Dissertation Title

"To assess the effectiveness of training on knowledge and awareness about BMW management and infection control practices among the housekeeping staff in District Hospital, Ara, Bhojpur."

A Dissertation Proposal for

Post Graduate Diploma in Health and Hospital Management

By

Jasmine Rekhi
Roll No. - PG/11/036

International Institute of Health Management Research
New Delhi

May, 2013

Dissertation Title

A dissertation submitted in partial fulfilment of the requirements
For the award of

Post-Graduate Diploma in Health and Hospital Management

By

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New Delhi -110075

May, 2013

कार्यालय– अधीक्षक, सदर अस्पताल आरा

Certificate of Internship Completion

Date: 27/1/13

TO WHOM IT MAY CONCERN

This is to certify that Mr./Ms./Dr. Jasmine Rekhi has successfully completed her internship in our organization from Feb 7, 2013 to April 27, 2013. During this intern she has worked on the management of Hospital Administration (task performed) under the guidance of me and my team at Sadar Hosp Ara (organisation).

We wish him/her good luck for his/her future assignments

(Signature)

(Name)

उपाधीक्षक
सदर अस्पताल, आरा
Designation

Certificate of Approval

The following dissertation titled " To assess the effectiveness of training on knowledge and perception about BMW management and infection control practices among the housekeeping staff in a District Hospital " is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of Post- Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name	Signature
DR. BRIJENDER SINGH DHILLON	4/5/13
Prof. Minakshi Gautam	8/5/13.

Certificate from Dissertation Advisory Committee

This is to certify that **Ms. Jasmine Rekhi** , a graduate student of the **Post- Graduate Diploma in Health and Hospital Management,** has worked under our guidance and supervision. She is submitting this dissertation titled " To assess the effectiveness of training on knowledge and awareness about BMW management and infection control practices among the housekeeping staff in District Hospital, Ara, Bhojpur " in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Faculty Mentor
Designation
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Organizational Advisor
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सदर अस्पताल, आरा

FEEDBACK FORM

Name of the Student: MISS. JASMINE REKHI.

Dissertation Organisation: – SADAR HOSPITAL, ARA, BHOJPUR.

Area of Dissertation: – HOSPITAL ADMINISTRATION.

Attendance: – COMPLETE.

Objectives achieved: – To assess the effectiveness of training about biomedical waste management and infection control Practices among hospital, House keeping staff

Deliverables: – Set up biomedical waste management system in hospital
– Imparted training on infection control Practices

Strengths:
Punctual, Hard working, Proactive

Suggestions for Improvement:
Keep up the good work.

27/4/12.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

उपाधीक्षक
सदर अस्पताल, आरा

Date: 27/4/12
Place: Ara

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Jasmine Rekhi

Abstract

Introduction - Housekeeping services in a hospital is entrusted with maintaining hygiene and clean hospital environment conducive to patient care. But Housekeeping department is probably the most underrated of all Hospital service department. Because it not directly related to medical care like pharmacy, diagnostics, etc. and it does not generate any profit. It is more neglected in government hospitals due to overcrowding, financial constraints, unwilling supervision and lack of awareness. Housekeeping staff has a major role to play in proper waste management and infection control. The Housekeeping Department in hospitals helps in prevention and minimizing of the effect of the microorganisms in the environment by training its staff on regular basis on biomedical waste management and infection control procedures. So, a study on assessing the effectiveness of training on Bio-medical Waste Management and infection control was conducted among the Housekeeping Staff of District Hospital, Ara, Bhojpur.

Methodology - The study Design was Cross sectional Interventional study and the study area was district hospital,Ara, Bhojpur. Study was conducted between the period of Feb -2013 to April-2013.All the Housekeeping Staff was included (32) in the study. The questionnaire consisted of variables like Personnel details like name, age, sex, years of experience in present job etc. and knowledge on BMW and infection control practices. Intervention tool used were training using training manual covering topics on BMW management and infection control, chalk and talk, two way interactions with discussions and problem solving. Analysis was done using MS-Excel 2007 and SPSS software version 16.0 Statistical tools used were frequency, proportion & percentages and paired sample t-test.

Findings and results - Most of the HK staff belongs to younger age group and are out-sourced. The HK staffs are mostly illiterate or had studied up to 5^{th} standard. Many had experience of working in housekeeping job 1 year or lesser than 1 year.HK staff who had attended any previous training on BMW management and infection control had scored better on test on awareness and knowledge on the above topic. Similarly their vaccination status is also better. The results show that training had significant effect on the knowledge and awareness about BMW management and infection control practices among the HK staff. Most of the staff considered the training helpful and would like to attend further sessions of training.

Recommendations - Training is an effect method to impart knowledge on BMW management and infection control practices. Moreover, since most of the staff is out-sourced, conduction of regular training session is essential as HK staff changes with the change in out-sourced agency of housekeeping.Training should be imparted in local language.Generally HK staff is illiterate or less educated, so training material should have more of pictorial instructions rather than textual.

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List of Abbreviation

HK – Housekeeping

BMW – Biomedical waste

OPIM – Other potentially infected Material

OSHA – Occupational safety and Health Standards

CDC – Centre for disease Control

Part – 1 Internship report

Introduction to hospital and its profile

DISTRICT HOSPITAL,ARA

An Overview

Distict hospital, Ara was constructed in 1933 and situated in the Bhojpur District. The total area of hospital is 4.6 lakh sq. ft., within the close proximity to Ara railway station (2.5 km) and bus stand (0.5 km). It caters to a population of more than 22 lakhs and is the highest referral centre in the district. Further referrals are sent to Patna Medical College Hospital (PMCH) which is about 80 kms from the district.

Site information

It is located in the heart of the city. It is surrounded by residential and commercial complexes and is accessible by motorable road. To the south and the east of the campus are residential areas and on the northern and western side of campus are roads. The main approach road to the site is on the northern side of the campus. To the south-west corner of the hospital is a P.H.E.D. staff quarter.

Services provided at the Hospital

- Clinical services

1. OPD
2. IPD
3. Emergency
4. Family planning

Specialist services - General Medicine, General Surgery, Obstetrics and gynaecology, Paediatrics, Orthopaedics, Ophthalmology, Dermatology and Venerology (Skin & VD), Dental Care, Physiotherapy, AYUSH, Anaesthesia

- Support Services

1. Diagnostics -Laboratory, X-ray, Ultrasound
2. Blood Bank
3. Pharmacy

- Utility Services

1. Housekeeping
2. Dietary
3. Linen and laundry
4. Ambulance

- General Administrative Services

1. Human Resource

2. Material management
3. Finance
4. JBSY
5. HMIS

Staffing

- Doctors – 38
- Nurses grade A – 6
- ANM's - 10
- Pharmacist – 3
- Paramedical staff – 23
- Admin staff – 10
- Grade 4 staff – 12

Hospital statistics for the year 2012-2013

OPD – 359186

IPD – 70848

C –sections performed – 571

Family planning – 781

Roles and responsibilities of Hospital Manager

- Plan, organize, direct, control and co-ordinate day to day activities of the hospital
- Explorating data for quality assurance and monitoring purpose
- Planning and implementing strategic changes to improve service delivery
- Managing clinical, professional, clerical and administrative staff.
- Procurement of equipment and supplies and organising stores
- Liaise with clinical and non-clinical staff in other health facilities and partner organisations
- Public relations
- Implementing new policies and directives

Part -2 Dissertation Report

INTRODUCTION

Housekeeping services in a hospital is entrusted with maintaining hygiene and clean hospital environment conducive to patient care. It is a service function and an all pervasive activity which is performed in every department of the hospital. Housekeeping services has a direct effect on the health, comfort and morale of the patient, staff and visitors, hence is an important public relations variable. Flow chart on functions of good housekeeping is depicted in figure 1.

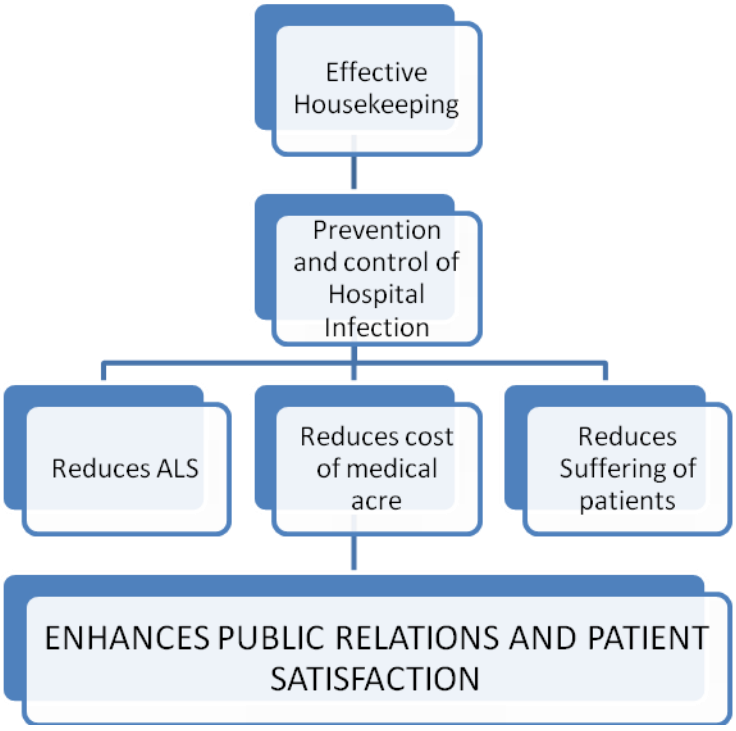


Fig 1. Functions of good Housekeeping

Housekeeping is an integral part of Hospital because:-

1. It imparts hygienic environment
2. Controls infection
3. Maintains high reputation of government hospital

Components of Housekeeping services are:-

1. Clean rooms, clean corridors, clean wards, clean floors, roofs, fixtures, curtains, windows and toilets
2. Hospital waste disposal
3. Sanitation and hygiene
4. Odour control
5. Control of pests, flies, rodents and stray animals
6. Hospital infection control
7. Interior decoration

But Housekeeping department is probably the most underrated of all Hospital service department. Because it not directly related to medical care like

pharmacy, diagnostics, etc. and it does not generate any profit. It is more neglected in government hospitals due to overcrowding, financial constraints, unwilling supervision and lack of awareness.

Medical care is vital for our life and health, but the waste generated from medical activities represents a real problem of living nature and human world. Improper management of waste generated in health care facilities causes a direct health impact on the community, the health care workers and on the environment.

Health Care waste is a biological waste generated during diagnosis, treatment or immunization of human beings or animals or research activities pertaining there to or in the production or testing of biological.

Every day, relatively large amount of potentially infectious and hazardous waste are generated in the health care hospitals and facilities around the world. The average distribution of health acre waste is:-

1. 80% general waste, which may be dealt by the normal domestic and urban waste management system
2. 15% pathological and infectious waste
3. 1% sharps waste
4. 3% chemical or pharmaceutical
5. Less than 1% special waste, such as radioactive waste or cyto-toxic waste, pressurised containers, r broken thermometers or batteries.

Indiscriminate disposal of BMW or hospital waste and exposure to such waste possess serious threat to environment and to human health especially the Housekeeping staff who are directly involved in handling the hospital waste [(1)]

Hospital housekeeping staff faces a risk of exposure to blood or other potentially infectious materials (OPIM) through contaminated work environments and contaminated equipments. They handle infected laundry and sharp and needles. They also work with hazardous chemicals and prone to falls/trips. (OSHA)

The hospital environment is contaminated with pathogens. Hospital housekeepers work in a potentially dangerous environment every day, and knowing how to stay safe can help them to avoid potential hazards. Needle stick and sharp injuries are not uncommon among the HK Staff.

Rationale of the study

Housekeeping staff has a major role to play in proper waste management and infection control.

In a hospital when cleaning services are carried out in accordance with certain provisions it does not only has a positive effect on the morale, welfare and safety of the patients but also prevents a lot of areas from becoming a source of infection. The Housekeeping Department has a distinctive role, in modern hospital administration with regards to its functions of cleaning of hospitals, infection control, sanitation, and decoration as well as the administration of the housekeeping staff. There are various factors playing in the development of hospital infections .The Housekeeping Department in hospitals helps in prevention and minimizing of the effect of the microorganisms in the environment by training its staff on regular basis on biomedical waste management and infection control procedures.

