IV employees working at AVMC&H, Puducherry.
3. To determine the association between the Pretest level of knowledge and selected demographic variables such as age, sex, education, monthly income, year of experience, marital status, religion and place of residence.

### 4. Hypotheses

1. There will be a significant difference between pre-test and post-test knowledge score of Class IV employees regarding Universal Precautions.
2. There will be a significant association between pre-test knowledge scores of Class IV employees regarding Universal Precautions and demographic variables

### 5. Methodology

**Research approach and Design:** Evaluative research approach with pre experimental research design.

**Population:** Employees working in AVMC hospital, Puducherry.

**Sample:** Class IV employees working in AVMC hospital, Puducherry.

**Sampling technique:** Probability simple random sampling

**Sample Size:** twenty five

**Tool design:** Tools consists of two sections:

Part I : Demographic variables

Part II: Structured knowledge Questionnaire on Universal Precaution consists of 30 questions. It was formulated with different aspects such as hand washing techniques, types of waste, method of waste disposal, color coding, methods of disinfection and sterilization.

**Scoring:**

Each item has four options with one appropriate answer, the maximum score of correct response to each item was assigned as 'one' and for wrong 'zero'.

SCORE	REMARKS
< 8	POOR
9 - 15	ADEQUATE
16 - 27	GOOD
>27	EXCELLENT

## 6. Validity and Reliability of the Tool Design

### 6.1. Validity

Content validity of the tool was established in consultation with the guide and experts in the field of nursing and medical practitioners. They were suggested to judge the items for their clarity, relatedness, meaningfulness and adequacy of the content. The comments and suggestions given by 5 experts were incorporated in the tool and it was finalized.

### 6.2. Reliability

Reliability of the tool is defined as the extent to which the instruments give the same result on repeated measures.

Reliability of the tool is computed by using the split half method with Spearman Brown Prophecy formula. Karl Pearson coefficient of correlation is established by using derivation method. The reliability obtained by using Spearman Prophecy formula was  $\gamma = 8$  value. So the Structured questionnaire on Universal precautions was found to be reliable.

**Statistical Test:** Descriptive and Inferential Statistics

## 7. Results

Analysis is a process of organizing and synthesing data in such a way that research questions can be answered and hypothesis tested (Polit and Hungler 2003)

The present study was designed to assess the Effectiveness of Structured teaching programme on Universal precaution among Class IV employees working at AVMC&H., Puducherry. The data were coded, analysed, organized, tabulated and interpreted by using descriptive and inferential statistics as per objectives of the study under the following heading.

