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KMCT Medical College Campus,Manassery,Mukkom,Kozhikode-673602,Kerala
Phone: +91 495 2293040, Fax: +91 495 2293040
Email nursing@kmct.edu.in Website: https://www.kmctnursingcollege.org/

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INFECTION CONTROL MANUAL

This document is the

INFECTION CONTROL MANUAL

KMCT MEDICAL COLLEGE HOSPITAL

Prepared by	Reviewed by	Approved by	Issued by
Infection Control Nurse and Supervisor	Infection Control Doctor	Administrative Officer	Manager - Quality Department

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INTRODUCTION

Infection control in hospitals has been re-emphasized with emergence of infectious diseases like SARS, Avian Flu, Anthrax etc. along with the ever-increasing cost of dealing with health care associated infections (HAI). The fear of accidental infection with Human Immune-Deficiency Virus exists in all segments of population, including those involved in delivery of health care. Strengthening of infection control measures will result in reassuring both health care workers and the patients attending the hospitals. Further reduction in incidence of HAI will be economically beneficial to both patients and hospitals. Hospitals can save substantial amounts of expenditure in preventing HAI and shorter lengths of hospital stay will benefit the patients as well. Rigid implementation of infection control practice can reduce HAI at all levels of medical care.

In spite of the fact that the importance of prevention and control of HAI has been recognized at the highest level, even the actual incidence of HAI in hospitals of this country is not known, except for reports on post-operative wound infections. The various **components of infection control for a multi-disciplinary tertiary care center** include:

- Surveillance of HAI
- Management of HAI control activities
- Manual for different high risk areas
- Sterilization and disinfection procedures
- Biomedical waste management protocol
- Housekeeping standards
- Man power development
- In service training
- Immunization
- Awareness programs

HOSPITAL INFECTION CONTROL COMMITTEE STRUCTURE

The Hospital Infection Control Committee (HICC) is a multi-disciplinary committee appointed by the management of the hospital. **The frequency of meeting will be at once in a month** and the minimum quorum is ten. The HICC shall include the following members.

- Chairman – HICC
- Infection Control Officer
- Medical Superintendent
- Administrative Officer
- Quality Manager
- ICU Intensivist
- Surgeon- General, Orthopedics
- Physicians
- Anesthetists
- Nursing Superintendent
- Microbiologist
- Pharmacy Incharge
- Incharge – CSSD
- Infection Control Supervisor
- Infection Control Nurse

- Housekeeping Supervisor

INFECTION CONTROL TEAM

The Hospital Infection Control Team includes

- The Chairman of HICC,
- Infection Control Officer,
- Infection control Nurse,
- Microbiologist
- Link nurse.

The HICC is charged with prevention and control of infections in the hospital, recommending and monitoring compliance with medical staff and the departmental policies related to infection control among patients and staff at KMCT Hospitals Pvt Ltd, review of rate of infection and making recommendations on all matters related to infection control. Recommendations are made to and approved by the HICC.

Co-opted members: These additional members are invited for a particular meeting only when there would be a discussion on pertaining to their field of expertise or any issue that is to be discussed and a policy is to be devised.

- In charge of Maintenance department
- Member of the Purchase department
- Housekeeping supervisor
- Any other department HOD as required

AIMS AND OBJECTIVES

The infection control programme aims at preventing and reducing risk of HAI in patients, relatives and health care providers. The programme will have the following objectives:

- To develop written policies and procedures for standards of cleanliness, sanitation and asepsis in the hospital
- To interpret, uphold and implement the hospital infection control policies and procedures in specific situations
- To do surveillance of HAI
- To review and analyze data on infection that occurs, in order to take corrective steps
- To develop a mechanism to supervise infection control measures in all phases of hospital activities
- To ensure continuing education of employees on infection control aspects

HOSPITAL INFECTION CONTROL ACTIVITIES

- Continuing surveillance of hospital acquired infections
- Development and formulation of preventive and corrective programmes for daily infection control issues
- Develop an annual hospital antibiotic policy
- Formulate and update infection control manual yearly
- Develop a system of identifying, reporting, investigating and controlling the hospital acquired infections
- Periodically educate health care workers of the institution on infection control practices and protocol
- IHCC meeting to be held every month and as required
- Formulating policies and protocol on the method of disinfections and sterilization
- Guidelines for segregation and disposal of hospital waste

- Regular checking on hospital facility on infection control aspects and informed to concern department and check for corrective action as necessary
- Regular checking of various engineering control and sanitation of water
- Supervision of housekeeping and biomedical waste management activities

JOB RESPONSIBILITIES:

Chairperson

- The IHCC chairman, appointed by the MD/MS, is an expert in the field of infection control and is always available to advice on all aspects of infection control
- Responsible for day to day management of infection control in the hospital.
- Acts as a liaison officer between the infection control committee members and the hospital administration
- Initiates various surveillance programmes.
- Receives all the surveillance reports and information pertaining to hospital acquired infections, initiate necessary action (corrective & preventive) based on the reports
- Keeps updated with developments in the field
- Conducts monthly meeting of infection control committee

Infection Control Officer

- The infection control (IC) officer is appointed by the Administrative Officer - a senior clinician preferably with a background in infectious disease or microbiology, is preferred. In the absence of IHICC chairman the meetings will be chaired by IC officer.
- Monitoring of HAI
- Assess infection control problems and initiates corrective & preventive measures
- Initiates and revises infection control policies and procedures
- Conducts outbreak investigations and initiates control measures
- Consults with department heads and physicians as and when required to improve health care
- Identification and reporting of pathogens and their antibiotic sensitivity

- Regular analysis and dissemination of antibiotic resistance data, emerging pathogens and unusual laboratory findings and preparing antibiogram every 6 month and revise the antibiotic policy annually
- Antimicrobial stewardship
- Education and feedback of clinicians using surveillance data and antibiogram
- Participate in Infection Control Training Programme

Infection Control Nurse & Supervisor

- The infection control supervisor is a full-time senior member of the hospital infection control team
- Reports to the IHCC Chairman, but is professionally accountable to the appropriate nursing officer within the nursing hierarchy
- Responsible for infection control practice among all levels and disciplines of nursing staff
- Daily monitoring of HAI and other relevant infections
- Makes recommendations for change in ward environment and practice regarding infection prevention and control concerns
- Supervises range of risk assessments and inspections done by team including employee adherence and compliance to the correct usage of personal protective equipment and clothing
- Conducts audits for infection control practices
- Formulation and initiation of appropriate operational strategies to minimize the risk of infection
- Identify and recommends patients for correct isolation practice
- Supervision of appropriate records in line with departmental protocols
- Undertakes defined projects to support the delivery of high quality, clinically effective care.
- Monitors, reviews and develops – specific infection control policies and procedures to ensure they meet standard recommendations
- Supervision of surveillance in accordance with CDC
- Designing and implementation of infection prevention and control initiatives in partnership with the relevant multidisciplinary team
- Utilizes outcome measures to evaluate effectiveness of care through the review of data and identifying of inconsistencies.

- Identifies ideas that will improve the quality of service and issues that negatively impact on patient care and employee satisfaction.
- Supports key performance indicators for the service and holds self and others accountable for actions and outcomes.
- Supervision of audit and focuses on the efficacy and effectiveness of infection prevention and control practices.
- Applies problem-solving techniques and ensures appropriate escalation of issues to meet patient and staff needs and resolve conflicts.
- Provides documented evidence of own performance and maintenance of skills consistent with position.
- Supervises for isolation precautions for patients with infectious diseases.
- Develops policies and protocols for dealing with infectious diseases.
- Audit done on developed Antibiogram and send to IC officer for correction & further actions taken for the non-compliance.
- Managing occupational exposure to infectious agents, including needle stick injuries.
- Supervises clinical waste management.
- Investigation and management of outbreaks.
- Provides professional leadership, advice, support and guidance to staff and is responsible for the infection control practices in the entire organization.
- Ensuring infection control educational activities that are congruent with the Hospital, mission, goals, values, principles, and priorities.
- Assisting learners to identify both their learning needs and plan effective learning activities required to meet those needs while fostering a positive attitude about the benefits and opportunities of life-long learning.
- Identifying changes that should be made in nursing practice using an evidence-based approach and facilitating the initiation of, adoption of, and adaptation to change.
- Maintaining clinical competence in their area of specialty.
- To keep abreast with the latest concepts, trends and issues in nursing.
- Integrating ethical principles in to all aspects of practice.
- Conducting orientation program and other infection control training activities.
- Maintain records of infection control training activities.

- Evaluate the effectiveness of the staff and their performance annually and anonually
- Monitors infection occurrences and advises on specific infections and precautions
- Responsible for maintaining ISO, NABH, standards by training nurses
- Rounds the entire organization and observe individual practices and incidental teaching as needed. Attending departmental meetings to identify the learning needs and plan training programme accordingly.
- Adheres to internal controls and reporting structure.
- Participate in the hospital Quality Improvement Program and monitor quality indicators.
- Conducts audits on VAP, CAUTI, CLABSI preventive measures and statistical analysis.

Infection Control Link nurses

Infection Control Executive Link nurses are fulltime members of the hospital infection control team. They report to the Infection control officer and Infection Control Supervisor but professionally accountable to the appropriate Nurse Manager within the nursing hierarchy.

- Identifying as promptly as possible potential hazards of infection to patients, staff or equipment.
- Compiling records of infected cases from ward notifications, case notes, laboratory reports and information collected in routine visits and discussions and prepare statistical report.
- Arranging prompt isolation of infected patients (in co-operation with the Head Nurse and consultant, who have overall responsibility), in accordance with hospital or area policy, and ensuring that there are adequate facilities for isolating patients. Introducing other isolation measures and maintaining records of infection in medical, nursing, catering, as necessary to prevent the spread of infections or organisms highly resistant to antibiotics.
- Checking of housekeeping activities like usage of proper disinfectant and mopping plan and biomedical waste management.
- Collection and compiling of various hospital infection control surveillance report and presentation to management and implementation of corrective action as when necessary.
- Immediate investigation of any outbreak and report to the management and take corrective and preventive action as per the advice of IHCC chairman /IC officer.
- Liaison between laboratory and ward staff, informing heads of departments any critical report regarding infection control

- Collaboration with occupational dietetic and other grades of staff, ensuring clearance specimens are taken before infected staff return to duty
- Prompt information by telephone to the Medical Officer for Environmental Health, this is additional to the written/email notification by the clinician in charge of the patient
- Informing other hospitals, general practitioners and others concerned when infected patients are discharged from hospital or transferred elsewhere, and receiving relevant information from other hospitals or from the community where thought appropriate
- Teaching and practical demonstrations of control of infection techniques to all paramedical staff
- Confirming with the Central Sterile Supply Manager about certain infections in hospital (e.g. Blood borne infections) and confirm the sterility of supplies by random microbiological studies
- Supervise the sterility checking of operation theatre and other sterile procedure areas
- Make sure and supervise the availability of hand washing or alcohol based hand-cleansing solutions in each area
- Development of standards for management of proper injection of and maintenance of medical devices.
- Work as a clinical supervisor by ensuring all the established policies and protocol are practiced. Eg: Hand washing procedures, use of hand rubs, isolation policies, care of vascular access and urinary catheters, universal precautions, waste disposal, terminal cleaning and disinfections, and follow up of needle stick injuries
- Compiling reports of microbiology of HAI strains
- Post exposure prophylaxis – Institutes investigations and action of all PEP as per protocol
- Linen management, biomedical waste management – Supervision of handling, transportation of all infected linens
- Ensure health checkup of all employees who are in direct patient care at the time of appointment and yearly
- Conducts regular pre induction training for appropriate categories of staff after joining in the institution.

Role of health care workers in infection control:

- Preventing the onset and spread of infection by minimizing the numbers and kinds of organisms transmitted to potential infection sites. Good hand washing, disinfection, and sterilization of supplies are the methods used to control the spread of microorganisms.
- Promoting measures for treatment of infection by sending of specimens and body fluids from infected body sites for cultures and administering antibiotics accordingly.
- Conducts regular classes for all categories of staff whenever required in Hospital Infection Prevention week yearly.
- If surveillance shows any HAI the team analyzes and investigates the case and find the root cause of infection and take action to prevent the further incidents.

TERMS AND DEFINITIONS

Infection:

Infection is an invasion of the body by pathogens or microorganisms which are capable of producing disease.

Chain of Infection: -

Development of an infection occurs in a cyclical process that depends on 6 elements:

Infectious agent or pathogens

Pathogenic organisms include bacteria, viruses, fungi, protozoa, and rickettsia. All organisms require food and proper environment for growth. A dark, warm, moist habitat as in the oral cavity, under a wound dressing, or within a drainage tube is ideal. Pathogens on the skin are categorized as residents reserve and multiply on the skin and transient usually picked on hands by routine activities pathogens. The potential for microorganisms or parasites to cause disease depend on the number of organisms, virulence to produce disease, ability to enter and survive in the host and susceptibility of the host.