In government hospital where bed occupancy is generally always more than 80%, the awareness about BMW management and infection control should not be limited to only medical and paramedical staff. The Housekeeping department should be considered an integral part in effective waste management and infection control.

In Sadar Hospital, Ara, Housekeeping is done by outsourced agency name Gyan Bharti and the BMW is transported, treated and disposed by Indra Gandhi Biomedical Waste Management Agency. Due to lack of training on BMW management, the HK staff generally used to get confused between different colour of bags and intermixes the biomedical waste. Indra Gandhi BMW agency used to complain on regular basis. Moreover, I observed that HK staff lacked the basic knowledge on infection control. During my internship period I have came across 3 incidences of needle stick injury among the HK staff.

Problem statement

- In government hospitals housekeeping is considered to be limited to sweeping and mopping floors and walls and dumping the waste in dustbins. Infection control practices and BMW management is carried out by medical and para-medical staff only. Hence HK staff should be trained on regular basis on BMW management and infection control procedures.
- The knowledge and awareness about BMW management and Infection control should be assessed to the current status and based upon it training should be conducted.

ROL

Occupational Safety and Health Administration[2]

The United States Occupational Safety and Health Administration (OSHA) is an agency of the United States Department of Labor. Congress established the agency under the Occupational Safety and Health Act, which President Richard M. Nixon signed into law on December 29, 1970. OSHA's mission is to "assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance" These regulations include limits on chemical exposure, employee access to information, requirements for the use of personal protective equipment, and requirements for safety procedures.

It has set common safety and health topics for housekeeping department in hospitals. These are :-

- Contaminated work environment – the possible hazard faced is exposure of housekeeping staff to blood or Other Potentially Infectious Materials (OPIM) through contaminated work environments. Possible solution is Clean and sanitary work environments to prevent contact with blood or OPIM.The employer must determine and implement an appropriate written schedule for cleaning and methods of decontamination.
- Use of Appropriate Disinfectants - The CDC states that hepatitis B virus can survive for at least one week in dried blood on environmental surfaces or contaminated needles and instruments. Potential Hazard is exposure of housekeeping staff to blood or OPIM by not using an appropriate or approved disinfectant. Solution is Fresh solutions of diluted household bleach made up every 24 hours is considered appropriate for disinfection of environmental surfaces and for decontamination of sites. Contact time for bleach is generally considered to be the time it takes the product to air dry.
- Contaminated Equipment - Potential Hazard is employee exposure to blood or OPIM through contact with contaminated: Equipment and working surfaces, Protective coverings, Reusable containers, Glassware. Possible Solutions are that OSHA requires:
  All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials. Some equipment, if grossly contaminated, must be cleaned with a soap and water solution prior to decontamination, as some anti-microbial products will not work in the presence of blood, which interferes with the sterilizing process.Protective coverings, such as plastic wrap or aluminum foil, shall be removed and replaced as soon as possible, when they become overtly contaminated, or at the end of a work shift if they may have become contaminated during the shift. All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for becoming contaminated with blood or other potentially infectious material shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

Broken glassware which may be contaminated, must not be picked up directly with hands; use mechanical means, such as use a brush and dustpan, tongs or forceps.

- Contaminated Laundry - Potential Hazard is Employee exposure to blood and other potentially infectious agents from handling contaminated laundry during rinsing in utility rooms. Some facilities allow employees to rinse contaminated laundry (i.e., laundry contaminated with blood or Other Potentially Infectious Materials (OPIM) or that might contain sharps, in dirty utility "hopper" rooms, instead of simply containerizing it and then transporting it to the laundry. The Possible Solutions are Bagging and handling of contaminated laundry, with a minimal amount of agitation, at the location where it was used. Contaminated laundry shall not be sorted or rinsed in the location of use and must be transported to the laundry for decontamination in bags or containers labeled or color-coded. When universal precautions are used in the handling of all soiled laundry alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with universal precautions.Other Recommended Good Practices: (1)Melt away bags for the bagging process. Melt away bags can be thrown directly into washers without having to unload or remove contaminated laundry from bags.(2)Rinsing soiled laundry in utility rooms is acceptable, if it is not contaminated with blood, OPIM, or does not contain sharps. (3)The ergonomic stressors that can occur with lifting, reaching, rinsing, and transporting wet heavy laundry must also be addressed. A lift or transfer device for the lifting of these materials is recommended.(4)To avoid punctures from improperly discarded syringes/sharps, do not hold contaminated laundry bags close to the body or squeeze when transporting.

- Sharps and containers - Potential Hazard is Exposure of housekeeping staff to contaminated sharps and containers from: (1)Lack of training in proper procedures and poor handling practices of health care workers.(2)Sharps that are not discarded promptly/properly and are left in bedding and accidentally sent to laundry.(3)Improper handling or disposal of sharps containers. (4)Allowing containers to overfill, or transporting incorrectly. Possible Solutions are to Implement work practice and engineering controls to help prevent exposure to sharps. OSHA requires: Sharps must be properly disposed of immediately or as soon as feasible into the appropriate containers.Contaminated sharps must be properly disposed of immediately or as soon as feasible in containers that are closable, puncture resistant, leak-proof and labeled with the biohazard symbol or color coded.Containers must be replaced routinely and not be allowed to overfill.Disposal of Sharps Containers is done by - Employees should be trained in proper handling/disposal of sharps and containers.

Universal precautions for blood and body fluids – borne infections[3]

Aims of universal precautions are –

- To protect health care worker himself
- To prevent spread of infection from one patient to others
- To protect other co-health workers

Universal precautions covers :-

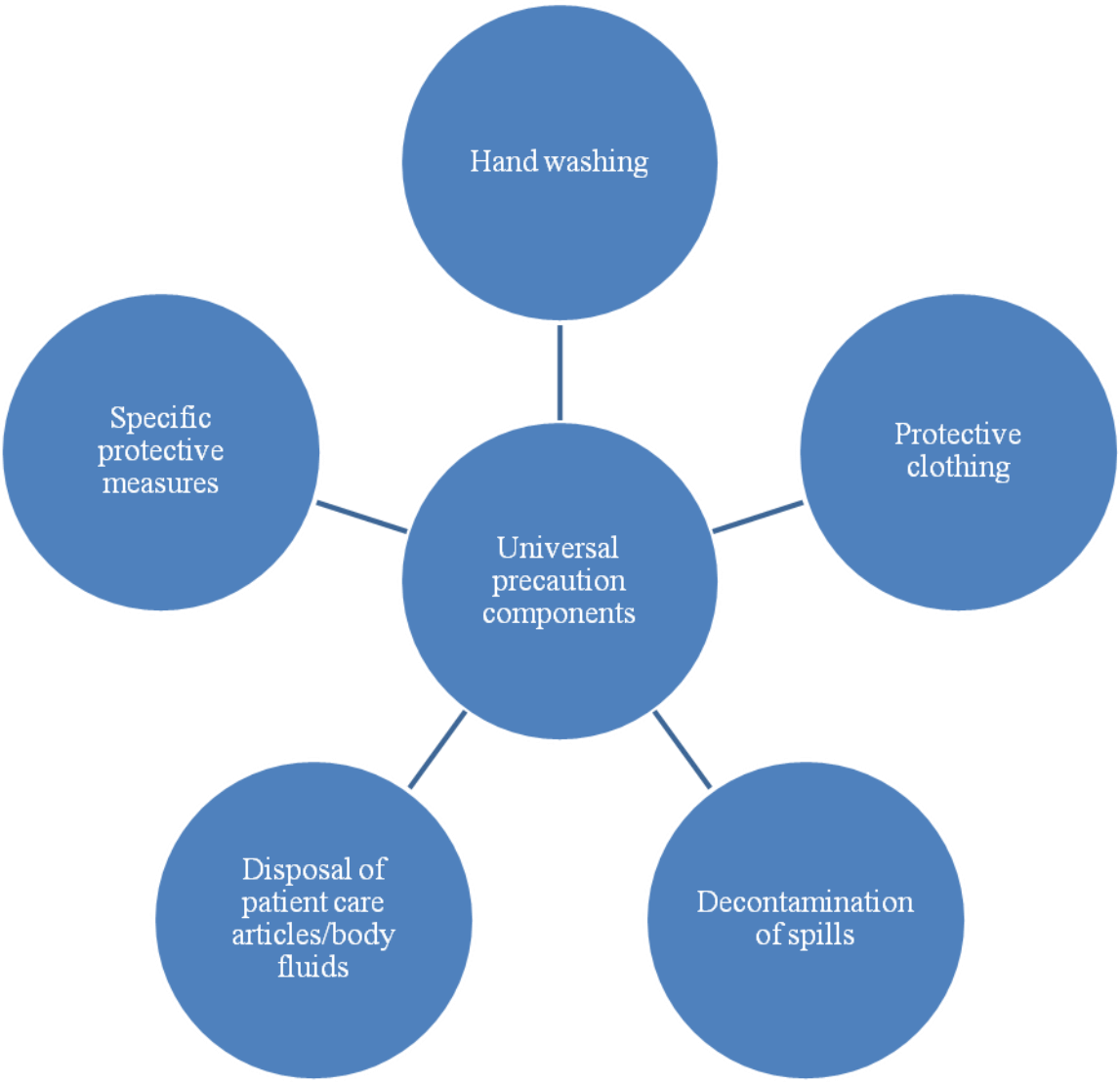


Fig .2 – Components of universal precautions

A study on Needlestick and sharps injuries among housekeeping workers in hospitals of Shiraz, Iran was conducted in year 2009.[4]

It states that Needlestick and sharps injuries (NSSIs) are one of the major risk factors for blood-borne infections (BBPs) at healthcare facilities. This study examines the current prevalence of NSSIs among housekeeping workers engaged in the handling and disposal of biomedical waste (BMW) at government and private hospitals in Shiraz, Iran, and furthermore, explores strategies for preventing these injuries.

Using a questionnaire, data was collected for 92 workers who had engaged directly with BMW. Data was analyzed using Chi-square, student t-test and where appropriate, SPSS version 12. 90.2 % of housekeeping workers were warned of the dangers associated with waste, 87.5 % in government and 93.2 % in private hospitals (P = 0.0444). 83.7 % had attended educational programs on biomedical waste (BMW) management and injury prevention at their hospital in the preceding year. 16.3 % had not been trained in biomedical waste management (P = 0.0379) and 88.9 % had a sufficient supply of safety wear. Conclusion of the study was:-NSSIs are a common risk factor for infection among health care workers within hospitals in Iran. For the effective prevention of these injuries, health boards and hospital trusts need to formulate strategies to improve the working conditions of health care workers, discourage the excessive use of injections, and increase their adherence to universal precautions.

Another study was conducted to determine the exposure to blood borne infections among healthcare workers. The objective was to determine the incidence and nature of occupational exposures to blood and body fluids in health care workers.[5]

All staff at Royal Perth Hospital (a major teaching hospital), who reported an occupational exposure to blood or body fluids to the Department of Clinical Immunology between 1 January 1990 and 31 August 1991.332 reports of occupational exposure were analysed. 332 reports from 323 health care workers were received, giving an overall incidence of 6.1 per 100 full time equivalent (FTE) years. Nursing staff (9.4/100 FTE years) and medical staff (9.0/100 FTE years) reported exposure more frequently than housekeeping staff (2.5/100 FTE years) or paramedical staff (2.3/100 FTE years) (P < 0.001). The rate of exposure to HIV antibody positive patients was only 0.24/100 FTE years. Needlestick or other blood contaminated sharps injuries accounted for 83.4% (277/332) of reports and failure to observe universal precautions for 34.0% of reports. Insertion and operation of parenteral lines (24%) and performing operations (15.4%) were the activities most often associated with occupational exposure.

The conclusion of the study was that occupational exposure to blood and body fluids is common among health care workers but most exposures confer a low risk of blood borne infection. The introduction of an occupational exposure assessment program has many benefits, including optimal management of injuries and acquisition of data on infection control measures, and may protect health care institutions from false claims for compensation.

A similar study on Occupational exposures among nurses and housekeeping personnel in King Chulalongkorn Memorial Hospital was conducted in Thailand in 2004.[6]

Its objectives was To determine the incidence and related factors of blood and body fluid exposure (BBFE)among nurses and housekeeping personnel.