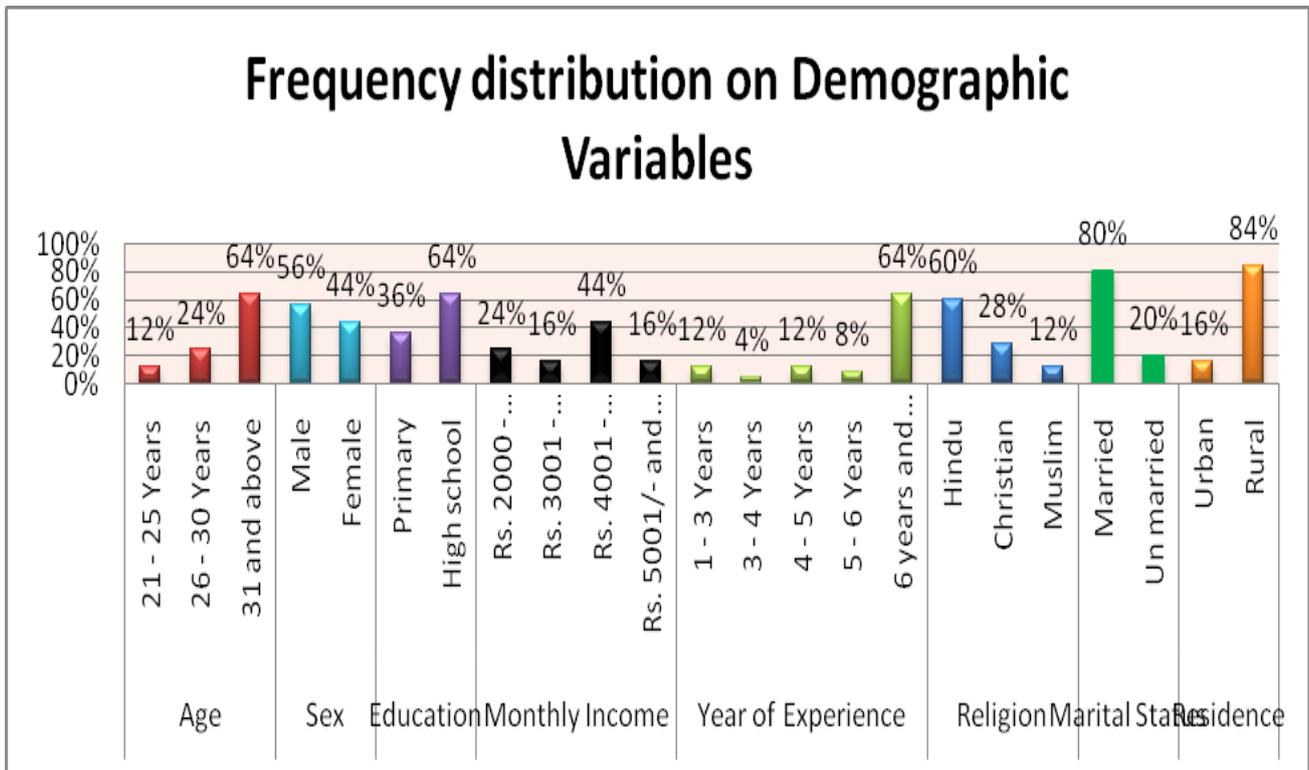


Figure 1. Frequency distribution of subjects by sample characteristics (n=25)

It was found that (Figure 1) majority of the samples (64%) were belongs to the age group of 31 – and above, where as (24%) samples were in the age group of 26 – 30 years and (12%) of samples belongs to the age group of 21 – 25 years. Highest number of samples (56%) were males and the rest (44%) of them were females. Highest percentage (64%) of employees had high school education and (36%) of employees had primary school education. Most of the samples (44%) monthly income were Rs. 4001 – 5000/-, (24%) were in the income group of Rs. 2000 – 3000/-, the similar percentage (16%) of samples monthly income was Rs. 3001 – 4000 and Rs. 5001 – and above respectively. Most of the samples ( 64%) have

experience of 6 years and above, (12%) of them have 1-3 years and 4-5 years, (8%) of them have experience of 5-6 years and (4%) of them have 3-5 years of experience. The highest number of samples (60%) were belongs to Hindu religion, (28%) of them were Christian and (12%) of them were Muslim. Majority of sample (80%) were married and (20%) of them were unmarried. The highest number samples (84%) were residing at rural areas and (16%) of them residing at urban areas.

The data revealed that in pretest, two third of the samples had average knowledge and one third of samples had poor knowledge whereas after the post test the

knowledge score was significantly improved and it was shown that majority of the samples had good knowledge.