Reservoir

It is the place where the microorganisms grow and multiply until they find an entry into another host e.g. skin, body cavities, fluids, discharges, animals, plants, insects, inanimate objects and food.

Portal of exit

The portal of exit is the pathway by which the microorganisms leave the host's body. The examples of this are: skin and mucus membranes, respiratory tract, urinary tract, gastrointestinal tract, reproductive tract and blood.

Modes of transmission

These are the ways by which the microorganisms entry into the host. The common modes of transmission are: -

- Contact – can be either direct or indirect contact
- Air – droplet contact by coughing, sneezing etc.
- Vehicle – Contaminated items e.g. liquids, water, drugs, food, blood
- Vectors – insects, mosquitoes, animals etc.

Portal of entry

The portal of entry is the pathway by which the organisms enter into a person's body and may be the same routes they use for exit.

Susceptible host

A susceptible host is an individual with lowered degree of resistance to Pathogens. The factors influence the susceptibility is the: -

- Presence of open wounds
- Invasive procedures
- Chronic underlying disease
- Use of certain drugs
- Age
- Nutritional status
- Mental state

Nosocomial infection/ Hospital acquired infection:

(Ref: CDC/NHSN Surveillance Definitions for Specific Types of Infections -2016)

A health care-associated infection (HAI) is a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that was not present or incubating at the time care facility.

FACTORS INVOLVED IN HOSPITAL INFECTION:

- The microorganism
- The host
- The environment and the treatment

Risk factors for infection:

The patient with following conditions is at risk for infection

- Inadequate primary defenses such as broken skin or mucosa, traumatized tissue, decreased ciliary action, obstructed urine outflow, altered peristalsis and the change in pH of body fluids.
- Inadequate secondary defenses such as reduced hemoglobin, suppression of lymphocytes (drug or disease related), suppressed inflammatory response (drug or disease related) and low WBC count (leucopenia).

ANTIBIOTIC POLICIES IN KMCT HOSPITALS PVT LTD

The hospital has a policy that encourages optimum use of the right antibiotic for the patient with a view to prevent over use of antibiotics, prevent development of resistant strains, decrease the SSI rates and bring down the overall cost of treatment. Intravenous antibiotics are not given where a patient can take an oral form of the same antibiotic.

Antibiotic Policy and recommendations for surgical antimicrobial prophylaxis – Refer**Antibiotic Policy**

STANDARD PRECAUTIONS

https.cdc.gov/infection control/basics/standard-precautions

Standard precautions are a set of infection control practices used to prevent transmission of diseases that can be acquired by contact with blood, body fluids, non-intact skin (including rashes), and mucous membranes. These measures are to be used when providing care to all individuals, whether or not they appear infectious or symptomatic.

Standard Precautions should be used by health care personnel caring for all patients **regardless** of the diagnosis and whether or not the patient is known to have a communicable infection. In other words, Standard Precautions should be used for **all patients at all times.** It includes

- Hand hygiene
- Personal protective equipment
- Needle stick and sharp injury prevention
- Cleaning and disinfection
- Respiratory hygiene/cough etiquette
- Waste disposal
- Safe injection practice

Hand Hygiene

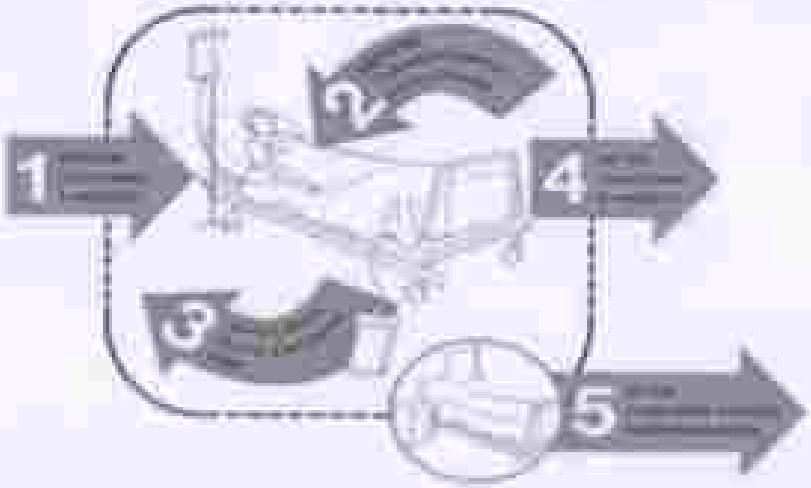
Ref: WHO Guidelines on Hand Hygiene in Health Care-2009

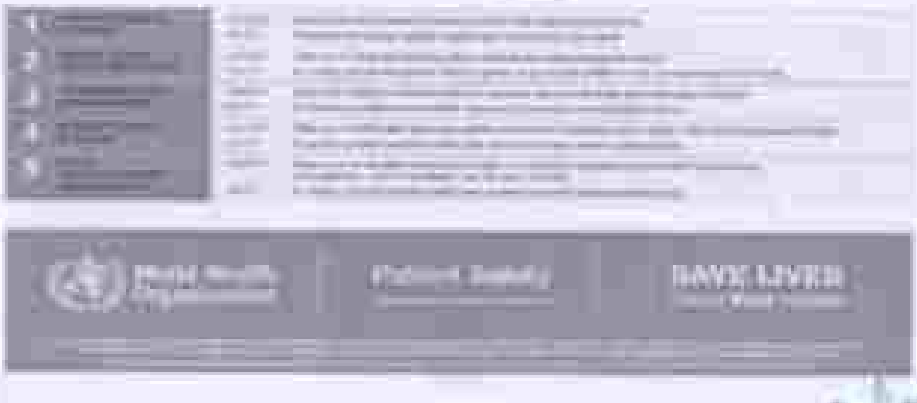
Introduction

Pathogenic organisms from colonized and infected patients (and sometimes from the environment) transiently contaminate the hands of health care workers during normal clinical activities and can then be transferred to other patients. Hand transmission is one of the most important methods of spread of infectious agents in health care facilities. Proper hand hygiene is an effective method for preventing the transfer of microbes between health care workers and patients. As per WHO guidelines, the Five moments of Hand hygiene should be performed as -

Five (5) Moments in Hand Hygiene

Your 5 Moments for Hand Hygiene





Steps of Hand Hygiene

- Jewelry must not be worn on wrists or fingers (with the exception of a wedding ring) and wrist watches must be removed.

- In high-risk settings such as operating theatres ALL jewelry including wedding rings must be removed.
- Cuts and abrasions must be covered with a water proof dressing.
- Fingernails must be short, clean and free from nail polish. False nails and extensions must not be worn.

Choice of Agent for Hand Decontamination

Using Alcohol gel/rub

- Hands must be free from dirt and organic matter; if not, wash first.
- Avoid using excessive amounts of alcohol gel/rub to minimize skin damage, apply one shot (approx. 3 ml) of alcohol hand rub.
- The hand rub must come into contact with all surfaces of the hands, so hands must be rubbed together vigorously and systematically to include wrists, tips of fingers, backs of hands, palms, thumbs and webs of fingers, for ten to fifteen seconds, until the solution has evaporated.
- Duration of procedure: 20-30 seconds.

Using Liquid Soap and Water

- Prepare hands by wetting under tepid running water before applying liquid soap.
- Avoid using excessive amounts of liquid soap to minimize skin damage; one shot (approx. 9 ml) is sufficient to cover all hand surfaces.
- Use running water.
- The soap solution must come into contact with all surfaces of the hands, so hands must be rubbed together vigorously and systematically to include wrists, tips of fingers, and backs of hands, palms, thumbs and webs of fingers.
- Thoroughly rinse hands to flush organisms away and to prevent skin damage.
- Hands must be thoroughly dried with paper or single use towels. This removes further bacteria and prevents cracking of skin.
- Hot air hand dryers should be avoided since users do not generally dry hands adequately. Bacteria will multiply in moist conditions.

- Dry taps off with elbows or using paper towel; do not use hands.
- Do not touch bin lid when disposing of paper towels.
- Duration of procedure, including drying: 40-60 seconds.

Aqueous Chlorhexidine (Available strength 2%)

Before procedures involving the insertion of devices such as central lines, chest drain, epidural or in operating theatres, either wash with aqueous Chlorhexidine and dry thoroughly. Aqueous Iodine (Betadine) may be used as an alternative agent, in theatres only. These preparations exert a residual effect on skin flora that can be useful in situations where prolonged reduction in microbial flora on the skin is required. They are not normally necessary for everyday clinical practice.

Water Temperature

Apart from the issue of skin tolerance and level of comfort, water temperature does not appear to be a critical factor for microbial removal from hands being washed.

Note: Hand hygiene product (e.g. alcohol-based hand rub, if available) should be easily accessible and as close as possible – within arm's reach of where patient care or treatment is taking place. Point-of-care products (Hand rub) should be accessible without having to leave the patient zone. This can be at the foot of the bed, on the bedside locker, or in other care settings the dispenser can be attached to the internal wall of an ambulance.

Recommendations for Surgical Hand Scrub

- Remove rings, wrist-watch and bracelets before beginning surgical hand preparation
- Artificial nails are prohibited
- Sinks should be designed to reduce the risk of splashes
- If hands are visibly soiled, wash hands with plain soap before surgical hand preparation
- Remove debris from underneath fingernails using a nail cleaner, preferably under running water
- Brushes are not recommended for surgical hand preparation.
- Surgical hand antisepsis should be performed with 4% Chlorhexidine surgical hand scrub before donning sterile gloves.

- Length of time recommended is 3-5 minutes. Long scrub times (e.g. 10 minutes) are not necessary

Institutional responsibilities

- Make improved hand hygiene an institutional priority and provide administrative and financial support.
- Placing alcohol-based hand rub dispensers /Solutions near the point of care has been associated with increased compliance by health care workers with recommended hand hygiene procedures.
- To provide an alternative to alcohol-based hand rubs for decontaminating hands.
- Provide Facility for hand washing (Sink & antimicrobial solutions) in all patient care areas.

Outcome Analysis

Monitor health care workers' adherence to hand hygiene practices in high-risk areas regularly with hand hygiene tool (WHO's Assessment) and provide feedback regarding the workers' performance (Designation Wise) every month.

Personnel protective equipment:

Gloves

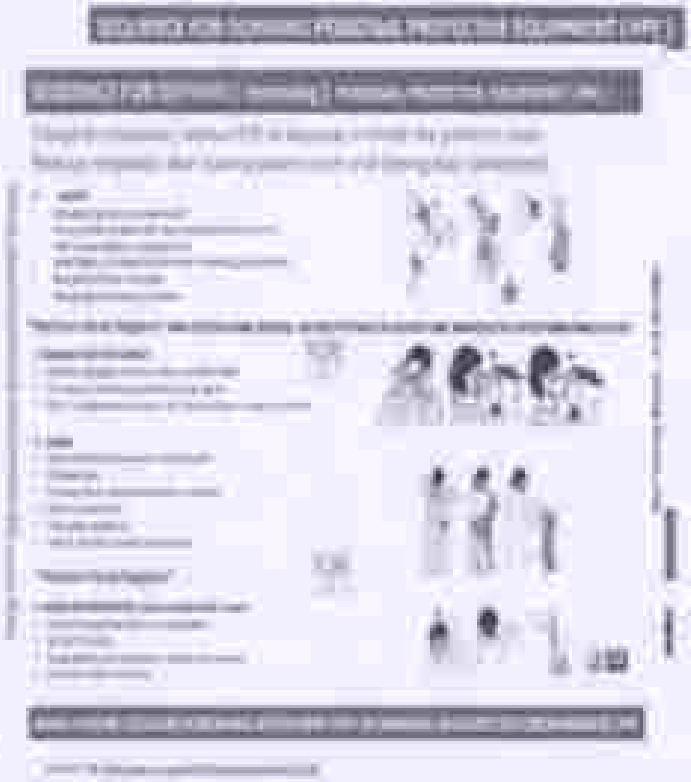
For touching blood, body fluids, secretions, excretions, contaminated items; for touching mucous membranes and non-intact skin

Gown

During procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated.

Mask, eye protection (goggles), face shield

During procedures and patient-care activities likely to generate splashes or sprays of blood, body fluids, secretions, especially suctioning, endotracheal intubation.



Note: In some instances, healthcare personnel are required to wear PPE in addition to that recommended for Standard Precautions. The three Expanded Precaution categories (formerly called Transmission-Based Precautions) where this applies are Contact and Droplet Precautions and Airborne Infection Isolation.