A retrospective survey of BBFE among 858 nurses and housekeeping personnel who were working in the year 2004 was done. Data were collected by a self-administered questionnaire.The annual incidence rate of BBFE was 31.9% (by person) and 45.5 exposures per 100 persons (by event). The highest incidence rate was observed in percutaneous exposure. Graduated nurses had the greatest risk of all exposures, but housekeeping personnel had the highest rate of percutaneous exposure. The highest incidence of BBFE was observed in the emergency room. Most BBFE occurred after using a medical instrument. 76.9% of BBFE were not reported.

The conclusion of the study was that the incidence of BBFE among nurses and housekeeping personnel in King Chulalongkorn Memorial Hospital was high. Systematic control measures and good organization of the work and workplace should be urgently implemented.

A study on The role of environmental cleaning in the control of hospital-acquired infection was conducted in UK in the year 2009.[7]

It states that increasing numbers of hospital-acquired infections have generated much attention over the last decade. The public has linked the so-called 'superbugs' with their experience of dirty hospitals but the precise role of environmental cleaning in the control of these organisms remains unknown. Until cleaning becomes an evidence-based science, with established methods for assessment, the importance of a clean environment is likely to remain speculative. The study examined the links between the hospital environment and various pathogens, including meticillin-resistant Staphylococcus aureus, vancomycin-resistant enterococci, norovirus, Clostridium difficile and acinetobacter. These organisms may be able to survive in healthcare environments but there is evidence to support their vulnerability to the cleaning process. Removal with, or without, disinfectants, appears to be associated with reduced infection rates for patients. Unfortunately, cleaning is often delivered as part of an overall infection control package in response to an outbreak and the importance of cleaning as a single intervention remains controversial. Recent work has shown that hand-touch sites are habitually contaminated by hospital pathogens, which are then delivered to patients on hands. It is possible that prioritising the cleaning of these sites might offer a useful adjunct to the current preoccupation with hand hygiene, since hand-touch sites comprise the less well-studied side of the hand-touch site equation. In addition, using proposed standards for hospital hygiene could provide further evidence that cleaning is a cost-effective intervention for controlling hospital-acquired infection.

A study on awareness of biomedical waste management among health care personnel in Jaipur, India was conducted in year 2006.[8]

The study aimed to determine the awareness regarding biomedical (BM) waste management policy and practices, their attitude towards biomedical waste management, and their awareness regarding needle-stick injury and its prevalence among different categories of health care providers. Methods: A cross-sectional study was conducted using a questionnaire with closed-ended questions. It was distributed to 144 dentists, nurses, laboratory technicians and Class IV employees (cleaners and maintenance personnel) at Jaipur Dental College. The questionnaire was used to assess their knowledge of biomedical medical waste disposal. The resulting answers were graded and the percentage of correct and incorrect answers for each question from all the participants was obtained. Results: Of the 144 questionnaires, 140 were returned and the answers graded. The results showed that there was a poor level of knowledge and awareness ofbiomedical waste generation hazards, legislation and management among health care personnel. It was surprising that 36% of the nurses had an extremely poor knowledge of biomedical waste generation and legislation and just 15% of the Class IV employees had an excellent awareness of biomedical waste management practice. Conclusions: It can be concluded from the present study that there are poor levels of knowledge and awareness about BM waste generation hazards, legislation and management among health care personnel in Jaipur Dental College. Regular monitoring and training are required at all levels.

A study about awareness and practices about health care waste management among hospital staff in a medical college hospital, Bangalore.[9] It states that the waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. The objective was to assess knowledge, attitude, and practices of doctors, interns, nurses, laboratory technicians, attendees and housekeeping staff regarding biomedical waste management. This was a cross-sectional study done in a medical college rural hospital. A total of 383 health personnel were included in the study with their prior consent. Study subjects include doctors (56), interns (65), nurses(83), laboratory technicians(44), attenders (78) and housekeeping staff (57).**Results:** Doctors, nurses have better knowledge than other staff regarding health care waste management. Knowledge regarding the colour coding and waste segregation at source was found to be better among nurses and laboratory staff. Regarding practices related to health care waste management nurses were better. However, injury reporting was nil across all the groups of health professionals. **Conclusion:** The importance of training regarding health care waste management needs emphasis; lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

An article by Nicole Kenny, B.Sc, Assoc Chem,who is the Director of Professional and Technical Services at Virox Technologies Inc. in Toronto - When it Comes to Infection Control,Knowledge Really IS Power.[10]

The goal of any housekeeping department in a health care facility should be to prevent the spread of infectious agents among patients/residents and staff through the meticulous cleaning and disinfection of surfaces. To attain this goal, housekeeping staff need to take part in a comprehensive training program, the objective of which is to provide them with the information they need to do their jobs safely. A training program begins, first and foremost, with providing the right information. There is a lot of information already out there about hospital-acquired infections. Even by paying only passive attention to daily news, we can't help but learn a little about things like *Clostridium difficile* — which received a lot of media hype this past summer when a major out - break occurred in Montreal. While any training program should be a part of the big picture — "how to protect yourself" — at a minimum, it should include a formal written plan that covers each of the following eight areas:

• Identifying occupational risks and hazards associated with handling infectious waste;
• Using sharps safely;
• Blood-borne pathogens;
• Infection control training (microbiology and transmission);
• Hand hygiene;
• Personal protective equipment, including donning and doffing;
• MSDS and hazards associated with using chemicals (cleaning agents, disinfectants,
etc.); and
• Training in product use, including proper cleaning and disinfection techniques.

The person who is handling the training program should involve staff from other departments, such as infection control or occupational health and safety.

In a 1998 article in the Center for Disease's (CDC) *Emerging Infectious Diseases* journal, it was estimated that hospital-acquired infections cost $4.4 billion and contributed to more than 88,000 deaths — one death every six minutes — in 1995 alone. In 2000, the *Chicago Tribune* conducted an investigative report of hospitals and found that 75 percent of an estimated 103,000 patient deaths were linked to hospital-acquired infections — mostly as a result of unsanitary facilities, unwashed hands and/or dirty instruments. The same report also found that housekeeping staff were often inadequately trained. Additionally, several published studies have found that housekeeping staff have a higher rate of occupational-acquired diseases than nurses. Studies have also found a correlation between a lack of formal training of housekeeping staff and poor infection control intervention strategies

The Conclusion is that a basic understanding of the eight areas doesn't require a stethoscope, coke-bottle glasses or even the ability to squint. All anyone needs are a mixture of knowledge, imagination and responsibility:

• Knowledge to know about bacteria, viruses and other microbes (where they are found and how they cause disease); to know how cleaning and disinfectant

products should be used; to know how to protect against potential exposure to blood-borne pathogens, sharps injuries and the proper use of personal protective equipment.

• Imagination to be able to actually picture the microbes all around us.

• A sense of responsibility to take reasonable action to prevent disease

An article by Chris Kosobud in Infection Control Today on November,2010 – Housekeeping Hot Spots for Germs.[11] It says that Germs that can cause colds, flu, infections and other health problems can live on surfaces, just waiting to be picked up by unsuspecting (clean) hands. While nothing beats good old-fashioned handwashing as a way to break the chain of germ transmission, proper attention to surface sanitation can also help minimize the transfer of microorganisms that can occur via hand contact between contaminated surfaces and the people who touch them.

While healthcare-acquired infections (HAIs) can come from numerous causative agents and may be carried by numerous modes of transmission, attention should be paid to the role of environmental surfaces throughout the facility – especially those surfaces commonly considered as germ "hot spots."

In fact, according to the Centers for Disease Control and Prevention (CDC), cleaning and disinfecting environmental surfaces in healthcare facilities is fundamental in reducing the potential contribution of those surfaces to the incidence of HAIs. In addition to proper hand hygiene, such cleaning and disinfecting can help to minimize the transfer of microorganisms that can occur via hand contact between contaminated surfaces and patients.

Environmental surfaces can be divided into two parts: medical equipment surfaces such as knobs or handles on machines, carts, and similar equipment, and housekeeping surfaces, such as floors, walls and tabletops. Housekeeping surfaces can be further divided into those with minimal hand contact (referred to as "low-touch" surfaces) and those with frequent hand contact ("high-touch" surfaces).

Some examples of low-touch housekeeping surfaces include: Window sills, Hard-surface flooring, Walls, Window blinds

Examples of high-touch housekeeping surfaces in patient care areas – those that can be considered germ hot spots – include: Doorknobs, Bedrails, Light switches, Wall areas around the toilet, Restroom surfaces such as faucets, toilet handles, sinks or dispensers, Edges of privacy curtains

While these lists offer some initial guidance, it’s important to note that several factors influence the amount of germs that may be found on individual housekeeping surfaces. The number and types of microorganisms present on environmental surfaces are influenced by:

- The number of people in the environment.
- Amount of activity in the environment.
- Amount of moisture (microorganisms are present in great numbers in moist organic environments, but some can also persist under dry conditions).
- Presence of material capable of supporting microbial growth.
- Rate at which organisms suspended in air are removed.
- Type of surface and orientation (horizontal or vertical).

Even in the absence of visible soiling with blood and/or body fluids, housekeeping surfaces may serve as germ reservoirs in the chain of infection. In fact, methicillin-resistant Staphylococcus aureus (MRSA) can survive for weeks to several months on almost all surfaces, and may cause skin and surgical infections. Clostridium difficile bacteria can live for years on environmental surfaces. Vancomycin-resistant enterococci (VRE) bacteria are very hardy and can live for several days on surfaces. And noroviruses can survive on virtually any hard surface for up to 12 hours.

According to CDC guidelines, hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) have never been known to be transmitted from a housekeeping surface such as floors, walls or countertops. However, prompt removal and surface disinfection of an area contaminated by either blood or body substances is a sound infection-control practice and an OSHA requirement, according to the CDC.

Most, if not all, housekeeping surfaces require regular cleaning with soap and water or a detergent/disinfectant and removal of soil and dust, according to guidelines from the CDC. High-touch housekeeping surfaces in patient-care areas should be cleaned and/or disinfected more frequently than surfaces with minimal hand contact. Horizontal surfaces with infrequent hand contact require cleaning on a regular basis, when soiling or spills occur, and when a patient is discharged from the facility.

Cleaning (the removal of all foreign material such as dirt, body fluids, and lubricants from objects by using water with detergents or soaps and by washing or scrubbing the object) is the necessary first step of any sterilization or disinfection process. It is needed to render the environmental surface safe to handle or use by removing organic matter, salts, and visible soils – all of which interfere with microbial inactivation. In fact, the physical action of scrubbing with detergents and surfactants and rinsing with water removes large numbers of microorganisms from surfaces.

After cleaning, disinfection may be performed to eliminate many or all microorganisms (except spores) from surfaces. A number of disinfectants may be used in healthcare facilities, including alcohols, hypochlorites, chlorohexidine, iodophors, hydrogen peroxide, phenolics, and quaternary amine compounds. Product labels should specify indications for proper use, along with antimicrobial claims. Check to make sure that the chemical has an EPA registration number on the label. Disinfectants should be applied to surfaces uniformly, and surfaces should remain wet for the length of time recommended by the manufacturer.

Guidelines from the CDC indicate that part of the cleaning strategy for environmental infection control should be to minimize contamination of the cleaning solution and cleaning tools. Bucket solutions become contaminated almost immediately during cleaning, and continued use of the solution transfers increasing numbers of microorganisms to each subsequent surface to be cleaned. Another source of contamination in the cleaning process is the cleaning cloth, especially if left soaking in dirty cleaning solution. Making sufficient fresh cleaning solution for daily cleaning, discarding any remaining solution, and drying out the container will help to minimize the degree of bacterial contamination.

The choice of wiping materials is also important, and many healthcare professionals may be surprised to learn that common systems – such as using a cotton rag or cellulose-based wiper to apply bleach or quaternary amines to surfaces – deliver less-than -ideal concentrations of disinfectants/sanitizers to the surface, according to two recent studies.

Selecting the appropriate wiper and system is critical to optimum disinfectant application. Wiping systems that sustain disinfectant concentrations over prolonged periods can improve disinfection protocol consistency in hospital germ hot zones.

Objectives of the study

General objective – To assess the effectiveness of training on knowledge and awareness about BMW management and infection control practices among the housekeeping staff in District Hospital, Ara, Bhojpur.