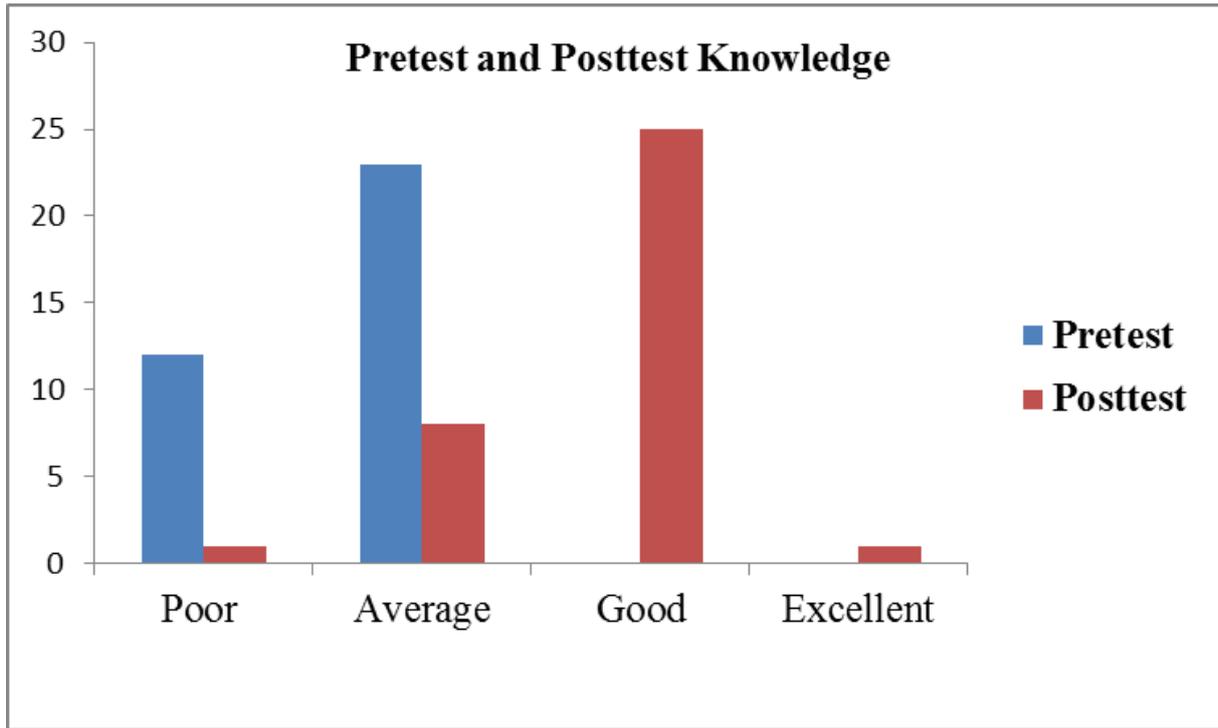


Figure 2. Assessment of Pretest and Post test Knowledge among Class IV employees

Table 1. Effectiveness of Structured Teaching programme by Pretest and post test score of knowledge

Sl. No	ASPECTS	PRE TEST		POST TEST		Difference in Mean %
		Mean	Mean %	Mean	Mean %	
1	Knowledge questionnaire	319	51%	699	93%	42%

The above Table 1 shows the comparison of pretest and posttest level of knowledge to determine the effectiveness of structured teaching programme. It shows that over all knowledge posttest mean value 699 and mean percentage 93% are higher than the pretest the mean value 319 and mean percentage 51%. The obtained “t” value of overall knowledge score 48.148 is greater than the table value at 0.05 level of significance. So research hypothesis is accepted.

Table 2. Association between Pretest knowledge score with Demographic Variables

Variables	Degree of Freedom (df)	Table Value	Chi-square value Value
Age	1	3.841	0.901
Sex	1	3.841	0.887
Educational Status	1	3.841	2.66
Monthly Income	1	3.841	8.3*
Year of Experience	1	3.841	3.02
Religion	1	3.841	4.59*
Marital Status	1	3.841	0.65
Place of Residence	1	3.841	6.5*

\*Significant at 0.05

Above table (Table 2) depicts that monthly income of the family, religion and place of residency had association between pre-test knowledge score regarding universal precaution among Class IV employees.

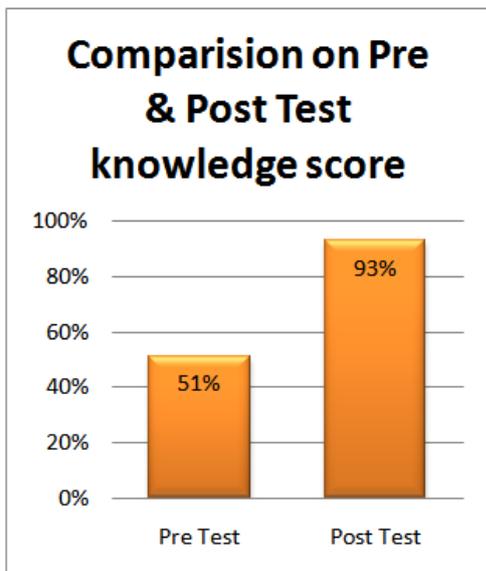


Figure 3. Comparison on Pretest and Posttest Knowledge Score

### 8. Recommendation

- This study can be conducted for larger number of sample for easy generalization of the topic.
- This study can be conducted among nursing student to enhance their knowledge level for their future care.
- Comparative study can be conducted among class IV employees working in private institutions and government institutions.

- Comparative study can be conducted among regular and irregular practice.
- Self - instruction module can be developed regarding techniques of Universal Precautions.

## 9. Conclusion

Hence the investigators find that Class IV employees had lack of knowledge about Universal Precautions and waste disposal management. Researcher boosted the knowledge of class IV employees regarding Universal Precautions with the help of Structured Teaching Programme and it shows the good improvement in their knowledge. Reinforcement is the best way to increase the knowledge level.