Ref: Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings &Practical Guidelines for Infection Control in Health Care Facilities-WHO-2004

Needle stick and sharp injury prevention

- Handling needles, scalpels, and other sharp instruments or devices
- Cleaning used instruments
- Disposing of used needles and other sharp instruments

Cleaning and disinfection

Client care areas, common waiting areas, and other areas where clients may have potentially contaminated surfaces or objects that are frequently touched by staff and clients (doorknobs, sinks, toilets, other surfaces and items in close proximity to clients) should be cleaned routinely with EPA registered disinfectants, following the manufacturer's instructions for amount, dilution, and contact time.

Housekeeping surfaces such as floors and walls do not need to be disinfected unless visibly soiled with blood or body fluids. They may be routinely cleaned with a detergent only or a detergent/disinfectant product.

Most disinfectants are not effective in the presence of dirt and organic matter;therefore, cleaning must occur first before disinfection. Wet a cloth with the disinfectant, wipe away dirt and organic material, then with a clean cloth apply the disinfectant to the item and allow to air dry for the time specified by the product manufacturer.

Some pathogens such as norovirus and *Clostridium difficile* are not inactivated by commercial disinfectants routinely used in local public health settings. In situations where contamination with these pathogens is suspected, a bleach solution (1:10) is recommended for disinfecting contaminated surfaces and items.

Some patient care items may be damaged or destroyed by certain disinfectants. Consult with the manufacturer of the items before applying disinfectants.

Respiratory hygiene and cough etiquette

Persons with respiratory symptoms should apply source control measures i.e. Cover their nose and mouth when coughing/sneezing with tissue or mask, dispose of used tissues and masks, and perform hand hygiene after contact with respiratory secretions.

The strategy proposed has been termed Respiratory Hygiene/Cough Etiquette and is intended to be incorporated into infection control practices as a new component of Standard Precautions. The strategy is targeted at patients and accompanying family members and friends with undiagnosed transmissible respiratory infections, and applies to any person with signs of illness including cough, congestion, rhinorrhea, or increased production of respiratory secretions when entering a healthcare facility.

The elements of Respiratory Hygiene/Cough Etiquette include:

- Education of healthcare facility staff, patients, and visitors.
- Posted signs, in language(s) appropriate to the population served, with instructions to patients and accompanying family members or friends.
- Source control measures (e.g., covering the mouth/nose with a tissue when coughing and prompt disposal of used tissues, using surgical masks on the coughing person when tolerated as appropriate)
- Hand hygiene after contact with respiratory secretions.
- Spatial separation, ideally >3 feet, of persons with respiratory infections in common waiting areas when possible. Covering sneezes and coughs and placing masks on coughing patients are proven means of source containment that prevent infected persons from dispersing respiratory secretions into the air.

Waste disposal

- Ensure safe waste management
- Treat waste contaminated with blood, body fluids
- Secretions and excretions as clinical waste, in accordance with local regulations
- Human tissues and laboratory waste that is directly associated with specimen processing should also be treated as clinical waste
- Discard single use items properly

Safe injection practice

The following recommendations apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems.

- Use aseptic technique to avoid contamination of sterile injection equipment.
- Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannula and syringes are sterile, single-use items; they should not be reused for another patient or to access a medication or solution that might be used for a subsequent patient.
- Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set.
- Use single-dose vials for parenteral medications wherever possible.
- Do not administer medications from single-dose vials or ampoules to multiple patients or combine leftover contents for later use.
- If multi-dose vials must be used, both the needle or cannula and syringe used to access the multi-dose vial must be sterile.
- Do not keep multi-dose vials in the immediate patient treatment area and store in accordance with the manufacturer's recommendations; discard if sterility is compromised or questionable.
- Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.
- For lumbar puncture: Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space.

Transmission-Based Precautions

(Ref: CDC Guideline for Isolation precaution 2007)

There are three categories of Transmission-Based Precautions: contact, droplet and Airborne.

Contact Precautions: Contact Precautions are intended to prevent transmission of infectious agents, including epidemiologically important microorganisms, which are spread by direct or indirect contact with the patient or the patient's environment. Contact Precautions also apply where the presence of excessive wound drainage, fecal incontinence, or other discharges from the body suggest an increased potential for extensive environmental contamination and risk of transmission. A single-patient room is preferred for patients who require Contact Precautions. When a single-patient room is not available, consultation with infection control personnel is recommended to assess the various risks associated with other patient placement options (e.g., cohorting, keeping the patient with an existing roommate). In multi-patient rooms, >3 feet spatial separation between beds is advised to reduce the opportunities for inadvertent sharing of items between the infected/colonized patient and other patients. Healthcare personnel caring for patients on Contact Precautions wear a gown and gloves for all interactions that may involve contact with the patient or potentially contaminated areas in the patient's environment. Donning PPE upon room entry and discarding before exiting the patient room is done to contain pathogens, especially those that have been implicated in transmission through environmental contamination.

Examples of Contact Precautions - *C.difficile* infection, MRSA, congenital rubella, cutaneous diphtheria, poliomyelitis, open sore, **Carbapenem or Polymyxin resistant Gram Negative bacterial infection**

Droplet Precautions

Droplet Precautions are intended to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions. Because these pathogens do not remain infectious over long distances in a healthcare facility, special air handling and ventilation are not required to prevent droplet transmission. A single patient room is preferred for patients who require Droplet Precautions. When a single-patient room is not available, consultation with infection control personnel is recommended to assess the various risks associated with other patient placement options (e.g., cohorting, keeping the patient with an existing roommate). Spatial separation of > 3 feet and drawing the curtain between patient beds is especially important for patients in multi-bed rooms with infections transmitted by the droplet route. Healthcare personnel wear a mask (a respirator is not necessary) for close contact with infectious patient; the mask is generally donned upon room entry. Patients on Droplet Precautions who must be transported outside of the room should wear a mask if tolerated and follow Respiratory Hygiene/Cough Etiquette.

Examples of Droplet Precautions - Pharyngeal diphtheria, Meningococcal disease, sepsis, pneumonia, meningitis, Mumps, Pertussis, Rubella etc.

Airborne Precautions

Airborne Precautions prevent transmission of infectious agents that remain infectious over long distances when suspended in the air. The preferred placement for patients who require Airborne Precautions is in an airborne infection isolation room (AIIR). An AIIR is a single-patient room that is equipped with special air handling and ventilation capacity (i.e., monitored negative pressure relative to the surrounding area, 12 air exchanges per hour for new construction and renovation and 6 air exchanges per hour for existing facilities, air exhausted directly to the outside or recirculate through HEPA filtration before return. In settings where Airborne Precautions cannot be implemented due to limited engineering resources, ensure masking the patient, placing the patient in a private room (e.g., office examination room) with the door closed, and providing N95 or higher level respirators with vaccine-preventable airborne diseases.

Examples of Air borne Precautions

Measles, chickenpox, smallpox, M. tuberculosis,H1N1 pneumonia,SDPA19

In our hospital there is no specific area as isolation ward except our airborne isolation room. When a patient come with any infectious disease/ immuno compromised state, the concerned ward staff will inform the ICN, and she will arrange the same or if the patient is critically ill admitting the patient in MICU/ isolation room with exhaustial fan facility. If the patient needs airborne isolation but required ICU care he/she will be admitted in ICU/ isolation room. If more than one patient needs airborne isolation, admit the patients in a private room. If the patient can't afford the room charge, room will be alotted to the patient in ward too.

The following points are common for all the types of isolation.

- Follow five moments of Hand Hygiene.
- Stick BIO-HAZARD symbol on the contaminated articles of serology positive cases before sending to CSSD and on the investigation request, IP file.
- Stick Orange symbol on the contaminated articles of all communicable disease cases before sending to CSSD and on the investigation request, IP file
- Discard all infectious waste- non plastic in yellow and plastic in red bag.

PROCEDURE PROTOCOL

Personal hygiene

Mouth Wash

- Hand Hygiene
- Wear clean gloves (Highly recommended)
- Use sterile mouth care set – single use (encourage to use brush & paste).
- Use the following solutions
- Chlorhexidine mouth wash solution should not be diluted – as per the physician's order.
- Send Mouth care set to the CSSD after each use.

Skin care

- Hand hygiene
- Wear clean gloves (Highly recommended)
- Chlorhexidine (2%) Single use Disposable wipes can be used for bathing

Hair Wash

- Handhygiene
- Wear clean gloves (Highly recommended)
- Use polythene sheet / Mackintosh to protect the bed linen
- Wash hair with shampoo & water
- Use single use hair cap shampoo cap

Nail care

- Hand Hygiene
- Cut the nails evenly, do not peel the nails
- Keep the cuticles intact
- Wash the nail cutter with soap and water after use
- Wipe with Chlorhexidine and replace

Wound Care

- Hand Hygiene
- Protect the bed linen with a absorbable pad / plastic sheet
- Wear clean gloves to remove the contaminated dressing and sterile gloves for the procedure.
- Use sterile dressing set
- Do not expose the wound for a longer time
- Do not spill the secretions/ drainage
- Discard soiled dressing in the yellow bins
- Send the used dressing set to the CSSD
- Discard the gloves turned inside out in Red Plastic Bag
- Wash your hands

Injection (IM & SC)

- Hand hygiene
- Wear clean gloves for infected cases, patients who have bleeding tendencies and if you have cuts or wounds on your hands
- Use disposable syringes & needles
- Change the needle after dilution of medication
- If the injection is in powder form- patient's name, bed no, date, time and dilution strength is to be written on the vial and on the cover before it is kept in fridge
- Opened multi dose vial specially Antibiotics should be kept in fridge and used only for 24 hours

- If multi dose vials are used it should be labeled with the date of opening with time and this vails can be use for 30 days
- Orally medicine in multi dose vial can be kept as per manufacturer's instruction.
- Clean the site with Chlorhexidine and allow it to dry
- Do not re-cap the needles
- Discard syringe in red bag & needle in the puncture proof container.
- Use hands rub in between patients (if the procedure is to be continued for another patient)

Loaded syringes and their re-use :-

- Do not re-use the syringes & needles.
- Always use needle one syringe at one time

Vascular Access

Peripheral lines

- Hand Hygiene
- Wear sterile gloves (Highly Recommended)
- Use disposable syringe, needle and cannula
- The gauge of cannula should be appropriate to the vein
- Use small mackintosh under the cannulation site to prevent soiling of sheets by blood
- Trim the hair if necessary
- Do transparent dressing (different date and time of the dressing)
- Record the date and time and site of cannulation in the nurse's record
- Change dressing SOS
- Change cannula every 72 hrs and SOS
- Regular monitoring of the IV site and document the Visual Infusion Phlebitis score in each shift
- Flush the cannula with normal saline 2 ml bolus and 3 ml after each injection and flush the cannula every 8 hours if it is not in use.

Control lines

- Hand hygiene
- Maximal barrier precautions (Cap ,Mask ,Aprons, Gloves & adequate drape) while on insertion
- Clean the site with 2% Chlorhexidine
- Avoid using the femoral vein for central venous access in adult patients
- Use a CVC with the minimum number of ports or lumens essential for the management of the patient
- Promptly remove any intravascular catheter that is no longer essential
- Use either sterile gauze or sterile, transparent, semipermeable dressing to cover the catheter site
- If the patient is diaphoretic or if the site is bleeding or oozing, use gauze dressing until this is resolved
- Replace catheter site dressing if the dressing becomes damp, loosened, or visibly soiled
- Do not use topical antibiotic ointment or creams on insertion sites, except for dialysis catheters, because of their potential to promote fungal infections and antimicrobial resistance
- Replace dressings used on short-term CVC sites every 2 days for gauze dressings.
- Replace dressings used on short-term CVC sites at least every 7 days for transparent dressings, except in those pediatric patients in which the risk for dislodging the catheter may outweigh the benefit of changing the dressing
- Use a chlorhexidine-impregnated sponge dressing for temporary short-term catheters in patients older than 2 months of age if the CLABSI rate is not decreasing despite adherence to basic prevention measures, including education and training. appropriate use of chlorhexidine for skin antisepsis
- Monitor the catheter site visually when changing the dressing or by palpation through an intact dressing on a regular basis
- Follow aseptic technique while on insertion.
- The lumen of the catheter should be appropriate for the infusion therapy
- Fix the catheter with transparent dressing
- Maintain procedure record
- Change dressing every 72 hrs, and clean the site using alcohol based Chlorhexidine

- Record the date and time of dressing over the site
- Use sterile gauze swab for covering the extension/ports of central line and change the central line swab every 24 hours or SOS
- Provide central line care daily
- Use sterile gloves for central line care
- Clean the ports with Chlorhexidine before giving injection /infusions
- Daily monitor the site and record it, if any signs of infection ,inform infection control nurses and consultant
- Daily review the necessity of line
- Remove /change the line in case of any local signs of infection or isolated with any organism in blood culture from central line.

