

**PERSONAL PROTECTION SELECTION AND ITS USES****Dr. Tongbram Soni Devi\*<sup>1</sup> and Dr. P. Karkuzhali<sup>2</sup>**<sup>1</sup>Postgraduate, Department of Pathology, Sree Balaji Medical College, Chrompet, Chennai, Tamilnadu.<sup>2</sup>Professor and HOD, Department of Pathology, Sree Balaji Medical College, Chrompet, Chennai, Tamilnadu.**\*Corresponding Author: Dr. Tongbram Soni Devi**

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**ABSTRACT**

Personal protective equipment, or PPE, is designed to protect us from work place hazards. The use of PPE can include the use of, or a combination of, protective gloves, eyewear, coveralls, foot protection, head protection, as well as respiratory protection. This can protect people and health care workers from infections. All hospital staff, patients, and visitors should use PPE when there will be contact with blood or other bodily fluids. Personal protective equipment (PPE) is used when there is a risk of exposure to infectious material. PPE is designed to protect the skin and mucous membranes from exposure to pathogens. Health care workers who use PPE to guard against contamination must remember these three principles: 1) Repetitive training and 2) Demonstrated competency in putting on and removing PPE, ensure proficiency in the use of the equipment. 3) The use of a checklist is recommended to document the correct sequence of steps in putting on or taking off PPE.

**KEYWORDS:** PPE, infectious material, contamination.**INTRODUCTION**

Personal protection equipment is a special equipment worn to create a barrier between the person and germs. This barrier reduces the chance of touching, being exposed to and spreading germs. PPE is used when there is a risk of exposure to infectious material. PPE is designed to protect the skin and mucosa membranes from exposure to pathogens. When used properly, PPE acts as a barrier between infectious materials such as viral and bacterial contaminants and to one's skin, mouth, nose or eyes. PPE as defined by the Occupational Safety and Health Administration (OSHA) specialized clothing or equipment worn by an employee for protection against infectious material.

**AIM AND OBJECTIVES**

- To explore the level of awareness among the hospital laboratory workers at SBMCH.
- To explore the level of knowledge and activities of a group working in SBMCH laboratory.

**MATERIALS AND METHODS**

This is a questionnaire based study conducted in SBMCH laboratory during the month of February 2017 on laboratory workers using tools of data collection such as questionnaire. Tools of data collection-Questionnaire study included 70 laboratory personnel and postgraduate students of various departments who worked in laboratory. Questionnaire included questions based on

PPE based on PPE were distributed among the 70 study population. All the 70 filled in the questionnaire.

**RESULTS**

Of the 70 filled in questionnaires received, 98% were using PPE while working in laboratory. 80% were using mask, apron/gown and gloves but foot protection like boots and cap were used occasionally only.

**DISCUSSION**

After the analysis made, PPE workers rated PPE very helpful. None of the workers rated PPE, as not helpful. The range of factors that impact PPE related behavior and compliance were organized into 3 categories, in the 2008 Institute of Medicine (IOM).

**Report and in other studies**

- 1) Individual factors such as knowledge, beliefs, attitude, perception of risk, history and socio demographics.
- 2) Environmental factors including availability of equipments and negative pressure rooms.
- 3) Careful surveillance at an institutional level, including reporting and feedback of data on exposures, might identify some of the unexpected exposures and reduce their occurrence.

**How to put on Personal Protective Equipment**

1. Perform hand hygiene before entering a client's environment.
2. Put on long sleeved gown Opening to the back. Tie at the neck and waist. Cover skin and clothing.
3. Put on a mask. Secure loops or ties,
4. Put on eye protection.
5. Put on gloves Pull gloves over gown cuffs.

**How to take off Personal Protective Equipment**

Remove gloves. Grasp at the palm and remove, pulling the glove inside out. Scoop under the second glove and remove. Place gloves in garbage. Remove gown, untie neck, then waist. Scoop fingers under cuff. Pullover hand. Use gown covered hand to pull gown over other hand. Pull gown off without touching, the outside. Roll gown inside out. Place in laundry hamper or garbage as appropriate. Perform hand hygiene Personal Protective Equipment "Personal Protective". It is therefore important that workers have basic knowledge about the potential hazards and the proper use and Precaution of equipment in use.

**Personal Protective Equipment "Personal Protective" Tips**

Do not dangle a mask around the neck when not in use. Do not reuse, mask. Change the mask if it becomes wet or soiled. Do not double glove. Do not use the same pair of gloves for the care of more than one patient. Do not clean gloves for reuse. Remove gloves and perform hand hygiene immediately after patient care activities. If gloves are soiled, replace with a clean pair.

**CONCLUSION**

PPE is available to minimize the potential hazards for exposure To pathogens. When PPE is worn, removed and discarded properly, it is effective in protecting the person wearing it and the patient and Health care worker and with whom the person comes into contact. The comparative effectiveness of one type against another is still unknown. Factors to consider when choosing PPE for a health care facility may include, availability of supply because large numbers of disposable suits will be used. Standardisation of equipment which will avoid mistakes. Worker preferences (e.g. goggles steam up which could be avoided by visors). Costs of making equipment affordable for low income countries.