## 10. Nursing Implications

Nursing implication of the study could be discussed under nursing education, Nursing administration and Nursing research.

### 10.1. Nursing Education

Nursing curriculum helps the student to gain systematic and scientific information and apply in their nursing practice. Universal Precautions has various health benefits. Hence curriculum should include different techniques and advantages of Universal Precautions. Nursing students should teach about the importance of Universal Precautions, thereby they can help class IV employees.

### 10.2. Nursing Practice

Gaining knowledge without practice is not worth. Hence staff nurse and student nurse should have adequate knowledge regarding aspects of Universal precautions. They should educate and demonstrate the methods of barrier techniques and make them to do return demonstration. Class IV employees are more ignorant towards Universal Precautions. Staff nurse should organize and participate in in - service education programme on different techniques of Universal Precautions to update their knowledge.

### 10.3. Nursing Administration

- Nursing administration should take initiative in guiding nursing personal to teach on Universal Precautions and its benefits.

- Continuous quality assessment can be done by the hospital authority on the quality of health education provided to the Class IV employees.
- Plan in - service education to all nurses and employees to update their knowledge on Universal Precautions and its benefits.
- Pamphlets, handouts, and patient booklets regarding Universal precautions.

## References

- [1] Judith Ann Allender, Cherie Rector, Kristine D. warne. warner, Community health nursing; 7<sup>th</sup> edition; Lippincott; 220-228.
- [2] Claudia M. Smith, Frances A. Maurer, community health nursing – theory and practice, 4<sup>th</sup> edition, W.B. Saunders company, 788-790.
- [3] Marcia Stanhope, Jeanette Lancarter, 6<sup>th</sup> edition, 920-922.
- [4] James F. Mckenzie, Robert R. Pinger, Jerome E. Kotecki, Introduction to Community health, 4<sup>th</sup> edition, Jones and Bartlett publisher, 106-112.
- [5] Tom Christoffel, Susan Scavo Gallagher, Injury prevention and public health, 2<sup>nd</sup> edition, Jones and Bartlett publisher, 169.
- [6] Ruth F. Craven, Constance J. Hirmler, Fundamental of nursing, 4<sup>th</sup> edition, Lippincott William and Wilkins publisher, 494-501.
- [7] Gayleme Bouska Altman, Partica Bushsel, Fundamental and advanced nursing skills, 8<sup>th</sup> edition, Delmers publications, 144-161.
- [8] Christensen, Kockrow; Foundation of nursing; 4<sup>th</sup> edition; Mosby publication; 240-244.
- [9] Teaching material for quality model assurance; Indian Medical Council; 51-69.
- [10] Joyce M. Black; Medical surgical nursing; W; Medical surgical nursing; 4<sup>th</sup> edition; W.B. Saunders company publication; 343.
- [11] B. Sridhar Rao; Community health nursing; AITBS publication; 190-207.
- [12] Candance Friedman, Kathleem H. Peterson; Infe Friedman, Kathleem H. Peterson; Infection control in ambulatory care; 2004; 225.
- [13] John V. Bennett, Philip S. Brachman; Hospital infection 1979, 542.
- [14] Ginapugliese, Partical Lynch, Marguerite Jackson; Universal Precaution policies, procedures & resources; 1991; 250-399.
- [15] Cynthia Spry; Essential of Peri – operative nursing care; 2005; 88-90.
- [16] WHO - HIV/ AIDS series I, reference library for nurses; 1990; 114.
- [17] Emergency care and transportation of the sick and injured by American academy of orthopaedic surgeon; 43-48.
- [18] WHO – AIDS series II (1989) guidelines on sterilisation and disinfection methods effective against HIV; 2<sup>nd</sup> edition; 171.
- [19] Barbara K. Timby; Fundamental nursing skills and aspects; 9<sup>th</sup> edition; Lippincott William and Wilkins publisher; 489.
- [20] June Looby Olesen, Laura gasparis Vonfrolio; Fundamental of nursing; Spinghouse and Pennsylvania publishers; 211-217.
- [21] [www.http://www.wikipedia.universalprecautions](http://www.wikipedia.universalprecautions)
- [22] [www.universalprecautions](http://www.universalprecautions)
- [23] [www.hospitalacquiredinfection](http://www.hospitalacquiredinfection)
- [24] [www.nasocomialinfection](http://www.nasocomialinfection)
- [25] [www.answer.universalprecaution.com](http://www.answer.universalprecaution.com)