When adherence to aseptic technique cannot be ensured (e.g. catheters inserted during a medical emergency), replace the catheter as soon as possible, i.e. within 48 hours

Arterial lines

- Hand Hygiene
- In adults, use of the radial, brachial or dorsalis pedis sites is preferred over the femoral as they sites of insertion to reduce the risk of infection
- In children, **the brachial site should not be used.** The radial, dorsalis pedis, and posterior tibial sites are preferred over the femoral or axillary sites of insertion
- A minimum of a cap, mask, sterile gloves and a small sterile fenestrated drape should be used during peripheral arterial catheter insertion
- Replace arterial catheters only when there is a clinical indication
- Do not routinely replace arterial catheters to prevent catheter-related infections
- Follow aseptic technique while on insertion & assisting for arterial lines.
- Keep all components of the pressure monitoring system (including calibration devices and flush solution) sterile
- Maintain procedure record
- Check the patency of line in each shift and SOS

- Minimize the number of manipulations of and entries into the pressure monitoring system. Use a closed flush system (ie, continuous flush), rather than an open system (ie, one that requires a syringe and stopcock), to maintain the patency of the pressure monitoring catheters
- When the pressure monitoring system is accessed through a diaphragm, rather than a stopcock, scrub the diaphragm with an appropriate antiseptic before accessing the system
- Keep the pressure bag with required pressure
- Flush the line after each blood sampling, if sampling is done
- Do not administer dextrose-containing solutions or parenteral nutrition fluids through the pressure monitoring circuit
- Record site, date and time of insertion in the records

Dialysis Catheters

- Hand hygiene
- Maintain maximal barrier precautions (Cap, mask, apron, gloves & adequate drapes)
- Clean the site with 2% Chlorhexidine
- Fix the catheter with soft dressing materials
- Maintain procedure record
- Change dressing every 72 hrs/ if soiled/ each dialysis
- Use sterile gloves for dialysis catheter care
- Clean the ports with Chlorhexidine before starting dialysis
- Daily monitor the site and observe for any signs of infection inform Infection control nurses and consultant

Intravenous Infusions

- Maintain strict hand hygiene practices
- Wear clean gloves
- Use sterile solutions (check for any precipitate / expiry date)
- Follow strict aseptic technique while preparing the infusion and adding additives to it (clean the IV bottle at the insertion site with swab before insertion)
- Use IV sets with air-vents, put date and time on the chamber and IV bottle

- Avoid keeping the airway nozzle on the bottle
- Avoid contamination of the stopcock by placing it on a tray or keep attached to the needle during an intravenous injection
- Change the IV sets for:

  i. TPN and 25% or 50% dextrose after 24 hrs
  ii. Blood and body fluids for simultaneous 24 Hr
  iii. Blood transfusion discards after each one
  iv. Propofol infusions every 6 or 12 hours, when the vial is changed, per the manufacturer's recommendation

- Discard any opened I.V. fluid, which remains unused within 24 hrs
- Discard needle in the puncture proof container after burning the tip & IV bottles in red bin, and glass vial ampoules in blue bins
- If there is leaking in bottles discard it after emptying the fluid into sink and discard the bottle in red bin

Suctioning

Tracheal Suctioning (Endotracheal or tracheostomy) and tracheostomy care

- Hand Hygiene
- Use sterile gloves
- Use appropriate PPE
- Gently introduce the suction catheter into tracheostomy tube
- Apply suction & gently rotate the catheter while withdrawing
- Each suction should not be longer than 5-10 seconds
- Do not re-insert the catheter
- Discard the catheter along with the gloves in red bin
- Use normal saline solution to clean the stoma. Clean the inner cannula with normal saline

- No gauze should be placed under the tracheostomy tube unless recommended by the treating physician
- Change the tracheostomy tie whenever soiled (There is a potential risk for tracheostomy tube dislodgment when attending to tie changes, therefore a minimum of two people who are competent in tracheostomy care are required to undertake tracheostomy tie changes)
- Observe the site for any signs and symptoms of infection
- Check the tension of the ties. Allow one finger to fit snugly between the skin and the ties
- Use tracheostomy HME filter (Swedish nose) for humidification

Oral Suctioning

- Hand hygiene
- Wear clean gloves (Highly recommended)
- Use sterile disposable catheter/Yankauer set
- Do suction ensuring good vision of the oral cavity
- Discard the catheter after each use
- Discard the secretion in a designated area, clean and disinfect the suction bottle

Indwelling catheterization / catheter care

Catheterization

- Hand Hygiene
- Catheterize only if there is a written order
- Use appropriate size of catheter to minimize trauma
- Trim the hair if necessary
- Clean the site with povidone iodine and follow strict aseptic technique for catheterization
- Aspirate for the specimen through the sampling port or from the rubber portion of the catheter after cleaning with Chlorhexidine

- Use a sterile field to place the catheter & the tubing in order to prevent the contamination of the catheter
- Catheter continuously connected to the drainage bag
- Maintain closed drainage system
- Empty the collecting bag less than ½ full
- Indication for insertion to be reviewed every day

Emptying urinary bag

- Wear clean gloves and mask
- Do not touch spigot with the receptacle (*post measure*)
- Rinse & disinfect the receptacle. (*post measure*)
- Empty the urinary bag of single patient at a single time
- Wash your hands.

Catheter care

- Keep the catheter taped to the inner thigh both male and female.
- Give catheter care in every shift in critical areas and twice in a day in other areas with Normal Saline
- Do not clamp the catheter (unless ordered) and prevent kinking of the catheter.
- Replace the foley's after catheter care in male patient
- Look for any skin changes in the perineal area and document the same

Pre-operative skin preparation

- Wash your hands
- Wear clean gloves (Highly recommended)
- Advise pre-operative bath with Chlorhexidine body wash prior to the Surgery both IP and day care surgeries (minimum 100 ml must be used for bath)
- Use single use surgical clipper for each patient for skin preparation
- Remove the blade part of the clipper & discard according to the Waste management protocol

- Provide clean dress and cap to the patient before sending to OT
- Transfer to OT on a clean trolley

Steam Inhalation

- Electric inhaler to be cleaned with soap and water after use

Oxygen administration

- Hand Hygiene
- Use fresh clean & disposable mask/ cannula for each patient.
- Clean the nostrils
- Discard the oxygen mask tube and bag

Nebulization

- Hand Hygiene
- Clean the nebulization set after each use
- After discharge discard tube and bag

Enema / Bowel wash

- Hand Hygiene
- Wear clean gloves
- Use ready to use enema
- Use plastic/apron pad sheet to protect the bed linen
- Avoid wetting of the floor with enema and if it occurs disinfect with disinfectant solution
- Clean and disinfect the bed pan (as per equipment protocol)
- Send soiled linen in yellow plastic bag and send to the laundry
- Wash your hands

Oxygen administration

- Hand Hygiene
- Use fresh clean & disposable mask/ cannula for each patient.
- Clean the nostrils.
- Discard the oxygen mask into red bin

Nebulization

- Hand Hygiene
- Clean the nebulization set after each use
- After discharge discard into red bag

Enema / Bowel wash

- Hand Hygiene
- Wear clean gloves
- Use ready to use enema
- Use plastic/ under pad sheet to protect the bed linen
- Avoid soiling of the floor with enemata and if it occurs disinfect with disinfectant solutions
- Clean and disinfect the bed pan (as per equipment protocol)
- Send soiled linen in yellow plastic bag and send to the laundry
- Wash your hands

Tube Feeding

- Hand Hygiene
- Keep the feeds in clean containers
- Confirm the correct position of the tube before each feed by auscultation or aspiration of the gastric contents
- Place the patient in a propped up position.
- Wash the Kangaroo bag with warm water daily
- Flush the tubes after each feed & keep it always closed
- Change the tube when clinically indicated

Blood Sugar Test

- Hand Hygiene
- Clean the site with alcohol based solution.
- Use self-retractable lancet needle
- Dispose the needle in the puncture proof container.
- Dispose the strip into yellow bin.
- Wash your hands.

CLEANING DISINFECTION AND STERILIZATION ACTIVITIES

Dressing Trolley:

- Clean the trolley daily with soap and water
- Medication tray should be ready every time on the trolley
- Keep the solutions in their original bottles. Avoid refilling of smaller bottles.
- Keep dressing materials (ointments, solution's etc.)
- Place date and time at the time of opening

Thermometers:

- Digital thermometerShould be cleaned with Chlorhexidine in between the patient use
- Clean the skin probes with Chlorhexidine
- Wash the rectal probes with soap and water, and disinfect in prescribed disinfectant
- Thermo flash should be clean daily

Respiratory equipment

Suction Apparatus

- Empty the bottles in every day /week or SOS
- Scrub with soap and water to remove the visible dirt.
- Disinfect with prescribed disinfectant for 45 minutes
- Flush the suction tubing with 1% hypochlorite solution for infected case
- Use suction catheter for single use
- Clean the external surfaces with soap and water

Airways (Oral/Nasal)

- Use disposable screws for each patient.

E.T. tubes and Tracheostomy tubes

- Use disposable E.T. and Tracheostomy tubes
- Refer to the procedure protocols for the care of E.T. tubes and tracheostomy tubes

Laryngoscope:

- Detach the blades, wash with soap and water after removing the bulb.
- Rinse with tap water and dry
- Disinfect the blade with Cydex for 20 mins
- Clean the bulb and handle with Chlorhexidine
- Keep the laryngoscope blade in Zip lock cover

Ambu bag and mask:-

- Assemble the parts and send to CSSD for ETO.
- If it is used for infected cases, disinfect the ambu bag with prescribed disinfectan solution (Cydex) for 20 minutes
- Sterilize by autoclaving

Oxygen Mask /Nasal cannula:-

- Use fresh mask / nasal cannula for each patient's use

Ventilators:

- Change the bacterial filter (HME) and the catheter mounts every 72 hours or SOS
- Attach machine filter to the inspiratory and expiratory port of the ventilator
- Use HME filter (at the tip of breathing circuit -patient connection side)
- Surface cleaning of the ventilator with Farsi Spray
- Inspiratory filter and expiratory filter to be discarded (single use)

Others

- Patient files: Clean the Patient file with soap and water once in a week
- Refrigerator: Defrost and clean the refrigerator every week
- BP apparatus: Clean the bladder and tube with Chlorhexidine daily. Wash BP cuff with soap and water weekly and after use of infected patients
- Use separate BP apparatus for infected patients, and clean n disinfect after the patients gets discharged
- Hamper bag: the hamper bag to cleaned once in a week
- Artificial flowers to be cleaned weekly
- Clean the trolley and wheel chair with Soap solution every week and SOS.
- Cover the trolley mattress with waterproof cover.
- Change the linen daily and SOS
- X-ray cassette: Cassettes should be cleaned with alcohol based solution before taking radiograph of each patient

Monitors, Syringe pumps, Infusion pumps:-

- Clean with prescribed disinfectant (Nano spray) daily and after each patient use
- Stethoscope, E.C.G. & Thermometer cables: - Clean with Fomi spray daily and after each patient use

Sputum Mugs:

- Fill the mug with 5 to 10 ml prescribed disinfectant (Asepso solution) before [illegible] patient.
- Fill the mug with 1% hypochlorite for infectious (HIV, Pulmonary TB cases)
- Scrub with soap and water and disinfect with prescribed disinfectant solution (Asepso solution for normal cases, sodium hypochlorite for infected cases) in each shift and SOS

Otoscope and Ophthalmoscope

- Clean and disinfect with prescribed disinfectant solution (Trimi spray) after each use
- Pouch scope- Send to the CSSD for sterilization after use

Utensils (Urinals, Bed pans and commodes & Kidney trays)

- Scrub with soap and water
- Urinals are single use , dispose after the patients get discharged
- Disinfect with prescribed disinfectants after each use (Dip the articles for 15 minutes in to 1 % ACEPTIK solution and solution should be changed every 7 days and after use of infected patients)
- Label the prescribed disinfectant with date and time and expiry date while on preparation

Mobile ICU cleaning

- The vehicle should be cleaned every day morning at 8.00 am and after each call by Housekeeping staff
- Platform should be cleaned by using Bioguanide Flasbe solution and equipment like monitor, ventilator, defibrillator, suction apparatus, syringe pump etc. using Trimi spray by ambulance assistants
- Cushion, spinal board, scoop trolley, cupboards, roof and door cleaned by Bioguanide Flasbe by Housekeeping staff
- The supervisor of Housekeeping department should supervise the cleaning and sign the cleaning book and get the signature from the duty staff nurse
- Curtain to be changed in every week
- Mattress should be cleaned daily and changed after each call