Specific objective –

1. To assess the knowledge and awareness about Biomedical waste management and infection control among Housekeeping staff of District Hospital, Ara.
2. To impart training on the above topic
3. To evaluate effectiveness of training on their knowledge and awareness about the same after training.

Methodology

Materials and method

- Study Design: Cross sectional Interventional study
- Study Area: District Hospital, Ara, Bhojpur
- Study Period: 3 months (Feb 2013-April 2013)
- Study Population: Housekeeping staff
- Sample size : All staff of housekeeping department (32)
- Study variables: Personnel details like name, age, sex, years of experience in present job etc. and knowledge on BMW and infection control practices.
- Intervention tool :training using training manual covering topics on BMW management and infection control, chalk and talk, two way interaction with discussions and problem solving

Data collection

Step 1: Designing of questionnaire

Step 2: Validation of questionnaire

Step 3: Pre test

Step 4: Intervention with training module, chalk and talk, discussion and problem solving.

Step 6: Post test at the end of training

Training covered the following topics :-

1) Biomedical waste management
a) Segregation
b) Collection and storage
c) Transportation
d) Treatment and disposal
2) Infection control
a) Hand washing
b) Personal Protective clothing
c) Use of disinfectant
d) Handling of soiled linen
e) Cleaning of floors
f) Handling of blood and body fluid spills

Analysis

- Tabulation of data using MS-Excel 2007
- Analysis using SPSS software version 16.0
- Statistical tools used were frequency, proportion & percentages and paired sample t-test.

Results and findings

1. 19% of HK staff lies in age range of 16-20 years, 47% in age range of 20-30years, 19% in age range of 30-40 years and less than 14% are above 40 years of age.

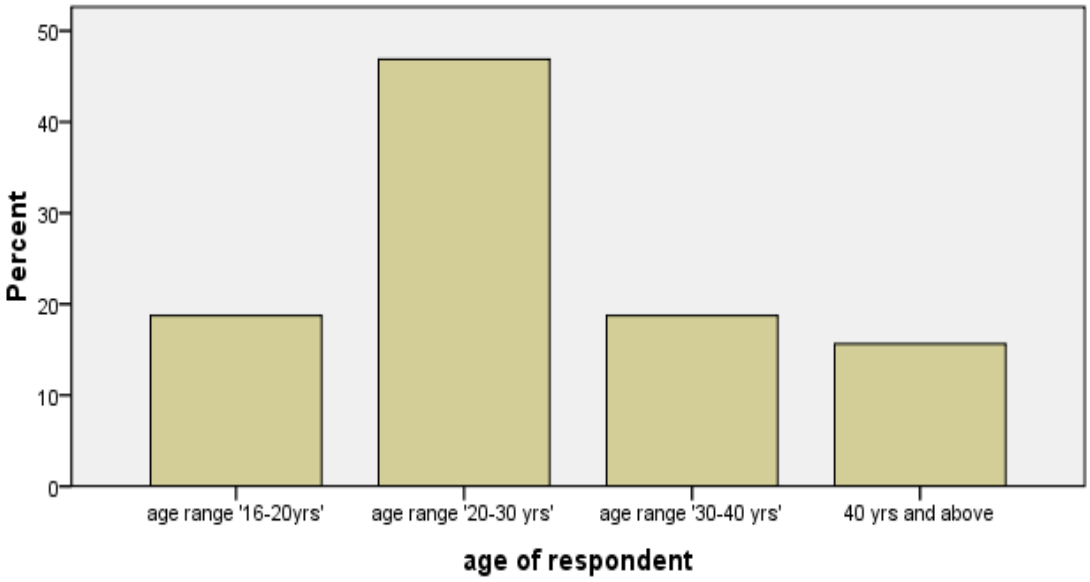


Fig .3 – Age distribution of HK staff

2. 78% of Housekeeping staff are male and only 22% are female

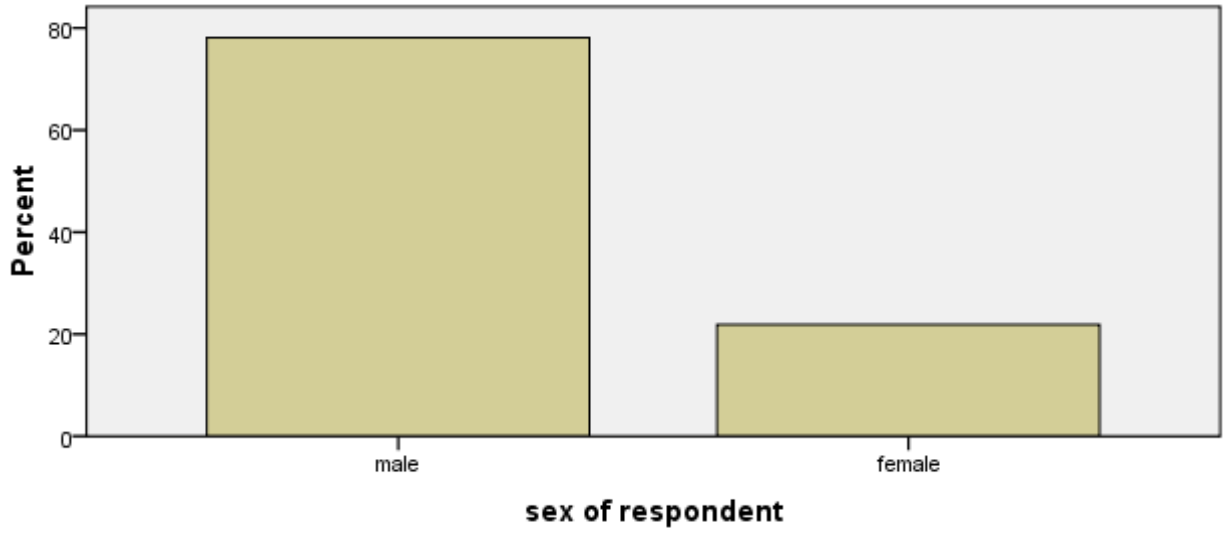
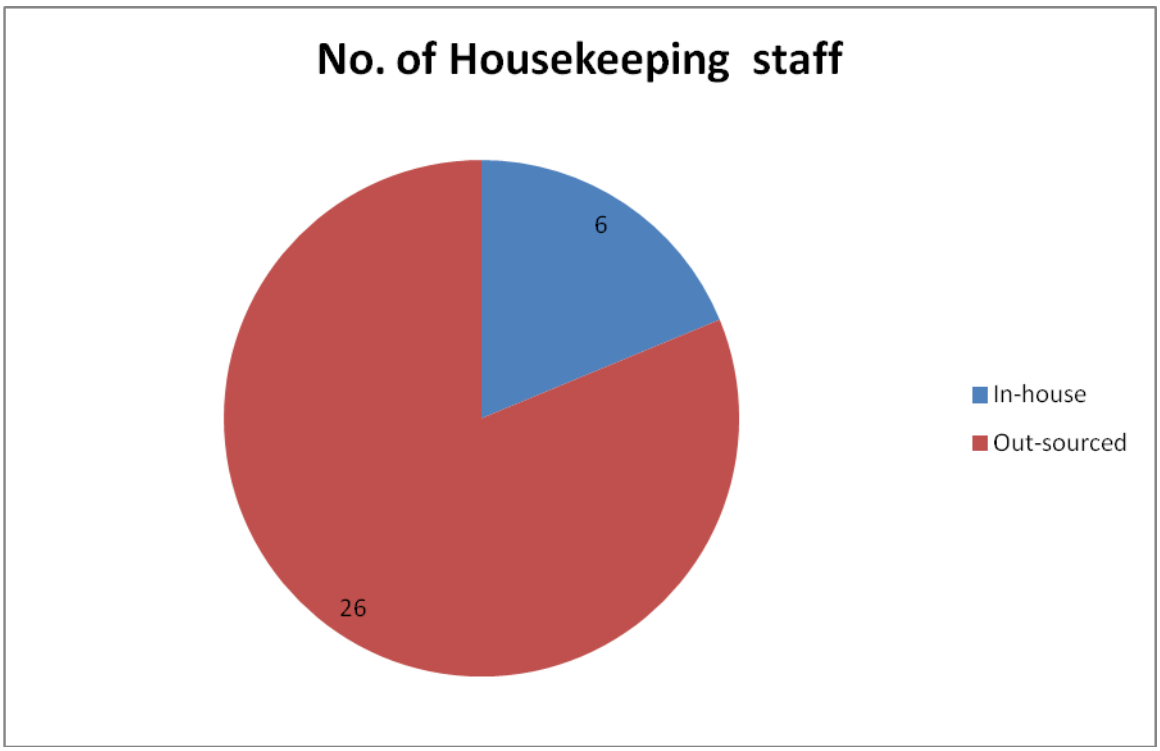


Fig. 4 – Percentage of male and female among HK staff

3. Almost 80% of housekeeping staff is out-sourced and only 20% is in house.



4. Around 65% of HK staff have years of experience in current job 1 year or less than 1 year. 20% have experience of 1 to 5 years and rest have more than 5 years of experience.

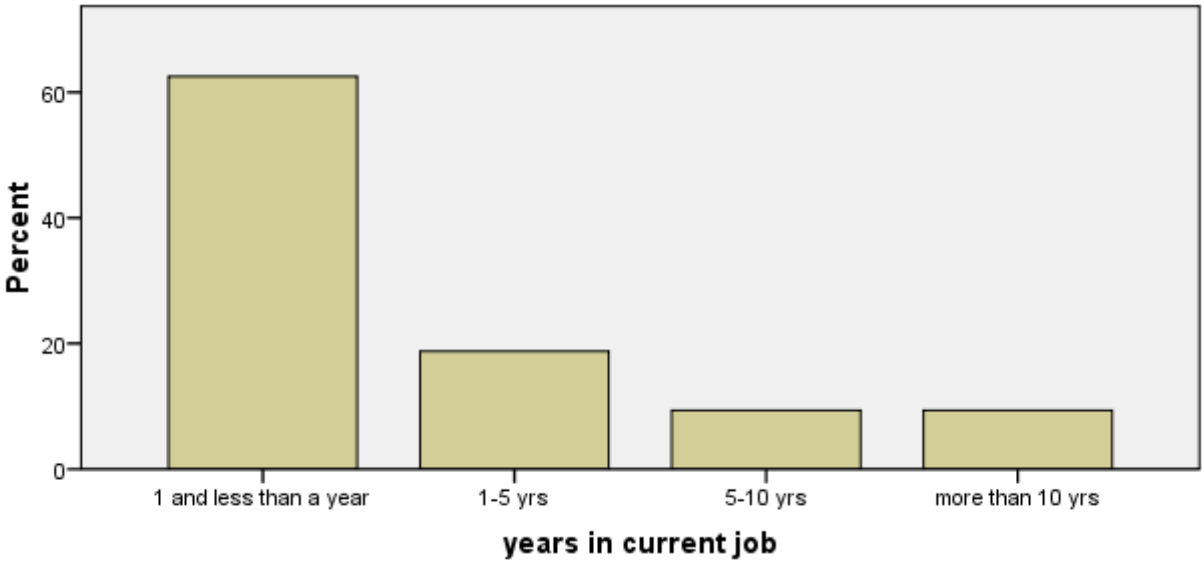


Fig. 5 – Experience of HK staff in current job

5. 35% of HK staff is illiterate, 50% have studied upto 5th standard, 6% have studied upto 8th standard and 10% are graduate.