**REFERENCE**

1. Putting On and Removing Personal Protective Equipment. Rafael Ortega, M.D, Nahid Bhadelia, M.D, Osamede Obanor, B.S, Kyle Cyr, M.A, Priscilla Yu, B.A, Maureen McMahon, R.N, and Dahlia Gotzmann, B.S.N.N *Engl J Med*, March 19, 2015; 372: e16, 2015 DOI:10.1056/NEJMc1412105.
2. Health Care Workers and Standard Precautions: Perceptions And Determinants of Compliance in the Emergency and Trauma Triage of a Tertiary Care

- Hospital in South India. Sangini Punia, Suma Nair, Ranjitha S. Shetty. Received 18 July 2014; Accepted 14 September 2014; Published 29 October 2014.
3. Personal Protective Equipment for Care of Pandemic Influenza Patients: A Training Workshop for the Powered Air Purifying Respirator. Tompkins, Bonnie M.MD\*; Kerchberger, John P.MD† *Anesthesia and Analgesia*: October 2010, 111(4): 933–945.
  4. Self-Reported Use of Personal Protective Equipment among Chinese Critical Care Clinicians during 2009 H1N1 Influenza Pandemic. Xiaoyun Hu, 1Zhidan Zhang, 2NaLi, 3Dexin Liu, for the China Critical Care Clinical Trial Group (CCCCTG) Published online, 2012 September 5; doi:10.1371/journal.
  5. Awareness about Personal Protective Equipments in Hospital Workers (Sweepers and Cleaners)—Research. Harshini Ravichandran\*, Brundha M.P Saveetha Dental College And Hospitals, Chennai, TamilNadu, India. *Int.J.Pharm.Sci.Rev. Res.*, September–October 2016; 40(1): ArticleNo.07, Pages: 28-29.
  6. Preventing Transmission of Pandemic Influenza and Other Viral Respiratory Diseases: Personal Protective Equipment for Health care Personnel: Update 2010 (2011) Chapter: 4 Using PPE: Individual and Organizational Issues.
  7. Personal Protective Equipment used for Infection Control in Dental practices. Research article. 10.5005/jp-jaypee-journals- 10035-1030. APPandit, Neha Bhagatkar, *Adm* 2015; 3(1): 10-12.
  8. Surveillance of Health Care Workers Exposed to Blood from Patients Infected with the Human Immunodeficiency Virus Ruthanne Marcus, M.P.H., and The CDC Cooperative Needlestick Surveillance Group\* *N Engl J Med*, October 27; 1988; 319: 1118-1123, 1988 DOI: 10.1056/NEJM198810273191703.
  9. Health Care Workers and Universal Precautions: Perceptions and Determinants of Non-compliance Anupam Kotwal and DK Taneja *Indian J Community Med*, 2010 Oct-Dec; 35(4): 526–528. doi: 10.4103/0970-0218.74373 PMID: PMC3026136.
  10. Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff. Verbeek JH<sup>1</sup>, Ijaz S, Mischke C, Ruotsalainen JH, Mäkelä E, Neuvonen K, Edmond MB, Sauni R, Kilinc Balci FS, Mihalache RC. *Cochrane Database Syst Rev*. 2016 Apr 19; 4: CD011621. doi: 10.1002/14651858.CD011621.pub2.
  11. Healthcare workers and health care-associated infections: knowledge, attitudes, and behavior in emergency departments in Italy. Parmeggiani C<sup>1</sup>, Abbate R, Marinelli P, Angelillo IF *BMC Infect Dis*, 2010 Feb 23; 10: 35. doi: 10.1186/1471-2334-10-35.
  12. Universal precautions: knowledge, compliance and attitudes of doctors and nurses in Thailand. Danchaivijitr S<sup>1</sup>, Tantiwatanapaiboon Y,

- Chokloikaew S, Tangtrakool T, Suttisanon L, Chitreechuer L. *J Med Assoc Thai*, 1995 Jul; 78 Suppl 2: S112-7.
13. Factors influencing nurses' compliance with Standard Precautions in order to avoid occupational exposure to microorganisms: A focus group study Georgios Efstathiou,<sup>1</sup> Evidiki Papastavrou,<sup>2</sup> Vasilios Raftopoulos,<sup>3</sup> and Anastasios Merkouris<sup>4</sup> *BMC Nurs*, 2011; 10: 1. Published online 2011 Jan 21. doi: 10.1186/1472-6955-10-1 PMID: PMC3033845.
  14. Influences on compliance with standard precautions among operating room nurses. Osborne S<sup>1</sup>. *Am J Infect Control*, 2003 Nov; 31(7): 415-23.
  15. A review of the evidence for suboptimal compliance of healthcare practitioners to standard/universal infection control precautions. Gammon J<sup>1</sup>, Morgan-Samuel H, Gould D. *J Clin Nurs*, 2008 Jan; 17(2): 157-67. Epub 2007 Mar 1.