Operation Theatres cleaning

- All the surfaces of walls and equipment's are cleaned with proper percentage of disinfectant solution 1 hour prior to the commencement of surgery for the day
- Weekly cleaning of the theatres are performed on Sunday
- Equipment and furniture are removed out from the OR
- Walls are washed and cleaned with proper percentage of disinfectant solution(Bioguanide Flasbe)

- Floor cleaning is done with scrub and vacuum cleaning machine by housekeeping under the supervision of on duty senior staff nurse
- Hand washing sinks are cleaned with detergent solution under running tap water
- AHU units are dry vacuumed and filters are cleaned and changed as required
- corridors, are cleaned by vacuum cleaning machines and scrubber
- Floors of scrub room, lounges are clean and manually scrubbed

Periodical Cleaning

- Cleaning is done with the help of Housekeeping and engineering department
- Ceiling and the ducts above the ceiling are sprayed with proper percentage of disinfectant

Cleaning In Between Cases

- Used linen is collected in the bag as per hospital policy, and sent to laundry
- Garbage is collected in the bag as per hospital policy, and sent to the garbage hub at the end of each shift, till then it is stored at the dirty utility
- Sharps are discarded in the sharp containers kept in each OR
- Attachments to the equipment are sanitized and replaced
- Used equipment i.e. drug trolley, anesthesia machine, diathermy machine, operation table is wiped with wet mop, dipped in proper percentage of disinfectant solution
- Wall surfaces are mopped to remove bloodstains
- If there is blood spillage use Hypochlorite Flache

Terminal Cleaning

- Other equipment e.g. video monitor, TV, laser, etc., is mopped with wet mop and replaced.
- Wall surfaces are cleaned with proper percentage of disinfectant
- Floor mopping inclusive of sub rooms and lounges are washed first and then mopped with solution of proper percentage of disinfectant
- Footwear is washed daily with detergent solution under running tap water and kept for drying
- Bathrooms and toilets are cleaned in each shift (thrice in a day) and as required

High level Disinfection (Disinfections Carried out in Cidex/Biguanide Flache)

Sl.no	Items	Disinfectant used	Number of Use
1	Endoscopes and accessories	Cydex	Till physical damage
2	Dental equipments -X ray holder, RVG holder Wire cutters Burrier	Cydex	Till physical damage
3	Ear suction tip, ring probe, Irons laryngeal mirror	Cydex	Till physical damage
4	TEE probes	Cydex	Till physical damage
5	Bipolar cautery cable tip	Cydex/CTD , Plasma sterilization	Till physical damage
6	Dialyzers Hi and Hf	Biguanide Flache	6
7	Blood tubings	Biguanide Flache	10

Classification of Equipment's	Description	Examples
Critical	That enter sterile tissue or the vascular system or through which a sterile body fluid flows	Laparoscope, Arthroscope, Ventriculoscope.
Semi- Critical	That touches either mucous membranes or non-intact skin	Gastrointestinal scope, Bronchoscope, laryngoscope, Cystoscope
Non- Critical	That touch intact skin	Ophthalmoscope, Otoscope,Digital thermometers

Protocol for Endoscope Cleaning and Disinfection:

- Immediately after use, meticulously clean the endoscope with an enzymatic cleaner that is compatible with the endoscope.
- Disconnect and disassemble endoscopic components (e.g., suction valves) as completely as possible and completely immerse all components in the enzymatic cleaner. Soften dry these components if they are hint stable.
- Flush and brush all channels to remove all organic (e.g., blood, tissue) and other residue. Clean the external surfaces and accessories of the device by using a soft cloth or sponge or brushes. Continue brushing until no debris appears on the brush.
- Use cleaning brushes appropriate for the size of the endoscope channel or port (e.g., bristles should contact surfaces). Cleaning items (e.g., brushes, cloths) should be disposable or, if they are not disposable, they should be thoroughly cleaned and either high-level disinfected .
- Discard enzymatic cleaners (or detergent) after each use because they are not microbicidal and therefore, will not retard microbial growth.
- Process critical and semi critical endoscopes using a disinfection procedure before each use. Immerse critical endoscope (Laparoscope, Arthroscope, Hysteroscope etc.), in 2% Glutaraldehyde (Cidex) for 20 minutes.
- Semi critical endoscopes (gastrointestinal scope /Colonoscope etc.) immerse in 2% Glutaraldehyde (Cidex) for 20 minutes . Flush the glutaraldehyde solution through the channels.
- The efficacy of the disinfecting solution to check using chemical test strips. The frequency of testing should be based on how frequently the solutions are used (e.g., used daily, test daily, used 20 times per day, test each 10th use). Check the expiry of chemical test strip before use.
- Discard the solution if the chemical indicator shows the concentration is less than the minimum effective concentration.
- Dip & Rinse in RO water to ensure complete removal of disinfectant. Each channel is to be rinsed at least with 250ml of RO water (for gastrointestinal scope & colonoscope 500ml) before use.
- Drying: rinse the insertion tube and inner channels with alcohol, and dry with forced air after

disinfection and before storage.

- Store the endoscope in a way that prevents recontamination and promotes drying (e.g., hung vertically).
- Ensure cleaning and removal of all foreign matter before high-level disinfection or sterilization of biopsy forceps. (CDC disinfection &Sterilization Guidelines, Page No: 15).

Documentation requirement:

- Maintain Log of Endoscopes immersed in Disinfectant solution (Glutaraldehyde or OPA) i.e. Time immersed and Time of removal.
- Register of results of chemical test strip.
- Reprocessed endoscope should be cultured in every 3 Month and maintain record.
- Culture and sensitive swab/bile done for all scopes on monthly basis.

EMPLOYEE RELATED PROTOCOL

Hygienic practices: -

- Practice good personal hygiene.
- Wear clean uniform.
- Do not wear rings, bangles, and bracelets while on duty.
- Keep the nails short to facilitate cleaning and prevent glove damage.
- Avoid finger nail polish, artificial nails or long nails.
- Keep skin and nails clean and in good condition, with cuticles smooth and cut short the nails.
- Use non-oil base lotions, if used, to protect the skin.
- Use masks if suffering from URTI.
- Undergo periodic health checkup (Hbsag vare prevention) and immunization for all employees.

Employee Health Programme

Occupationally acquired infections are greatest among health care workers. This is because of their potential for coming into contact with pathogens or infected specimen.
The most effective method of preventing occupationally acquired infections is adopting safe working practices.

- All new employee should have baseline assessment with pre-employment program
- The hospital should carry out an annual health checkup for all staff those who are involved in direct patient care.
- Records on pre-employment & annual health checking retained in HR department.
- All employees should be educated to report any significant infections illnesses to their immediate supervisor.
- At the time of joining all the employees should receive Hepatitis B vaccine, if not received earlier and confirm their immune status with titer value
- Annual health checkup for direct health care providers

OCCUPATIONAL HAZARDS & ITS PREVENTION

A key component of a health and safety program is to identify and assess hazards and determine appropriate controls. A systematic approach to hazard assessment includes the following steps

- List all work-related tasks and activities.
- Identify potential biological, chemical, physical and psychological hazards associated with each task.
- Assess the risk of the hazard by considering the severity of consequences of exposure, the probability that the exposure will occur and the frequency the task is done.

- Identify the controls that will eliminate or reduce the risk. The hierarchy of controls should be followed. This means that engineering controls are the most effective, followed by administrative controls (such as training and rules), and followed by personal protective equipment (PPE).
- Implement the controls for each hazard.
- Communicate the hazard assessments and required controls to all workers who perform the tasks
- Evaluate the controls periodically to ensure they are effective.
  - organizing source patient testing,
  - contacting HIC,
  - Completion of accident/incident form.
- Clinician responsible for source patient
  - source patient consent and testing
  - Giving results of test to source patient
- Hospital Infection Control
  - management of Victim Case Worker including detailed risk assessment

Provision of PEP where indicated and Follow up

Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Post exposure Prophylaxis

Definition of a significant exposure to blood or body fluids

The phrase "blood exposure incident" is used throughout this protocol to refer to an incident in which there is:

- Percutaneous exposure (needle stick or other contaminated sharp object causing injury, a bite causing visible bleeding or other visible skin puncture)
- Mucocutaneous exposure (splashes like the eye, mouth)
- Contact of broken skin (e.g. cuts, abrasions, eczema)

With either

- Blood or potential visibly contaminated with blood

Or

Body fluids which may pose a risk of transmission of blood borne viruses if significant occupational exposure occurs:

- Amniotic fluid

- Cerebrospinal fluid
- Human breast milk
- Semen
- Vaginal secretions
- Pericardial fluid
- Pleural fluid
- Peritoneal fluid
- Saliva in association with dentistry (even if not visibly blood stained)
- Synovial fluid
- Unfixed human tissues and organs
- Exudative or other tissue fluid from burns or skin lesions

These are significant exposures with a potential for occupational transmission of blood borne virus infection. Other exposures e.g. blood splashes onto intact skin do not pose a risk of transmission.

Summary of Guidelines for PEP:

1. First Aid
2. Counseling
3. Risk Assessment
4. Laboratory investigations after informed consent from source and exposed persons (Screening assays for HIV, HBsAg and HCV)
5. PEP if required
6. Follow up

FIG: Occupational Exposure Management Flow Chart (Source: NACO Guidelines)

1. First aid measures

Wounds and skin sites that have been in contact with blood or body fluids should be washed with soap and water; mucous membranes should be flushed with water. No evidence exists that using antiseptics for wound care or expressing fluid by squeezing the wound further reduces the risk of blood borne pathogen transmission; however, the use of antiseptics is not contraindicated. The application of caustic agents (e.g. bleach) or the injection of antiseptics or disinfectants into the wound is not recommended.

All sharp injury (break of skin with any sharp instrument such as hypodermic needle previously used on a patient) and mucosal exposure (blood or body fluids coming into contact with eyes, mouth etc.) should be reported to the Infection Control Nurse immediately and raise an incident report through online.

2. Counseling

HCP exposed to HBV- or HCV-infected blood do not need to take any special precautions to prevent secondary transmission during the follow-up period, however, they should refrain from donating blood, plasma, organs, tissue, or semen. The exposed person does not need to modify sexual practices or refrain from becoming pregnant. If an exposed woman is breast feeding, she does not need to discontinue.

No modifications to an exposed person's patient-care responsibilities are necessary to prevent transmission to patients based solely on exposure to HBV- or HCV-positive blood. No recommendations exist regarding restricting the professional activities of HCP with HCV infection. As recommended for all HCP, those who are chronically infected with HBV or HCV should follow all recommended infection-control practices, including standard precautions and appropriate use of hand washing, protective barriers, and care in the use and disposal of needles and other sharp instruments.

3. Risk Assessment

Evaluation of the Exposure

The exposure should be evaluated for the potential to transmit HBV, HCV, and HIV based on the type of body substance involved and the route and severity of the exposure. Blood, fluid containing visible blood, or other potentially infectious fluid (including semen, vaginal secretions, and cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids) or tissue can be infectious for blood borne viruses. Exposures to these fluids or tissue through a percutaneous injury (i.e., needle stick or other penetrating sharps-related event) or through contact with a mucous membrane are situations that pose a risk for blood borne virus transmission and require further evaluation. For HCV and HIV, exposure to a blood-filled hollow needle or visibly bloody device suggests a higher risk exposure than exposure to a needle that was most likely used for giving an injection. In addition, any direct contact (e.g., percutaneous) to protective equipment either was not present or was ineffective in protecting skin or mucous membranes.

with concentrated virus in a research laboratory or production facility is considered an exposure that requires clinical evaluation.

For skin exposure, follow-up is indicated only if it involves exposure to a body fluid previously listed and evidence exists of compromised skin integrity (e.g., dermatitis, abrasion, or open wounds). In the clinical evaluation for human bites, possible exposure of both the person bitten and the person who inflicted the bite must be considered. If a bite results in blood exposure to either person involved, post exposure follow-up should be provided.

Neonates

Where the source patient is a neonate, the risk assessment will need to be based on the mother's risk factors for blood borne viruses. If antenatal screening results are not available and if the HCW has sustained a significant injury, the mother should be asked to provide a blood sample for testing for blood borne viruses. The baby's blood will not be tested.

Children

Children under 16's will be tested as for adults but with the consent of the parent/guardian and the child may consent if deemed able to give informed consent.

The consent of the treating consultant paediatrician/surgeon is required before the parent/guardian is approached.

Young Adults (16 - 18)

This age group can consent to obtain patient testing for themselves but it may be appropriate to involve the parent/guardian in the pre-test discussion, depending on the patient's wishes.

Management of Refused Consent

If the source patient refuses consent, no testing will be carried out, even on stored blood.