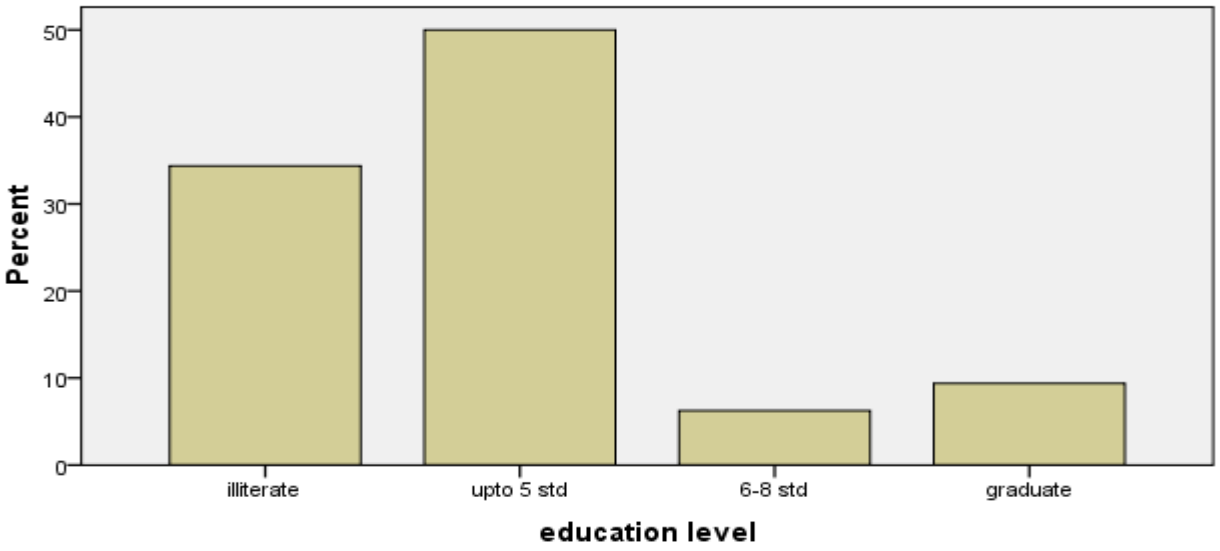


Fig. 6 – Education level of HK staff

6. 56% HK staff has not attended any previous training on BMW management and infection control. Rest 46% have attended similar training before.

Fig .7- percentage of HK staff who had attended training before

7. 60% of HK staff not vaccinated against Hepatitis B and Tetanus and rest 40% are vaccinated.

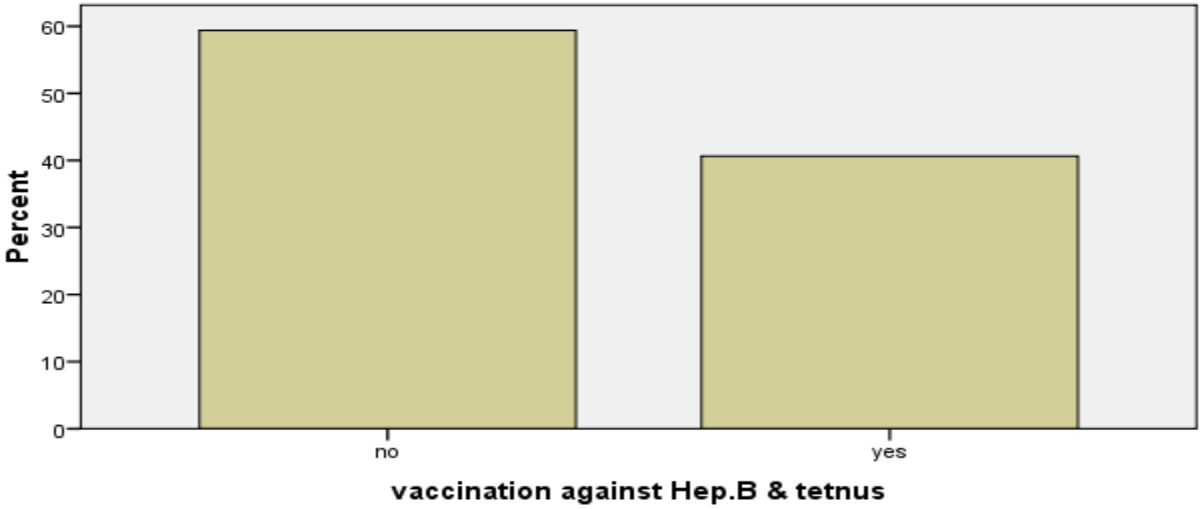


Fig. 8 – Percentage of HK vaccinated against Hepatitis b and tetanus

8. 85% of HK staff thinks that they require training on BMW management and infection control.

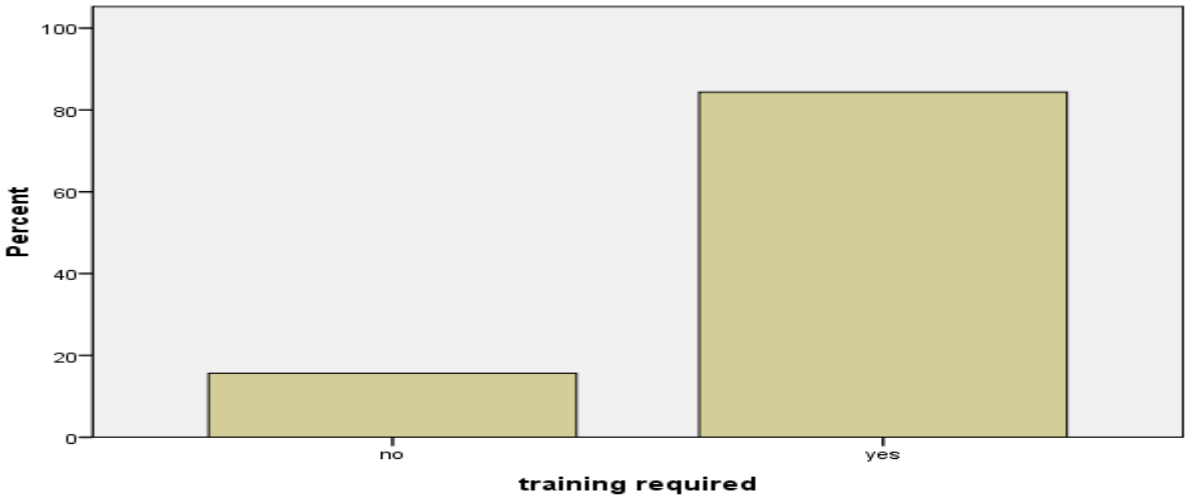


Fig .9 – Percentage of HK staff who think training is required

9. Paired sample t-test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total score before training	6.62	32	2.575	.455
	Total score after training	10.50	32	3.048	.539

Table 1 – Descriptive statistics on before and after training scores

A paired sample t-test was conducted to compare effect on training on scores before and after training. There was significant difference in scores before training (M =6.62, SD = 2.575) and after training (M = 10.50, SD = 3.048) conditions; t (31) = -7.854, $p<0.005$. The results suggest that there is less than 5% chance that the difference in scores is by chance.

Cross-tabulations

10. Between vaccination status and education level of HK staff, years of experience in current job and attended similar training before suggests that education level and years of experience does not have any effect on vaccination status. HK staff who had attended similar training before has better vaccination status.

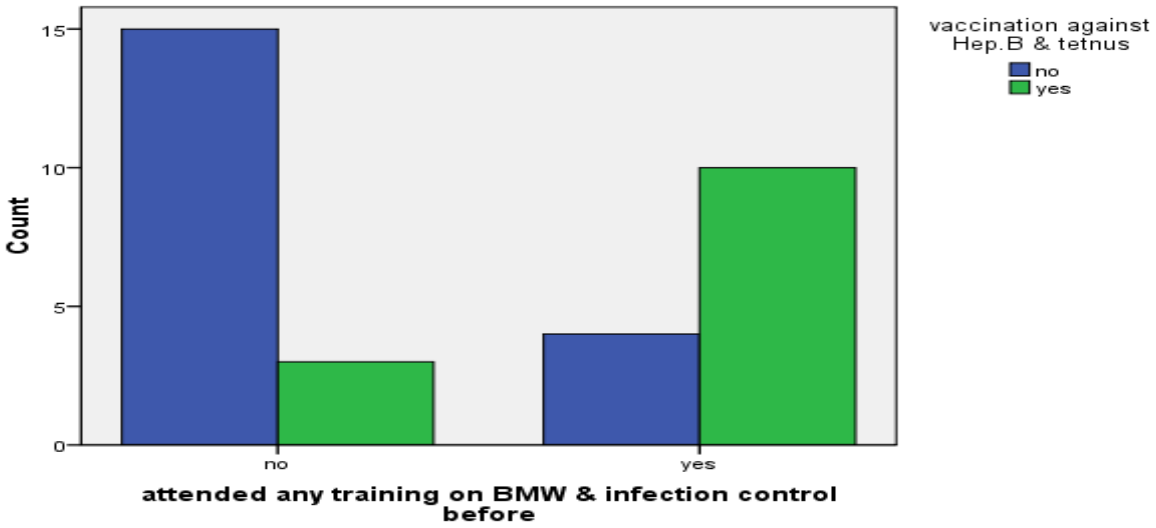


Fig .10 – Cross – tabulation between vaccination status and attendance in similar previous training

11. Similarly HK staff who had attended any training before scored slightly better in pre-training test on BMW management and infection control practices. Here also education level and years of experience does not have much effect on pre-training scores.

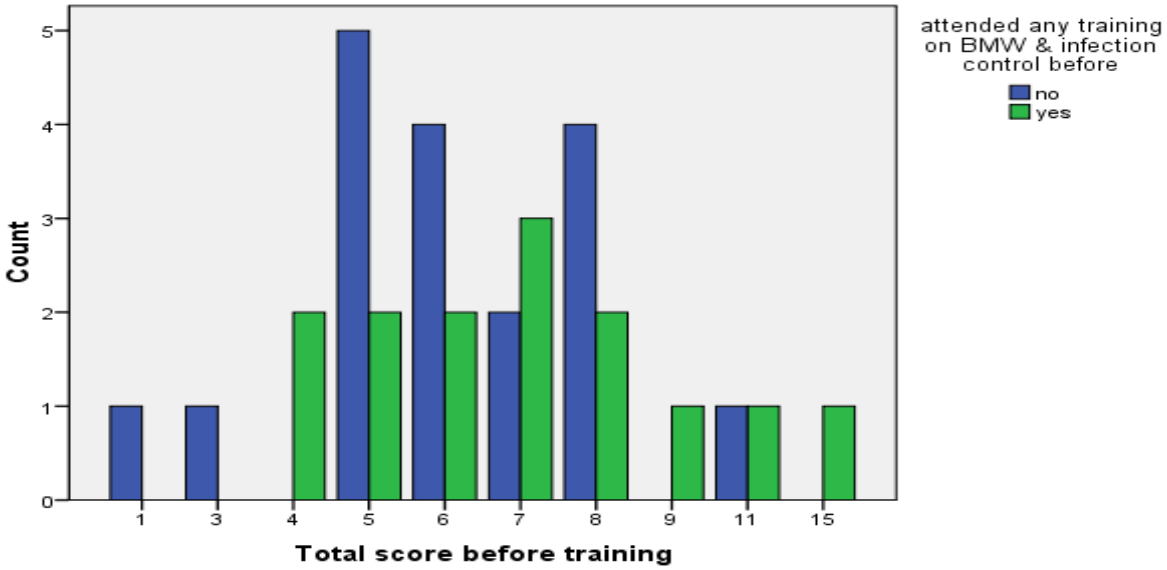


Fig 11. – Cross-tabulation between scores before training and attendance in similar previous training

12. After training 90% HK staff considered training helpful.

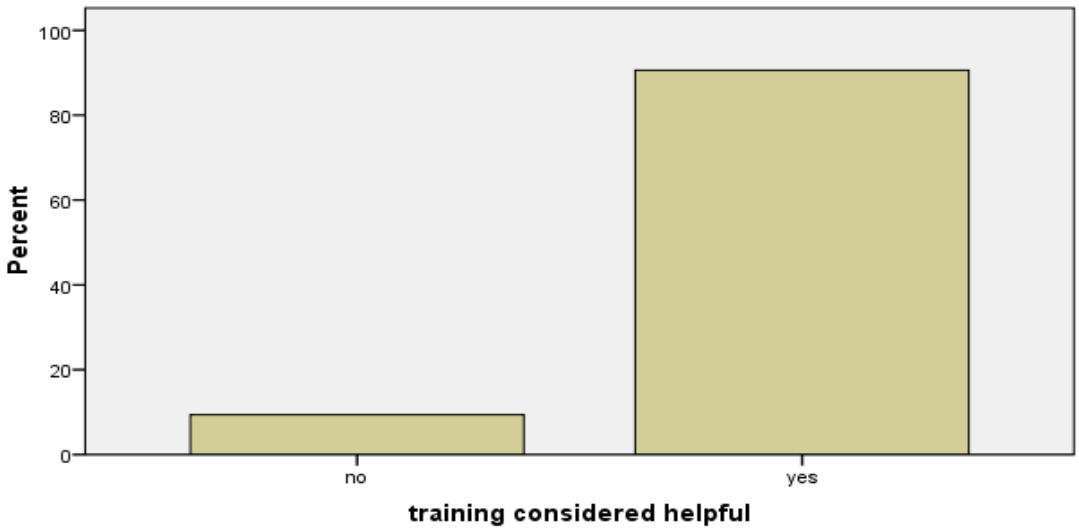


Fig. 12 – Percentage of HK staff who considered training helpful

13. 72% of HK staff would like to attend further sessions of training.