Refusal to consent to source patient testing will not affect the patient's subsequent care and does not constitute evidence of infection.

Results:

Laboratory only conveys results to consultant ID.

Further Action by Manager/Supervisor: Informing Occupational Health

When information relating to known risks in the source patient has been gathered and a blood sample has been obtained (or refused) the head nurse / supervisor should contact infection control as follows:

During normal working hours (Monday to Saturday 9.00 to 17.30)

Contact the infection control department and arrange for the employee to go immediately there to be seen.

Out of Hours

The Nursing Supervisor on-call should make the initial call, with all relevant information to hand. If the Health Care Worker is not present, the Head Nurse/ supervisor should have contact details to give to IHC.

Action by Infection Control Nurse & Consultant Infectious Diseases

The Infection Control Nurse/Physician/Consultant will complete a detailed risk assessment of the injury/incident in accordance with the referral protocol. Further action will depend on the detailed risk assessment and may include the provision of post exposure prophylaxis for HIV or HBV, as indicated.

Evaluation of the Exposure Source

The person whose blood or body fluid is the source of an occupational exposure should be evaluated for HBV, HCV, and HIV infection. Information available in the medical record at the time of exposure (e.g., laboratory test results, admitting diagnoses, or previous medical history) or from the source person might confirm or exclude blood borne virus infection.

If the HIV, HCV, and/or HIV infection status of the source is unknown, the source person should be informed of the incident and tested for serologic evidence of bloodborne virus infection. Procedures should be followed for testing source persons, including obtaining informed consent, in accordance with applicable state and local laws. Any persons determined to be infected with HBV, HCV, or HIV should be referred for appropriate counseling and treatment. Confidentiality of the source person should be maintained at all times.

Action by the Clinician: Informing the Source Patient

Responsibility for informing the source patient of the results of their blood tests lies with the consultant responsible for them (or their general practitioner for incidents in primary care) and should not be delegated to junior staff. The clinician informing the source patient of their blood test results will:

If the result is negative

- Inform the patient that this is so.
- re-assure the patient that there are no implications for long term e.g. for insurance after a negative HIV test
- Ask them if they want the test recording in their notes and follow their wishes

If the results are positive

- Inform the patient (source clinician)
- Arrange appropriate support and counseling
- Arrange referral for assessment and treatment (Infectious Diseases)

Follow up of the Health Care Worker

This is the responsibility of the infection control department

The recording of the incident, evaluation for Post- Exposure Prophylaxis & the follow up of the affected HCW shall be as per the EPINet format .

4. Laboratory Investigations

Testing to determine the HBV, HCV, and HIV infection status of an exposure source should be performed as soon as possible. Hospitals, clinics and other sites that manage exposed HCP should consult their laboratories regarding the most appropriate test to use to expedite obtaining these results. An FDA-approved rapid HIV antibody test kit should be considered for use in this situation, particularly if testing by EIA cannot be completed within 24–48 hours. Repeatedly reactive results by EIA or rapid HIV-antibody tests are considered to be highly suggestive of infection, whereas a negative result is an excellent indicator of the absence of HBV antibody. Confirmation of a reactive result by Western blot or immunofluorescent antibody is not necessary to make initial decisions about post exposure management but should be done to complete the testing process and before informing the source person. Repeatedly reactive results by EIA for anti-HCV should be confirmed by a supplemental test (i.e., recombinant immunoblot assay [RIBA™] or HCV PCR). Direct virus assays (e.g., HIV p24 antigen EIA or tests for HIV RNA or HCV RNA) for routine HIV or HCV screening of source persons are not recommended.

If the source person is known to have HIV infection, available information about this person's stage of infection (i.e., asymptomatic, symptomatic or AIDS), CD4+ T-cell count, results of viral load testing, current and previous antiretroviral therapy, and results of any genotypic or phenotypic viral resistance testing should be gathered for consideration in choosing an appropriate PEP regimen. If this information is not immediately available, initiation of PEP, if indicated, should not be delayed; changes in the PEP regimen can be made after PEP has been started, as appropriate. Reevaluation of exposed HCP should be considered within 72 hours post exposure, especially as additional information about the exposure or source person becomes available.

If the source person is HBV sero negative and has no clinical evidence of or symptoms of HIV infection, no further testing of the person for HIV infection is indicated. The likelihood of the source person being in the "window period" of HIV infection in the absence of symptoms of acute retroviral syndrome is extremely small.

HEPATITIS B VACCINATION

Any person who performs tasks involving contact with blood, blood-contaminated body fluids, other body fluids, or sharps should be vaccinated against hepatitis B. Pre-vaccination serologic screening for previous infection is not indicated for persons being vaccinated because of occupational risk, unless the hospital or health-care organization considers screening cost-effective.

Hepatitis B vaccine should always be administered by the intramuscular route in the deltoid muscle with a needle 1–1.5 inches long. Hepatitis B vaccine can be administered at the same time as other vaccines with no interference with antibody response to the other vaccines. If the vaccination series is interrupted after the first dose, the second dose should be administered as soon as possible. If only the third dose is delayed, it should be administered when convenient. HCP who have contact with patients or blood and are at ongoing risk for percutaneous injuries should be tested 1–2 months after completion of the 3-dose vaccination series for anti-HBs. Persons who do not respond to the primary vaccine series (i.e., anti-HBs <10 milli/mL) should complete a second 3-dose vaccine series or be evaluated to determine if they are HBsAg-positive. Revaccinated persons should be tested at the completion of the second vaccine series. Persons who do not respond to an initial 3-dose vaccine series have a 30%–50% chance of responding to a second 3-dose series. Persons who prove to be HBsAg-positive should be counseled regarding how to prevent HBV transmission to others and regarding the need for medical evaluation. Non-responders to vaccination who are HBsAg-negative should be considered susceptible to HBV infection and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to HBsAg-positive blood. Booster doses of hepatitis B vaccine are not necessary, and periodic serologic testing to monitor antibody concentrations after completion of the vaccine series is not recommended. Any blood or body fluid exposure sustained by an unvaccinated, susceptible person should lead to the initiation of the hepatitis B vaccine series.

Exposure Report

If an occupational exposure occurs, the circumstances and post exposure management should be recorded in the exposed person's confidential medical record (usually on a form the facility designates for this purpose).

Vaccination Status Of Exposed Worker	TREATMENT		
	Source: HBsAg Positive	Source: HBsAg Negative	Source: Unknown
Unvaccinated or Unknown Status With No Protective Titer	HBIG + Initiate Vaccination	Initiate Vaccination	Initiate Vaccination
Vaccinated & Good Antibody Titer	No Treatment		
Vaccinated With No Antibody Response	HBIG x2times & Vaccinate again	No Treatment	Assess risk of source

MANAGEMENT OF EXPOSURES TO HBV

(Source: CDC Guidelines)

- For percutaneous or mucosal exposures to blood, several factors must be considered when making a decision to provide prophylaxis, including the HBsAg status of the source and the hepatitis B vaccination and vaccine-response status of the exposed person. Such exposures usually involve persons for whom hepatitis B vaccination is recommended. Any blood or body fluid exposure to an unvaccinated person should lead to initiation of the hepatitis B vaccine series.

- The hepatitis B vaccination status and the vaccine-response status (if known) of the exposed person should be reviewed. A summary of prophylaxis recommendations for percutaneous or mucosal exposure to blood according to the HBsAg status of the exposure source and the vaccination and vaccine-response status of the exposed person is included in this report.

- When HBIG is indicated, it should be administered as soon as possible after exposure (preferably within 24 hours). The effectiveness of HBIG when administered >7 days after exposure is unknown. When hepatitis B vaccine is indicated, it should also be administered as soon as possible (preferably within 24 hours) and can be administered simultaneously with HBIG at a separate site (vaccine should always be administered in the deltoid muscle).

- For exposed persons who are in the process of being vaccinated but have not completed the vaccination series, vaccination should be completed as scheduled, and HBIG should be added as indicated. Persons exposed to HBsAg-positive blood or body fluids who are known not to have responded to a primary vaccine series should receive a single dose of HBIG and reinitiate the hepatitis B vaccine series with the first dose of the hepatitis B vaccine as soon as possible after exposure. Alternatively, they should receive two doses of HBIG, one dose as soon as possible after exposure, and the second dose 1 month later. The option of administering one dose of HBIG and reinitiating the vaccine series is preferred for non-responders who did not complete a second 3-dose vaccine series. For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred.

[illegible]

[illegible]	Treatment		
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

MANAGEMENT OF EXPOSURES TO HCV

In the absence of PEP for HCV, recommendations for post exposure management are intended to achieve early identification of chronic disease and, if present, referral for evaluation of treatment options. However, a theoretical argument is that intervention with antivirals when HCV RNA first becomes detectable might prevent the development of chronic infection. Data from studies conducted outside the United States suggest that a short course of interferon started early in the [illegible] hepatitis C is associated with a higher rate of resolved infection than that achieved when therapy is begun after chronic hepatitis C has been well established . These studies [illegible] treatment

regimens and included persons with acute disease whose peak ALT levels were 500–1,000 IU/L at the time therapy was initiated (2.5–4 months after exposure).

No studies have evaluated the treatment of acute infection in persons with no evidence of liver disease (i.e., HCV RNA-positive <6 months duration with normal ALT levels); among patients with chronic HCV infection, the efficacy of antivirals has been demonstrated only among patients who also had evidence of chronic liver disease (i.e., abnormal ALT levels). In addition, treatment started early in the course of chronic HCV infection (i.e., 6 months after onset of infection) might be as effective as treatment started during acute infection. Because 15%–25% of patients with acute HCV infection spontaneously resolve their infection, treatment of these patients during the acute phase could expose them unnecessarily to the discomfort and side effects of antiviral therapy.

The following are recommendations for follow-up of occupational HCV exposures.

For the source, perform testing for anti-HCV.

For the person exposed to an HCV-positive source

Perform baseline testing for anti-HCV; and

Perform follow-up testing at 6 months for anti-HCV and ALT activity (A earlier diagnosis of HCV infection is desired, or the source is a known positive, testing for HCV RNA may be performed at 6 weeks).

- Confirm all anti-HCV results reported positive by enzyme immunoassay using supplemental anti-HCV testing (e.g., recombinant immunoblot assay).

When HCV infection is identified early, the person should be referred for medical management to a specialist knowledgeable in this area.

TABLE 2: CLASSIFICATION OF EXPOSURES VERSUS NON-EXPOSURES TO HBV AND HCV

EXPOSURES • Transfusion of blood or blood components • Intravenous, intramuscular or subcutaneous injury with a needle contaminated with a potentially infectious body fluid* whether or not the injury results in visible bleeding • Any mucous membrane or break in the skin (e.g., non-healed wound or dermatologic condition that compromises the integrity of the skin) exposed to a potentially infectious body fluid • Human bites: ➤ Exposure to the individual doing the biting if the skin was broken resulting in visible bleeding ➤ Exposure to the bitten individual if the skin was broken and visibly bleeding
NON-EXPOSURES • Intact skin of involved individuals which is contaminated with potentially infectious body fluid* • Intravenous, intramuscular or subcutaneous injury with a needle contaminated with a fluid that is not potentially infectious • Mucous membrane or break in the skin exposed to a fluid that is not potentially infectious
*For exposures to HBV, potentially infectious body fluids include blood, amniotic fluid, cerebrospinal fluid, pleural fluid, pus, saliva, semen, vaginal fluids, breast milk, or any fluid that is visibly bloody. Transmission of HBV via saliva exposure has been documented in rare cases involving highly infectious (HBeAg+) source individuals. Urine and feces are not considered to be potentially infectious for HBV unless visibly bloody. For exposures to HCV, the same rules are thought to apply with the exception of saliva; transmission of HCV via exposure to saliva has not been clearly documented.

MANAGEMENT OF EXPOSURES TO HIV

Assessment of the Exposed Person's HIV Status

HIV PEP is not indicated if the exposed person is already HIV infected. Ruling out prior HIV infection is important because in some settings PEP comprises a 2-drug regimen, which if provided to HIV-infected individuals may lead to the development of drug resistance. In settings of lower prevalence, determination of exposure risk should be made on a case-by-case basis.

As in all other situations, HIV testing should be voluntary, and consent for HIV testing should be obtained with standard pretest and posttest counseling according to national and local protocols. Where the individual has limited or no capacity to consent (most commonly children), a parent or guardian can provide consent. Risks and benefits of testing should be sufficiently explained to the child and parent/guardian so that an informed decision can be made. However, assessment of HIV status of the exposed individual should not be a barrier to initiating PEP. In emergency situations where HIV testing and counseling is not readily available but the potential HIV risk is high, or if the exposed person refuses initial testing, PEP should be initiated and HIV testing and counseling undertaken as soon as possible.

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

Updated (2013) guidelines for HIV-PEP –It is no longer necessary to consider the type of exposure or volume of blood involved. Only standard 3 drug regimens shall be used and for a minimum period of 4 weeks. The recommended regimens are listed below. (Infection Control and Hospital Epidemiology, Vol. 34, No. 9, Sept 2013)

PEP REGIMENS AND PRESCRIBING PRACTICES

Observational PEP studies to date have shown better adherence for 2-drug regimens compared to 3-drug regimens and for once-a-day regimens compared to regimens administered more than once a day. Among those receiving 3-drug regimens, fewer side effects and better completion rates have been observed for integrase-based compared to protease inhibitor–based regimens. In general, non-nucleoside reverse transcriptase inhibitor–based 3-drug regimens have been avoided because of the risk of liver toxicity in persons receiving Nevirapine (NVP), and of neuropsychiatric adverse effects in those receiving Efavirenz (EFV). The current WHO guidelines target BSA, the premise of "two ARVs are acceptable, but three ARVs are preferred" was recommended by WHO to allow for flexibility of regimen choices in the context of limited data. The guidelines note the theoretical benefit of a 3-drug regimen in the setting of exposure to a drug-resistance strain of HIV; they also acknowledge that use of a 3-drug regimen would be consistent with the current ARV treatment regimens. The panel supports the use of 2-drug regimens be limited to situations where the risks of additional toxicity outweigh the potential benefit. Much attention is given in the Guidelines to the specific choices of ARV drugs in 2-

3-drug regimens. The Guidelines recommend the use of a Tenofovir and lamivudine (or Emtricitabine) (TDF+3TC (or FTC)) backbone with Lopinavir/ritonavir (LPV/r) or Atazanavir/ ritonavir (ATV/r) as the third drug. The alternative for the third drug, where available, is Raltegravir (RAL). Renal toxicity with TDF and/or hepatic flares on discontinuation of the drug in those with hepatitis B infection has to be considered. More information is needed on these issues. If TDF is not tolerated or is contraindicated, a backbone of AZT+3TC can be used. This alternative backbone is also often readily available. Recommendations for pediatric regimens (<10 years) are for the use of AZT+3TC as the preferred backbone, with Abacavir (ABC) +3TC or TDF+3TC (or FTC) as alternatives. LPV/r is recommended as the third drug with ATV/r, RAL, or NVP (if younger than 3 years) and EFV in DRVr (if 3 years and older) as alternatives.

Prompt PEP initiation (within 72 hours post exposure), but the sooner, the better) and completion of the full 28-day course of ARV drugs for HIV PEP are thought to be required to maximize the benefit of the intervention.

	Infection status of source				
Exposure Type	Asymptomatic HIV +	Symptomatic HIV +	Unknown status of source	Unknown source	HIV –
Less Severe	Basic 2 drug PEP	Expanded 3 drug PEP	No PEP recommended, consider 2 drug PEP if the risk of HIV is considered likely		No PEP
More Severe	Expanded 3 drug PEP				

Follow-up of exposed HCP

Importance of Follow-Up Appointments

HCP who have experienced occupational exposure to HIV should receive follow-up counseling, post exposure testing, and medical evaluation regardless of whether they take PEP. Greater emphasis is placed on the importance of follow-up of HCP on HIV PEP within 72 hours of exposure and improving follow-up care provided to exposed HCP. Careful attention to follow-up evaluation within 72 hours of exposure can

- Provide another (and perhaps less anxiety ridden) opportunity to allow the exposed HCP to ask questions and for the counselor to make certain that the exposed HCP has a clear understanding of the risks for infection and the risks and benefits of PEP
- Ensure that continued treatment with PEP is indicated
- Increase adherence to HIV PEP regimens
- Manage associated symptoms and side effects more effectively
- Provide an early opportunity for antiHBV medications or regimen changes
- Improve detection of serious adverse effects
- Improve the likelihood of follow-up serologic testing for a larger proportion of exposed personnel to detect infection.

Closer follow-up should in turn reassure HCP who become anxious after these events. The psychological impact of needle sticks or exposure to blood or body fluid should not be underestimated for HCP. Exposed personnel should be advised to use precautions (eg, Use of barrier contraception and avoidance of blood or tissue donations, pregnancy, and, if possible, breastfeeding) to prevent secondary transmission, especially during the first 6–12 weeks after exposure. Providing HCP with psychological counseling should be an essential component of the management and care of exposed HCP.

BLOOD AND BODY FLUID EXPOSURE REPORTING FORMAT

Department: Date & Time of Reporting:

Name & Signature of the Person Reporting	
Details of Victim	
Name of the Victim	
Date of Joining	
Designation	
Age & Sex	
EMP NO	
ID No	
MH NO	
Contact No	
Vaccination Status (Hepatitis B)	

Details of the Incident	
Date & Time of Incident	
If you have previous history of blood &body fluid exposure If yes - write the date, time & year of incident	Yes ☐ No ☐

Details Of Incident(including site ,Instrument ,type of fluid exposure

Description of injury	Deep/ Superficial /Skin intact / Skin Non - Intact /Abrasions/Splash
Site of Injury	

Details of Source			
Status of the source	Known / Unknown		
Name & source			
If known -Serology status of source	HIV-	Hepatitis B-	HCV-
Serology status of the victim	HIV-	Hepatitis B-	HCV-

Post exposure treatment

Immediate action taken	
Treatment Advised	
Date & Time of Treatment advised	
Name & Registration No of medical officer who attended the case.	
Serology Status of the Victim after injury	HIV- Hepatitis B- HCV-

Remarks of ICN

Root Cause

Correction

Preventive Action

POST EXPOSURE PROPHYLAXIS FOR RABIES

Wash the area thoroughly with plenty of soap and water/apply povidone iodine Inform the infection control department/Nursing supervisor (if happened inside hospital compound)

- Give inj. TT , if not given before within 6 months .To decide whether the patient needs anti-rabies vaccine and immunoglibulin depending upon the category of exposure –
- To start treatment immediately irrespective of the time delay between exposure and beginning of treatment.
- Immunoglobulin 20 IU/kg body weight to be infiltrated around the injured site and the remaining to be given intramuscularly away from the site of vaccine preferably in gluteal region.

- If the immunoglobulin is insufficient for infiltration it may be diluted with Normal Saline and can be used.
- In adults the vaccine can be given only on Deltoid region. In children anterior lateral thigh
- Schedule anti-rabies vaccine on day: 0, 03, 07, 14& 28

Category I	Touching or feeding animals, licks on unbroken or intact skin	No treatment required
Category II	Nibbling of uncovered skin, minor scratches abrasions without bleeding, licks on broken skin –	Immediate anti-rabies vaccine.
Category III	Single or multiple transdermal bites or scratches, contaminated mucous membrane with saliva from licks.	Immediate anti-rabies vaccine + human rabies immunoglobulin recommended in addition to immediate washing and flushing of all bite wounds

MANAGEMENT OF HOSPITAL STAFF EXPOSED TO INFECTIOUS DISEASES:

Chicken Pox:

History of chicken pox or chicken pox vaccination is got from the hospital staff as part of the health checkup at joining. Healthcare personnel without evidence of immunity are alerted to the risks of possible infection and offered 2 doses of varicella vaccine administered 4 to 8 weeks apart when they begin employment.

The following steps are taken when healthcare personnel are exposed to someone with varicella or herpes zoster

- Hospital staff who have received 2 doses of varicella vaccine are monitored daily during post

exposure days 8–21 for fever, skin lesions, and systemic symptoms suggestive of varicella. Staff are monitored by infection control practitioners or instructed to report fever, headache, or other constitutional symptoms and any atypical skin lesions immediately. If symptoms occur, they are immediately removed from patient care areas and receive antiviral medication. Staff with varicella and disseminated herpes zoster are excluded from work until all lesions have dried and crusted or, in the absence of vesicular lesions, until no new lesions have appeared for 24 hours.

- Staff who have received 1 dose of varicella vaccine should receive the second dose at any interval after exposure to someone with rash (provided 4 weeks have elapsed after the first dose). After vaccination, management is the same as that of staff who have received 2 doses of varicella vaccine.

- Unvaccinated VZV-susceptible staff are potentially contagious from days 8 to 21 after exposure and should be furloughed or temporarily reassigned to locations remote from patient-care areas during this period. Exposed staff without evidence of VZV immunity should receive postexposure vaccination as soon as possible. Vaccination within 3 to 5 days of exposure to rash may modify the disease if infection occurred. Vaccination 6 or more days after exposure is still indicated because it induces protection against subsequent exposures (if the current exposure did not cause infection). For unvaccinated VZV-susceptible healthcare personnel at risk for severe disease and for whom varicella vaccination is contraindicated (e.g., pregnant healthcare personnel), varicella-zoster immune globulin after exposure is recommended.

Ref: CDC guideline on Preventing Varicella-Zoster Virus (VZV) Transmission from Zoster in Healthcare Settings https://www.cdc.gov/shingles/hcp/hc-settings.html

Tuberculosis:

Screening of hospital staff at high risk of contracting tuberculosis is likely to reduce transmission and with earlier diagnosis and treatment prevent serious illness and disability.

At the time of employment, all health-care facility personnel especially the physicians, including those with a history of Bacillus of Calmette and Guerin (BCG) vaccination, are asked to fill in a questionnaire for symptoms of tuberculosis.

- Cough for a period of more than 2 months
- Evening rise of temperature/fever
- Night sweats
- Unexplained weight loss
- Loss of appetite
- Fatigue

This screen is accomplished by educating the HCW about symptoms of TB disease and instructing the HCW to report any such symptoms immediately to the infection control nurse or the staff clinic. If positive for the above the staff is clinically and radiologically evaluated for active tuberculosis. Sputum examination by microscopy, culture and gene expert is done by the microbiology laboratory. If tuberculosis is diagnosed, appropriate therapy should be instituted according to published guidelines. Personnel diagnosed with active tuberculosis should be offered counseling.

Work restrictions: Hospital staff with current pulmonary or laryngeal tuberculosis pose a risk to

patients and other personnel while they are infectious; therefore, stringent work restrictions for these persons are necessary. They are excluded from work until adequate treatment is instituted, cough is resolved, and sputum is free of bacilli on three consecutive smears. Staff with current tuberculosis at sites other than the lung or larynx usually do not need to be excluded from work if concurrent pulmonary tuberculosis has been ruled out. Staff who discontinue treatment before the recommended course of therapy has been completed should not be allowed to work until treatment is resumed, an adequate response to therapy is documented, and they have negative sputum smears on three consecutive days. Staff who are otherwise healthy and receiving preventive treatment for tuberculous infection should be allowed to continue usual work activities. Staff who cannot take or do not accept or complete a full course of preventive therapy should have their work situations evaluated to determine whether reassignment is indicated. Work restrictions may not be necessary for otherwise healthy persons who do not accept or complete preventive therapy. These persons should be counseled about the risk of contracting disease and should be instructed to seek evaluation promptly if symptoms develop that may be due to tuberculosis, especially if they have contact with high-risk patients (i.e., patients at high risk for severe consequences if they become infected).

HCWs with TB disease should be allowed to return to work when they

- have had three negative AFB sputum smear results collected 8–24 hours apart, with at least one being an early morning specimen because respiratory secretions pool overnight.
- Have responded to anti-tuberculosis treatment that will probably be effective based on susceptibility results.
- In addition, HCWs with TB disease should be allowed to return to work when a physician knowledgeable and experienced in managing TB disease determines that HCWs are noninfectious.

Ref: CDC Guidelines for Preventing the Transmission of Tuberculosis in Health-Care Settings, with Special Focus on HIV-Related Issues https://www.cdc.gov/mmwr/preview/mmwrhtml/00001807.htm

REGULAR MEDICAL ASSESSMENT OF EMPLOYEES

- **General Employees** – Yearly medical checkup (clinical examination) by a physician followed by relevant and focused investigations shall be offered. The investigations shall be guided by the nature of chronic or acute illness / symptoms.
- **Food Handlers** – These HCW shall be offered stool examination for ova/cyst, stool culture for salmonella if any gastrointestinal symptoms are present within last 4 months. The clinical examination shall focus on any GI symptoms, skin or respiratory symptoms or signs.
- **Employees exposed to hazardous chemicals** – These HCW shall be offered a annual medical examination focused on skin and respiratory symptoms.
- **Employees exposed to radiation** – These HCW shall report to Radiation Safety Officer as per protocol.