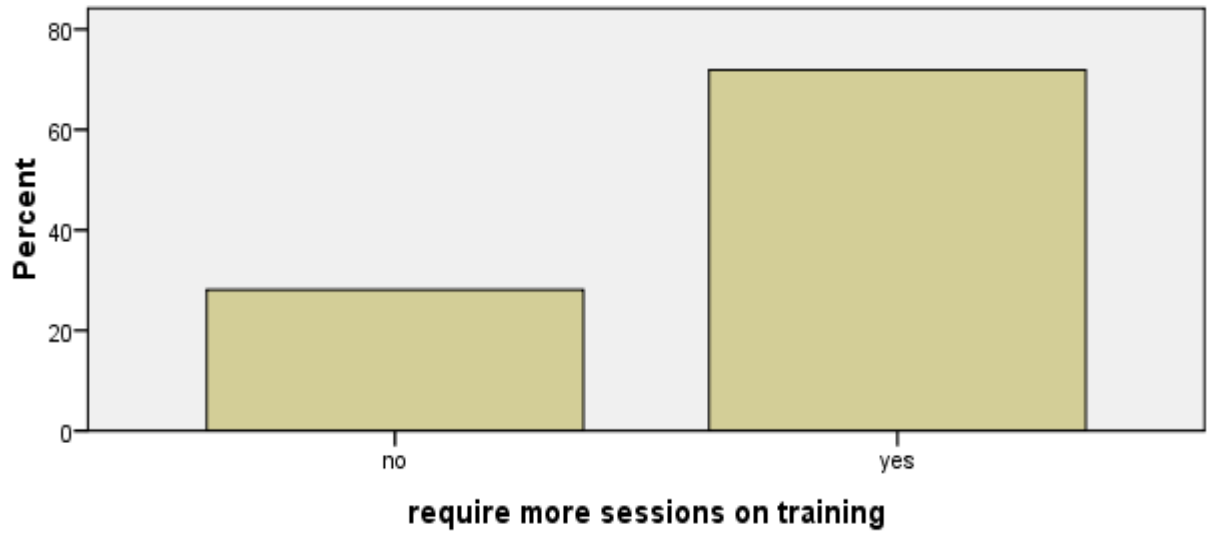


Fig .13 – Percentage of staff who would like to attend further sessions of training

Discussion

- Most of the HK staff belongs to younger age group.
- Most of the housekeeping staff is out-sourced.
- The HK staffs are mostly illiterate or had studied up to 5^{th} standard.
- Many had experience of working in housekeeping job 1 year or lesser than 1 year.
- HK staff who had attended any previous training on BMW management and infection control had scored better on test on awareness and knowledge on the above topic. Similarly their vaccination status is also better.
- The results show that training had significant effect on the knowledge and awareness about BMW management and infection control practices among the HK staff.
- Most of the staff considered the training helpful and would like to attend further sessions of training.

Conclusion and recommendations

- Training is an effect method to impart knowledge on BMW management and infection control practices.
- Training should be conducted on periodic basis as one cannot retain all information after a single session. Moreover, constant reminder through training will instil the habit of BMW management and infection control practices.
- Moreover, since most of the staff is out-sourced, conduction of regular training session is essential as HK staff changes with the change in out-sourced agency of housekeeping.
- Training should be imparted in local language.
- Generally HK staff is illiterate or less educated, so training material should have more of pictorial instructions rather than textual.
- HK staff is eager to learn better practices and their role in waste management and infection control should not be underrated as CDC also states that environmental cleaning (carried out by HK staff) has an important role in decreasing HAI.

Limitations

- Sample size is small, hence the findings cannot be generalised to all HK staff of District hospitals.
- There was time constraint
- Lack of existing studies for review purpose.

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Annexure

अपशिष्ट प्रबंधन और संक्रमण नियंत्रण पर जानकारी आँकने के लिए प्रशनावली

नमस्कार, प्रश्नावली में माँगी गई जानकारी शोध करने के लिए माँगी जा रही है। जानकारी को गोपनीय रखा जायेगा। कृपा करके शोध कार्य में सहायता करने के लिए अपनी अनुमति दें। मैं आपकी आभारी रहूँगी।

(हस्ताक्षर)

व्यक्तिगत जानकारी

1. नाम :
2. उम्र :
3. लिंग :
4. पता :
5. आप वर्तमान जाब में कब से कार्य कर रहे हैं ?
   (कितने साल हो गए)
6. क्या पहले ऐसा कार्य कर चुके हैं ?
   (अगर हाँ तो कितने साल तक)
7. आप कहाँ तक पढ़े हैं ?
8. क्या आपने पहले कभी अपशिश्ट प्रबंधन एवं सक्रमण नियत्रण पर प्रशिक्षण लिया है ?
9. क्या आपने Hepatitis B और Tetanus से बचने के लीए टिकाकरण करवाया हैं?

प्रशिक्षण से पूर्व

(सही ऊतर पर ✓ और प्रश्न के ऊतर भरें)

1. अपशिश्ट प्रबंधन के लिये सबसे पहले क्या किया जाता है ?
   - i. ढुलाई
   - ii. छँटाई
   - iii. संग्रहण और भंडारण
   - iv. उपचार और निस्तारण

2. संक्रमित नुकीली चीजों जैसे नीडल, ब्लेड आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?
   - i. लाल
   - ii. काला
   - iii. नीला
   - iv. पीला

3. संक्रमित गैर नुकीली वस्तुएँ जैसे पट्टी, रूई, मास्क आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?
   - i. लाल
   - ii. काला
   - iii. नीला
   - iv. पीला

4. गैर संक्रमित अपशिश्ट जैसे गत्ते के डिब्बे, फल, सब्जियों के छिलके, कवर आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?
   - i. लाल
   - ii. काला
   - iii. नीला
   - iv. पीला

5. शारीरिक अपशिश्ट जैसे नाल, शरीर का भाग आदि आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?
   - i. लाल
   - ii. काला
   - iii. नीला
   - iv. पीला

6. नुकीली चीजें कौन से डिब्बे या थैले में डालना बेहतर है ?

i. छिद्र अभेद्य पात्र

ii. प्लास्टिक या थैला

7. तरल अपशिश्ट की सफाई में उपयोग हुआ कपड़ा कोन से रंग के डिब्बे या थैले में डालना चाहिए ?

i. लाल

ii. काला

iii. पीला

iv. नीला

8. संक्रमित और गैर–संक्रमित अपशिश्ट का संग्रहण कँहा करना चाहिए ?

i. एक जगह

ii. अलग–अलग जगह

9. अपशिश्ट से भरे डिब्बे /थैले किस स्तर तक भरना चाहिए ?

i. तीन चौथाई

ii. ऊपर तक

10. अपशिश्ट का भंडारण ..... घण्टे से ज्यादा ना करेः–

i. 24

ii. 48

11. अपशिश्ट की ढुलाई कौन से रास्ते से करेंः–

i. भीड़भाड वाला रास्ता

ii. भीड़भाड से अलग एक निश्चित रास्ता

12. संक्रमण की रोकथाम के लिये हाथ कैसे धोएँ?

i. सिर्फ पानी से

ii. पानी और साबुन से

13. अपशिश्ट के संपर्क के दौरानः–

i. हमेशा व्यक्तिगत सुरक्षा उपकरण पहनें

ii. कभी–कभी व्यक्तिगत सुरक्षा उपकरण पहनें

14. 1 प्रतिशत ब्लीचिंग पाउडर घोल बनाने की कार्यविधि बताएँ –

15. गंदे/मैले कपड़े की सफाई कैसे करें ?

i. पहले डिस्इंफेक्ट करें, फिर धुलाई करें

ii. पहले धुलाई करें, फिर डिस्इंफेक्ट करें

16. फर्श की सफाई के लिए कौन सा सिस्टम प्रयोग करें ?

i. एक बाल्टी सिस्टम

ii. दो बाल्टी सिस्टम

iii. पता नहीं

17. तरल अपशिश्ट बिखरने पर क्या करें ?

18. क्या आप अपशिश्ट प्रबंधन और संक्रमण रोकथाम पर प्रशिक्षण लेना चाहेंगे ?

i. हाँ

ii. नहीं

प्रशिक्षण के पश्चात्

(सही ऊतर पर ✓ और प्रश्न के ऊतर भरें)

10. अपशिश्ट प्रबंधन के लिये सबसे पहले क्या किया जाता है ?

v. ढुलाई
vi. छँटाई
vii. संग्रहण और भंडारण
viii. उपचार और निस्तारण

11. संक्रमित नुकीली चीजों जैसे नीडल, ब्लेड आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?

v. लाल
vi. काला
vii. नीला
viii. पीला

12. संक्रमित गैर नुकीली वस्तुएँ जैसे पट्टी, रूई, मास्क आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?

v. लाल
vi. काला
vii. नीला
viii. पीला

13. गैर संक्रमित अपशिश्ट जैसे गत्ते के डिब्बे, फल, सब्जियों के छिलके, कवर आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?

v. लाल
vi. काला
vii. नीला
viii. पीला

14. शारीरिक अपशिश्ट जैसे नाल, शरीर का भाग आदि आदि कौन से रंग के थैले या डब्बे में डालना चाहिए ?

v. लाल
vi. काला
vii. नीला
viii. पीला

15. नुकीली चीजें कौन से डिब्बे या थैले में डालना बेहतर है ?

iii. छिद्र अभेद्य पात्र

iv. प्लास्टिक या थैला

16. तरल अपशिश्ट की सफाई में उपयोग हुआ कपड़ा कौन से रंग के डिब्बे या थैले में डालना चाहिए ?

v. लाल

vi. काला

vii. पीला

viii. नीला

17. संक्रमित और गैर–संक्रमित अपशिश्ट का संग्रहण कँहा करना चाहिए ?

i. एक जगह

ii. अलग–अलग जगह

18. अपशिश्ट से भरे डिब्बे /थैले किस स्तर तक भरना चाहिए ?

i. तीन चौथाई

ii. ऊपर तक

10. अपशिश्ट का भंडारण ..... घण्टे से ज्यादा ना करेः–

iii. 24

iv. 48

11. अपशिश्ट की ढुलाई कौन से रास्ते से करेंः–

iii. भीड़भाड वाला रास्ता

iv. भीड़भाड से अलग एक निश्चित रास्ता

13. संक्रमण की रोकथाम के लिये हाथ कैसे धोएँ?

iii. सिर्फ पानी से

iv. पानी और साबुन से

13. अपशिश्ट के संपर्क के दौरानः–

iii. हमेशा व्यक्तिगत सुरक्षा उपकरण पहनें

iv. कभी–कभी व्यक्तिगत सुरक्षा उपकरण पहनें

14. 1 प्रतिशत ब्लीचिंग पाउडर घोल बनाने की कार्यविधि बताएँ –

15. गंदे/मैले कपड़े की सफाई कैसे करें ?

iii. पहले डिस्इंफेक्ट करें, फिर धुलाई करें

iv. पहले धुलाई करें, फिर डिस्इंफेक्ट करें

16. फर्श की सफाई के लिए कौन सा सिस्टम प्रयोग करें ?

iv. एक बाल्टी सिस्टम

v. दो बाल्टी सिस्टम

vi. पता नहीं

17. तरल अपशिश्ट बिखरने पर क्या करें ?

18. क्या आपको प्रशिक्षण लाभदायक लगा ?

i. हाँ

ii. नहीं

19. क्या आप फिर से प्रशिक्षण लेना चाहते हैं ?

i. हाँ

ii. नहीं

Training Manual on Bio-medical Waste Management and Infection Control

अस्पताल अपशिष्ट प्रबंधन एवं संक्रमण नियंत्रण

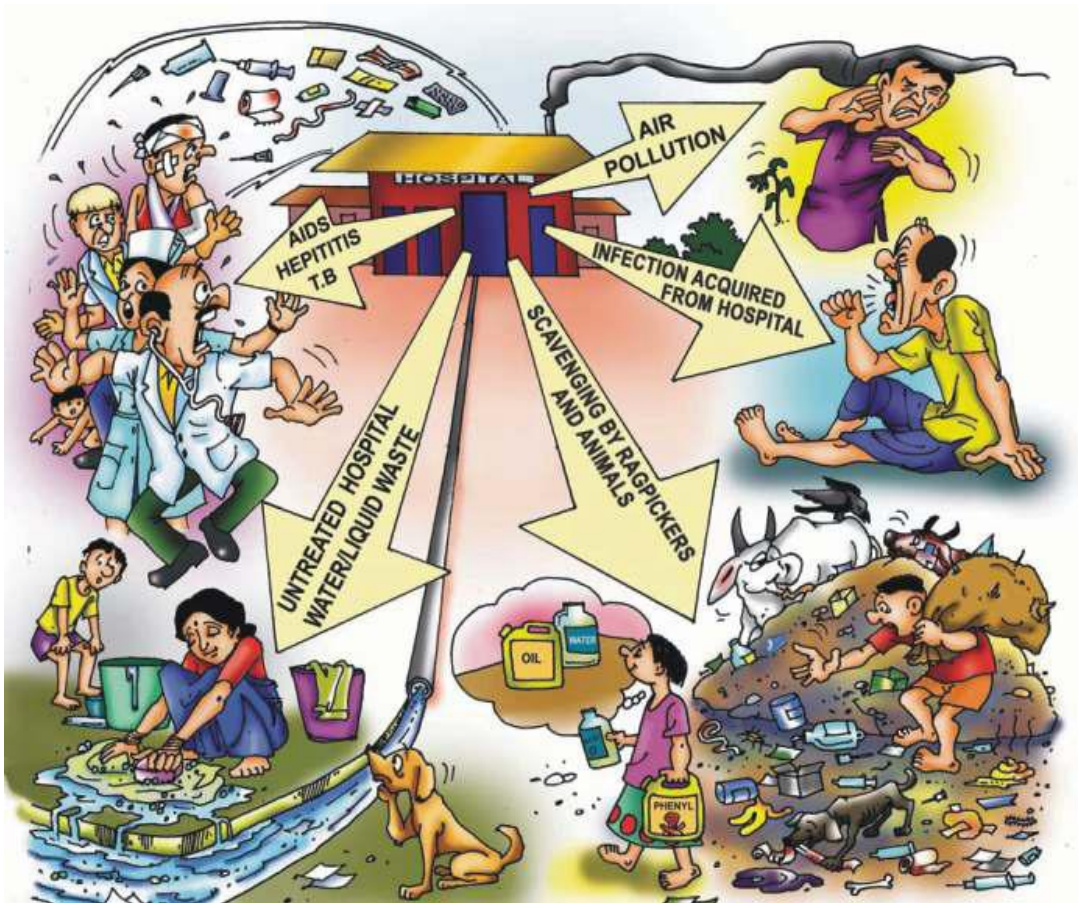
दिशा निर्देश

सदर अस्पताल, आरा, भोजपुर।

सफाई कर्मचारी के लिए सदर अस्पताल में अपशिष्ट प्रबंधन और संक्रमण नियंत्रण हेतु दिशा निर्देश

एक सदर अस्पताल पुरे जिले की आबादी की आवश्यकताओं की पूर्ति करता है और विविध गतिविधियों के माध्यम से विभिन्न प्रकार के ऐसे अपशिष्ट सृजित करता है जिनकी व्यवस्था Biomedical Waste Management & Handling Rules 1998 के अंतर्गत की जानी आवश्यक है। इन नियमों के तहत हर स्वास्थ्य केन्द्र पर पुख्ता स्वास्थ्य सेवा अपशिष्ट नियंत्रण व्यवस्था होनी आवश्यक है। मौजूदा दिशा–निर्देशों को उद्देश्य है कि वे सफाई कर्मचारी को अपशिष्ट व्यवस्था करने और स्वयं एवं समुदाय को सवंमित अपशिष्ट को दुश्परिणामों से बचाने में सहायता करें।

अस्पताल से उत्पन्न होने वाले अपशिश्ट के नियत्रण के लिए एक ऐसी व्यवस्था की आवश्यकता है जो कि सरल हो, कर्मियों और समुदाय के लिए सुरक्षित हो, जिसे इस्तेमाल करना आसान हो। इसके लिए इस निर्देशिका में कई उपायों को चित्रों के माध्यम से दर्शाया गया है। ये चित्र खुद समझाते हैं और अपशिष्ट व्यवस्था एव संक्रमण नियंत्रण करना दर्शाते हैं।



अनुक्रमणिका

1. Waste Management

Steps for Waste Management

Step 1 Segregation/ छंटाई

Step 2 Collection & Storage/ संग्रहण और भंडारण

Step 1 Transport/ ढुलाई

Step 1 Treatment & Disposal/ उपचार एवं निस्तारण

1.1 छंटाई

करें

1. सदा अपशिश्ट का सवंमित और असंक्रमित में छाँटने की प्रक्रिया उसके सृजन के साथ आरंभ करें।

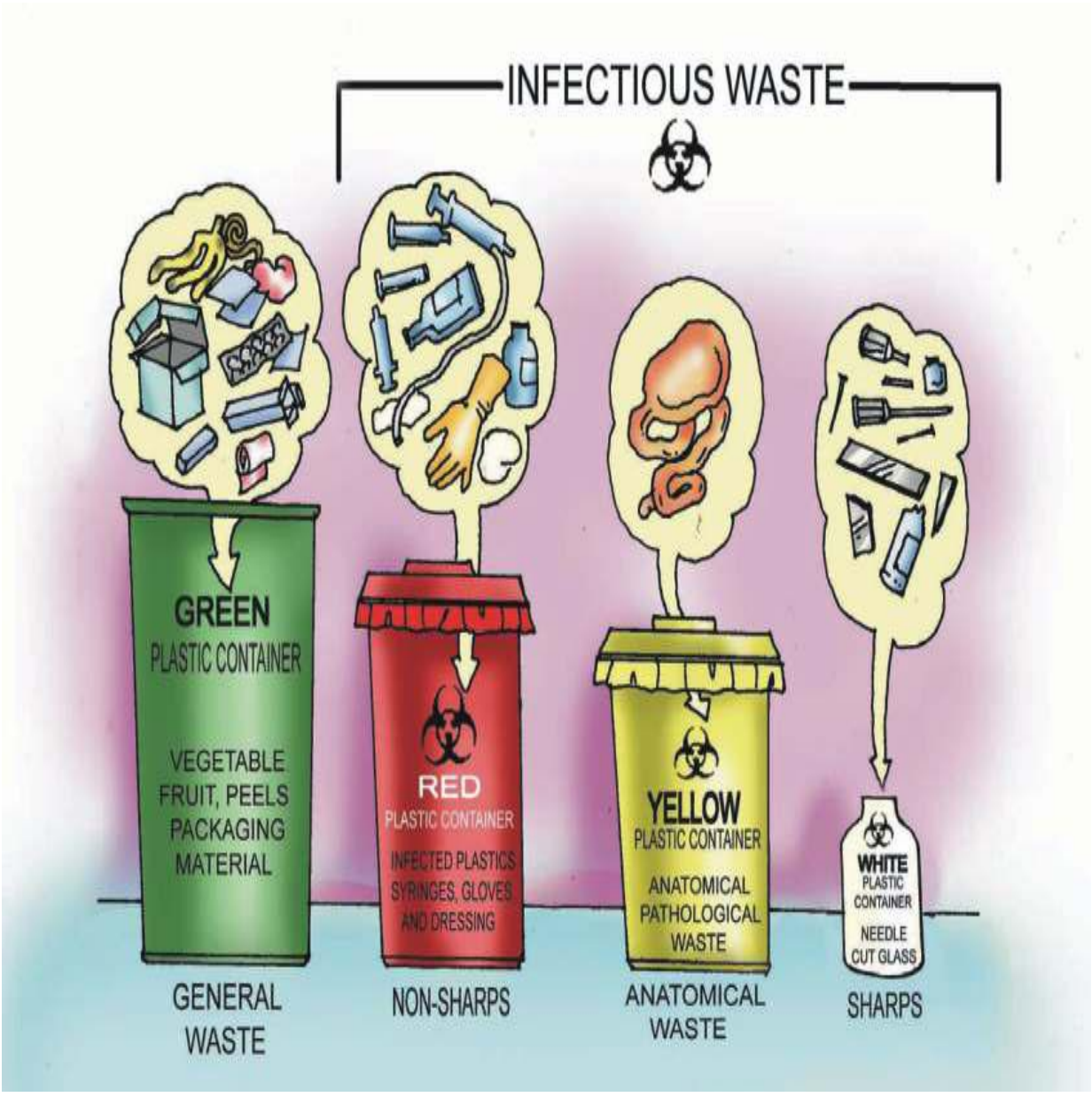
2. संक्रमित अपशिश्ट

    i. नुकीली चीजें– सुई, ब्लेड, टुटे काँच को नीली छिद्र अभेद्य पात्र में डालें (जो इनसे कट ना सके)
    ii. गैर नुकीली वस्तुएँ (सना हुआ अपशिश्ट)– संक्रमित प्लास्टिक, सिरिंज, पट्टी, रूई, दस्ताने, मास्क, खून की थैली, मूत्र थैली को लाल डब्बे या थैले में डालें।
    iii. शारिरिक अपशिश्ट– नाल, शरीर के भाग आदि को पीले प्लास्टिक थैले एवं डब्बे में डालें।

3. गैर संक्रमित अपशिश्ट– ये अपशिश्ट घरेलू अपशिश्ट के समान होता है। पैकिंग का सामान, गत्ते के डब्बे, फल–सब्जियों के छिलके, निडिल एवं सिरिंज के कवर, दवाई के कवर, काले थैले या डब्बे में डालें।

ना करें

1. संक्रमित अपशिश्ट और गैर संक्रमित अपशिश्ट को कभी एक जगह न इकट्ठा करें। इन्हें शुरूआत से ही अलग रखें।


INFECTIOUS WASTE
GREEN
PLASTIC CONTAINER
VEGETABLE
FRUIT, PEELS
PACKAGING
MATERIAL
RED
PLASTIC CONTAINER
INFECTED PLASTICS
SYRINGES, GLOVES
AND DRESSING
YELLOW
PLASTIC CONTAINER
ANATOMICAL
PATHOLOGICAL
WASTE
WHITE
PLASTIC
CONTAINER
NEEDLE
CUT GLASS
GENERAL
WASTE
NON-SHARPS
ANATOMICAL
WASTE
SHARPS

1.2 संग्रहण और भंडारण

करें

1. सदा अपशिश्ट को ढ़के हुए डब्बों में संग्रहित करें।
2. डब्बों को 3/4 (तीन चौथाई) स्तर तक ही भरें।
3. डब्बों को साबून, पानी/डिस्इन्फैक्टैंट (कीटानुनाशक) से नियमित धुलाई करें।

ना करें

1. डब्बों को ऊपर तक न भरें।
2. अपशिश्ट को 48 घंटे से ज्यादा भंडारण न करें।

1.3 ढुलाई

करें

1. सदा अपशिश्ट बन्द डब्बों में करें।
2. ढुलाई के काम में आने वाले डब्बे, ट्रॉली, गाड़ी अलग चिन्हित कर लें। एक निश्चित रास्ते से ही अपशिश्ट की ढुलाई करें।

ना करें

1. खुले पात्र में अपशिश्ट की ढुलाई न करें। इससे संक्रमण फैल सकता है।
2. भीड़–भाड़ वाली जगह से जैसे न करें। OPD and Diagnosis से अपशिश्ट की ढुलाई न करें।

1.4 उपचार एवं निस्तारण

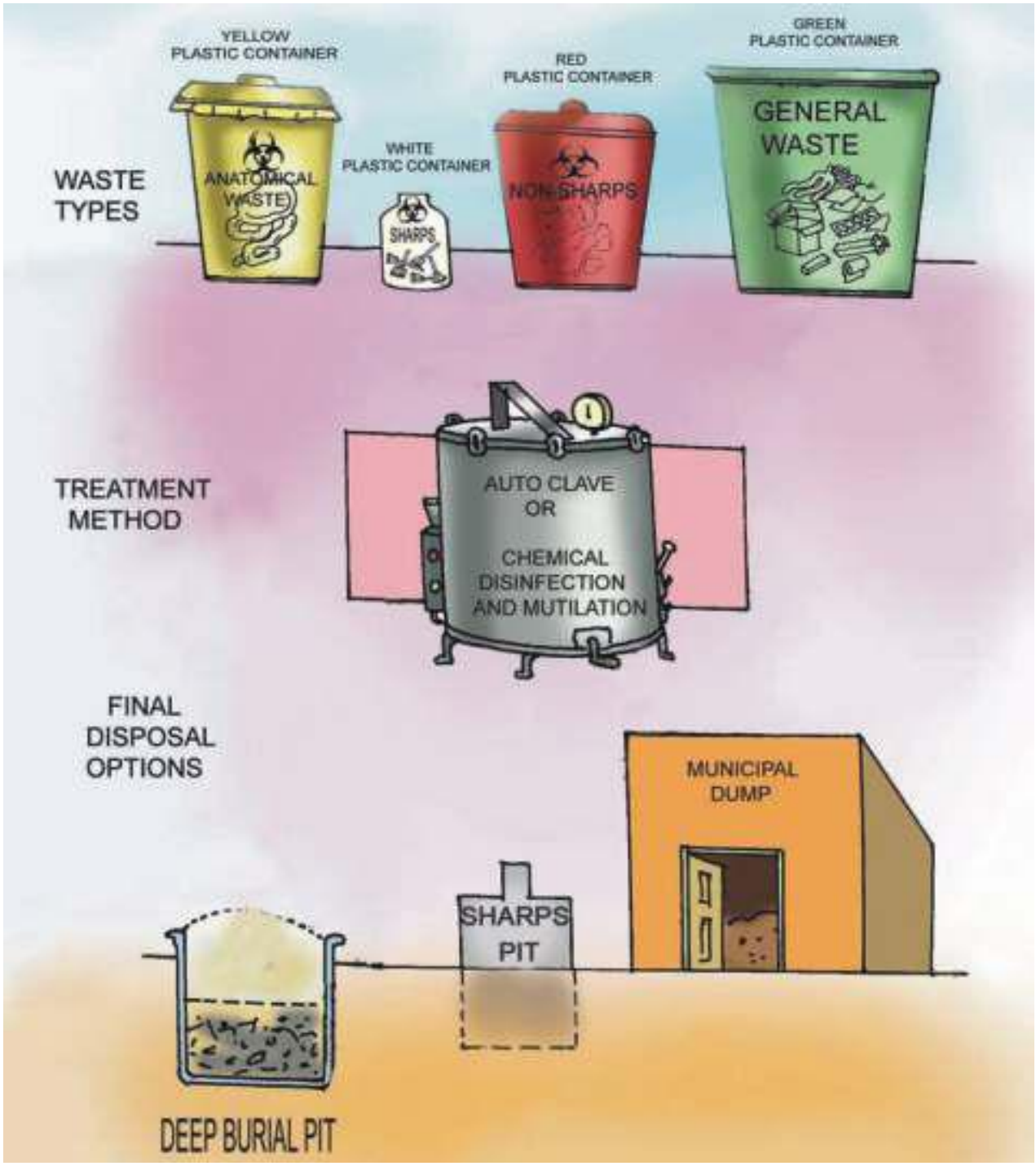
सदर अस्पताल, आरा, भोजपुर में अपशिश्ट का उपचार और निस्तारण Outsourced Biomedical Waste Management Agency द्वारा किया जाता है। फिर भी कर्मियों को इसके बारे में जानना लाभदायक है।

करें

1. हमेशा अपशिश्ट को अंतिम निस्तारण से पहले डिस्इन्फेक्ट किया जाता है और इसके बाद ही नश्ट किया जाता है।
2. इन बातों का ध्यान रखें:–
   I. शारीरिक अपशिश्ट को जलाएँ या गाड़ें।
   II. सिरिंज को काटे, रसायनों से डिस्इन्फेक्ट करें और ब्लीचिंग पाउडर में डालने के बाद अंतिम निस्तारण करें।
   III. संक्रमित प्लास्टिक को भी रसायनों से डिस्इन्फेक्ट करें और ऑटो क्लेव करके छोटे टुकड़ों में काटकर नगर निगम के कचरे में फेंके।
   IV. सामान्य अपशिश्ट को स्थानिय नगर–निगम के कचरागाह में फेंके।

ना करें

I. कभी संक्रमित अपशिश्ट को बिना ट्रीटमेंट के सामान्य अपशिश्ट के साथ न फेंके


WASTE TYPES
YELLOW PLASTIC CONTAINER
ANATOMICAL WASTE
WHITE PLASTIC CONTAINER
SHARPS
RED PLASTIC CONTAINER
NON-SHARPS
GREEN PLASTIC CONTAINER
GENERAL WASTE
TREATMENT METHOD
AUTO CLAVE OR CHEMICAL DISINFECTION AND MUTILATION
FINAL DISPOSAL OPTIONS
MUNICIPAL DUMP
SHARPS PIT
DEEP BURIAL PIT

2. संक्रमण की रोकथाम

2.1 हाथ धोना

I. संक्रमण की रोकथाम में सबसे महत्वपूर्ण है हाथ सफाई से धोना। इसका सभी स्वास्थ्य कर्मियों को ध्यान रखना चाहिए।

II. कोई कार्य करने से पहले और बाद में सदा हाथ धोएँ। जैसे मरीज देखने के पहले एवं बाद, अपशिश्ट के संपर्क, खाना–पीना, खून या अन्य शारीरिक द्रव्यों के संपर्क आने पर।

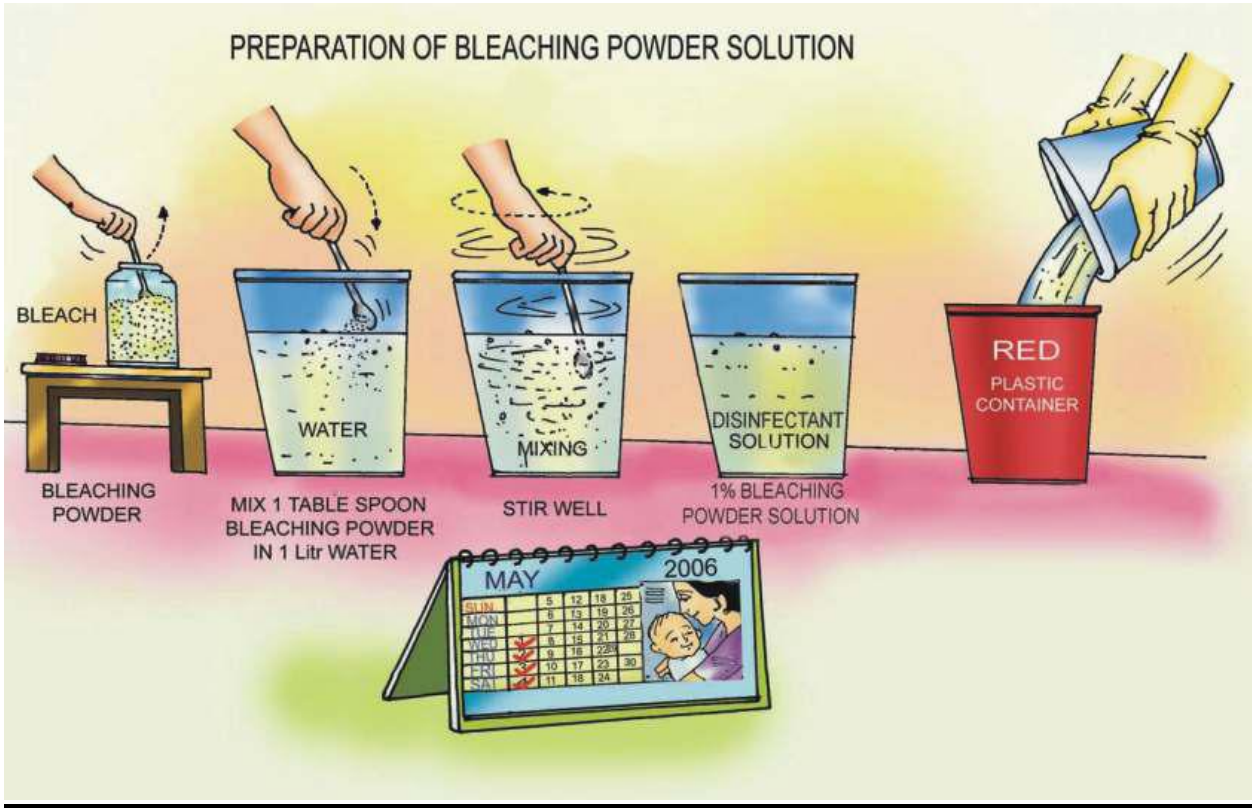
III. सामान्यतः साबून और पानी से हाथ धोएँ।

2.2 व्यक्तिगत सुरक्षा उपकरण

I. अपशिश्ट के संपर्क के दौरान सदा व्यक्तिगत सुरक्षा उपकरण पहनें।
II. टोपी, चश्मा, मास्क, एप्रन, दस्ताने और जूते स्वास्थ्यकर्मी और संक्रमण के बीच बाधा बन जाते हैं।
III. हिपेटाइटिस 'बी' और टेटनस से बचने के लिए टीकाकरण करवाएँ।

2.3 डिस्इन्फेक्टेंट का प्रयोग

I. ब्लीचिंग पाउडर को सूखी जगह में रौशनी और गर्मी से दूर रखें।
II. ब्लीचिंग पाउडर का डब्बा बन्द रखें।
III. 1 प्रतिशत/परसेंट ब्लीचिंग पाउडर घोल बनाने के लिए 1 लीटर पानी में 1 बड़ा चम्मच ब्लीचिंग पाउडर डालें।
IV. घोल को अच्छी तरह हिलाएँ।
V. प्रतिदिन ताजा ब्लीचिंग पाउडर घोल बनाकर उसी का प्रयोग करें।



2.4 गंदे / मैले कपड़ों का प्रबंधन

I. गंदे कपड़ों का प्रबंधन संपर्क दस्ताने पहन कर ही करें।
II. कपड़े को ऐसे समेटें की गंदे हिस्से से संपक न हो।
III. गंदे कपड़े में पहले डिस्इन्फेक्टेंट डालें फिर धुलाई के लिए भेज।

2.5 फर्श की सफाई

I. फर्श नियमित रूप से साफ करें।
II. फर्श की सफाई के लिए गर्म पानी और साबुन इस्तेमाल करें।
III. ऑपरेशन थियेटर और प्रसुति वार्ड के फर्श को पानी में डिस्इन्फेक्टेंट डालकर साफ करें।
IV. दो बाल्टी सिस्टम / Two Bucket System इस्तेमाल करें। एक बाल्टी में साबुन और दूसरी बाल्टी में डिस्इन्फेक्टेंट मिला पानी डालें। पहले पौंछे से साबुन लगाएँ, उसके बाद डिस्इन्फेक्टेंट मिले पानी से साबुन हटाएँ।
V. पौंछे या कपड़े को रोजाना डिस्इन्फेक्टेंट से धो लें।

2.6 तरल अपशिश्ट बिखर जाने पर

इसमें खून, शारीरिक तरल पदार्थ, पस एवं घावों से निकलने वाला मवाद शामिल है।

करें

I. बिखरे तरल अपशिश्ट पर बराबर मात्रा में ब्लीचिंग पाउडर का घोल डाल दें। 30 मीनट तक छोड़ दें।
II. उस जगह को कपड़े से साफ करें।
III. जिस कपड़े से पोंछा है उसे पीले बिन में डालें।

ना करें

I. बिखरे तरल अपशिश्ट पर डिस्इन्फेक्टेंट डाले बिना साफ न करें।
II. बिखरे तरल अपशिश्ट को साफ करने में इस्तेमाल किए कपड़े को किसी अन्य काम में पुनः प्रयोग न करें।

धन्यवाद