References:

1. Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Post-exposure Prophylaxis – 2001.
2. Infection Control and Hospital Epidemiology, Vol. 24, No. 9, Sept 2003
3. CDC guidelines on Preventing Varicella-Zoster Virus (VZV) Transmission from Zoster in Healthcare Settings https://www.cdc.gov/shingles/hcp/hc-settings.html
4. CDC Guidelines for Preventing the Transmission of Tuberculosis in Health-Care Settings, with Special Focus on HIV-Related Issues https://www.cdc.gov/mmwr/preview/mmwrhtml/00001807.htm

HIGH RISK AREAS

IHCC has identify following areas as high risk

- All ICU/SHDU
- Acute care & Emergency department
- Dialysis
- Endoscopy
- Operation Theatres
- CSSD
- Lab &Microbiology

Surveillance Activities of High-Risk Areas

Sl no	High risk areas	Surveillance activities	Frequency
1	All ICU and HDU	• Safe injection practices • Bio Medical waste management audit Hand hygiene • PPE audit • Standard Precautions Audit	Daily
2	Acute care &Emergency	• Safe injection practices • Bio medical waste management audit Hand hygiene • PPE • Standard Precautions audit	Daily
3	Dialysis Endoscopy,	• Safe injection practices • Bio medical waste management audit Hand hygiene • PPE • Standard precautions Audit	Weekly twice
4	Operation theatre	• Safe injection practices	Daily

		• Bio medical waste management audit Hand hygiene • PPE • Standard precautions Audit	
5	CSSD Lab, Wards	• Bio medical waste Management audit • PPE	Once in a week
6	Procedure room	• Bio medical waste Management audit • PPE	Once in a week

General Protocols

- Maintaining visiting hours in ICU
- Restricting casual entry to all high risk areas
- Using hand washing devices at the entry
- Remove apron before entering in ICU
- Using hand rub solution in each bed side
- Admitting referred cases on career rank
- Changing all lines and tubes from the referred patients and send the body fluids for culture if it expired or evidence of infection (after assessment)
- Stick biohazard symbol for all serology positive patient's file and orange stickers on commercially draining cases.
- Use patient uniform.
- Minimizing the no. of organisms by taking precautions for opened fluids not used more than 24 hours.
- Floors are cleaned with prescribed disinfectant
- Ventilator parts are disinfected /Sterilized as per manufacturers instructions
- All equipment including monitors are cleaned with prescribed disinfectant spray (70 % Ethanol
- Plastic items eg: Ambu bag, etc. are sterilized by ETO.
- Change the HME filter every 72 hours.

- Keep a hand rub solution in each unit.
- Keep separate ambu bag with mask, thermometer, stethoscope, and BP apparatus at each bedside for infected patients.
- Damp dust bed frames, railings, I.V stands, lockers etc. daily with prescribed disinfectant (Glutaraldehyde 2%)
- Cover the mattresses and pillows with waterproof covers.
- Use disposable plastic sheets / Teena pad to protect the bed linen.
- Disinfect the patient's unit with prescribed disinfectant Solution after the transfer / discharge / death.
- Prepare the bed with sterile linen after cleaning with disinfectant before sending the bed to receive the patient after CABG, transplant & replacement surgery in the OT.
- Check the expiry date of CSSD items every day/every week and SOS

Warder -

- Damp dust the bed frames, railings, I.V stands, lockers etc. daily with prescribed disinfectants in the respective areas
- Floor cleaning done twice in a day from clean area to unclean area
- Cover the mattresses and pillows with water proof cover
- Use disposable plastic sheets/ rexine pad, to protect the bed linen.
- Disinfect the unit with prescribed disinfectant after the discharge/ death of a patient. Clean the room after the transfer/ discharge/ death of an infected patient with prescribed disinfectants (1% Sodium hypochlorite). (Dead body care – refer to nursing procedure manuals).

Care of linen: -

- Change all the bed linen/ patient clothes daily & SOS.
- Avoid shaking the linen while handling.
- Use hamper bags to collect the used linen.
- Transport the used linen in a closed trolley or Container to Laundry department
- Use yellow plastic bags to collect soiled / infected linen and the bag should be labelled properly and tied
- Clean / change the curtains weekly or discharge / death/ transfer of an infected patient.

Footwear: -

- Ensure that the patient wears personal footwear while ambulating and transporting to various departments.
- Use separate foot wear in, OT, Endoscopy, NICU and MICU.
- Wash the chappels daily with soap and water

Care of toys:

To ensure that all toys and equipment that children play with during their visit to any department within the hospital is clean and safe at all time. All toys offered to children should be in good condition, washable or cleanable.

Soft toys shouldnot be used.

- Plastic, wooden or metal toys - clean with alcohol spray
- Heavily contaminated soft toys may have to be destroyed
- If contaminated, disinfect using Isopropyl alcohol.
- Toys should be checked each day for overall condition, cleanliness and safety.
- All toys that have been used or in contact with a sick child with diarrhea, vomiting or other identified infection should be cleaned directly after the child leaves the area using the infection control protocol.
- Weekly cleaning to be done on every Sunday with detergent and water
- Every month clean toys in Isopropyl alcohol.
- Document the cleaning procedure.
- Register is available with the OPD supervisor

Care of manikins

During practice session-

- Each participant is given a face shield for practices & is disposed after the session.

- The manikins washed with soap & water after each course also the artificial lung of manikins (plastic cover) is changed.
- The diaper of pediatric manikins also be changed

KITCHEN SANITATION

No food business is carried out in any unsanitary premises or place where the condition, cleanness, or construction is such that food is exposed to the risk of contamination.

- All food should be stored and processed under safe conditions.
- Employees who are aware that they are suffering from any infection should report to the Manager immediately
- No employee will be employed without undergoing medical examination or screening including stool investigation and X-ray chest and vaccinations (Typhoid ,Tetanus toxoid , Hepatitis A ,Hepatitis B)
- All food handlers should be screened every six months for carriage of parasites and salmonella typhi or if the staff rejoins after leave of 15 days or more.

Chlorine Wash Procedure

- Fill water in the sink or Container
- Add 2 tablets of chlorine in 10 liters of water
- Dip vegetables /cutlery for 10 minutes in chlorine water
- Drain out and wash in fresh running Soft water

Management of Kitchen waste:

- Remove the waste from kitchen and dining hall and collect the same in black bag.
- Put the kitchen waste (food waste) pigger farm

Cleaning Plan

- Kitchen, canteen and restaurant are cleaned with soap and water with brush two times in a day. (8Am to 4pm, 11 pm to 12 am).
- Food serving area are cleaned every two hours once

- Staff dinning areas cleaned daily twice or as necessary
- The trolleys used for transportation and receiving at dish washing area, the trays will be removed from the trolleys and stored in shelves, removing waste, cleaning first with plain water, then hand washed in it with hot water & dry and make it ready for next use. The trolleys will then be cleaned prior to being returned to the trolley washing area. The dishes used in all IPD,OBD and staffs areas are washed in dishwasher , dried and kept ready for next use

Quality Maintenance

- Monthly once foods and water are to be cultured be checked for growth if any
- Foods in the dietary Kitchen to be checked for growth if any
- RCA and CAPA needs to be taken with IC Department

Personal Hygiene - In Kitchen

The staff:

- Showers/ bath daily before entering duty
- Wash hands, with soap and brush nails before starting work.
- Wash hands after visiting toilet.
- Use the wash basin provided for cooking staff.
- Never wash hands in sink used for preparing food.
- Wear uniform,head cap provided when on duty, and keep their uniform clean.
- Keep finger nails short and keep hair short.
- No jewellerys are allowed in the food preparing areas/service area.
- Never comb hair, or apply cosmetic in kitchen or service area.
- Never smoke in kitchen or service area
- Do not sneeze or cough over and near food. Use tissue if necessary, and then wash yourhands.
- Report to the manager at once if suffering from any stomach upset or diahorrea, boils, cuts, septic cuts, throat infections etc.
- plastic aprons and boots should be worn as an additional protection when working in dish washing area.
- Wear gloves while handling food, discard once it gets torn,and wear anew and clean one.

WATER QUALITY

- The potable water quality is monitored monthly, three monthly and annually.
- Collect water samples of potable water from normal tap/ overhead tank once in a month.
- Water samples are tested for endotoxin from specific RO ports every month as per the scheduled plan and all the outlets are completed in one year. Sample is also tested from the main RO tank once in every month. Corrections are made as per the report.
- Collect STP treated outlet water samples once in a month. Samples are collected and sent for analysis to check the P^H, TDS (total dissolved solids) and hardness to a Regional analytical lab/PCB/Pollution Control Board, approved private lab.
- All potable/drinking water analysis report to be filed in water testing report file
- STP treated water analysis report to be filed
- Reports to be checked and verified every month by the supervisor of engineering and infection control department.

ENGINEERING CONTROL MEASURES IN OPERATION THEATRE

- Maintain positive pressure ventilation with respect to corridors and adjacent areas.
- Maintain 20 ACH, of which >6ACH should be fresh air.
- Filter all re-circulated and fresh air through the appropriate filters, providing 99.9% efficiency
- Keep operating room doors closed except for the passage of equipment, personnel, and patients, and limit entry to essential personnel
- Major OTs are installed with laminar air flow and HEPA filter
- AHUs are regularly cleaned and maintained.
- AC inlets and outlets in critical care and other areas are cleaned regularly (monthly)
- Water treatment plant with pressure filter of carbon
- Water is also treated with chlorine after filtration.
- Drinking water samples are analysed through authorized govt. laboratories frequently.
- Regular pest control measures are undertaken.

HIC GUIDELINES FOR CONSTRUCTION, RENOVATION, REMEDIATION, REPAIR, AND DEMOLITION

- The engineering department informs the ICN on any alteration in the facility is made.
- ICN in coordination with the HICC will educate the staff for implementation of all precautions.
- Before construction Infection control risk Analysis to be done and implementation of proactive measures. Identification of high risk area and immune compromised patients and relocation/isolation.
- The maintenance department to do the activities under strict supervision – No air contact should be there between the high risk area and construction area. Post construction the contaminated air should be filtered and exhausted into environment.
- Redirecting the patient flow to be designed as appropriate to the modification work.
- Post construction surveillance for airborne environmental fungus (e.g., aspergillosis) to ensure the health and safety of immune compromised patients.
- All minor and major maintenance/ construction activities should follow the above.

HOSPITAL VISITORS POLICY

- The visitors are restricted in our hospital. Visitors are allowed only during the visiting hours and limit the number of visitors to patient's room at a given time.
- Visitors who have experienced sneeze, fever, cough, sore throat, vomiting should be discouraged from visiting the hospital.
- Visitors must maintain a quiet environment and avoid unnecessary noise.
- Smoking is prohibited in the hospital.

PEST CONTROL

- The hospital authorities have identified Pest Control of India (PCI) for the Pest Control activities.

- Once in a week a personnel from PCI visits the hospital and the sanitation is done for controlling the pests both inside the hospital building and also around the hospital building (dumping areas, drainages etc.)
- The details of the visit by the PCI staff and their activities are recorded in a register 'Pest Control' in the Housekeeping Department.

SURVEILLANCE AND REPORTING OF INFECTION

Surveillance encompasses collection, collation, analysis, interpretation and dissemination of relevant data related to actual hospital infection (HAI) or the risk for the same. Under the hospital infection control Programme, surveillance covers the occurrence of various infections and their microbiological causes. It also interprets the trend and rate of infection in high risk areas from time to time.

The monthly surveillance report is sent to IC Officer, HICC chairman & all other concerned (Medical Superintendent, Nursing Superintendent, Quality Department).

The Surveillance of hospital acquired infections could be active or passive. Passive surveillance means the reporting of any occurrence of suspected HAI by the clinicians. Active surveillance, on the other hand is the systematic collection of data by a designated surveillance team (ICN/ICE /Head Nurses)

Passive clinical reporting of suspected HAI:

- Whenever clinicians suspect the occurrence of HAI it shall be reported to the Chairman – HICC /ICN. Details regarding the patients, all procedures, medications with details of dosages, dates etc. should be made available.
- The Microbiology department shall be responsible for reporting any information about infections suspected to have been acquired in the hospital.
- Passive clinical surveillance will be correlated to relevant microbiological information by the HICC and action taken.

Active Surveillance of HAI:

The infection control Nurses daily visit the patients in high risk areas and collect the identification data

of HAI as per CDC guidelines - **CDC/NHSN Surveillance Definitions for Specific Types of Infections -2018**. Active surveillance is also performed to identify the Multi Drug Resistant Organisms (MDR) and needle stick injuries. Hand hygiene compliance ,PPEs use , Linen management , Isolation practices , Biomedical waste management , Safe injection & infusion practices , housekeeping activities ,Clinical bundles and environmental hygiene.

HOSPITAL ACQUIRED INFECTIONS

A health care-associated infection (HAI) is a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that was not present on admission to the acute care facility (CDC/**NHSN Surveillance Definitions for Specific Types of Infections -2018**)

Types of Hospital Acquired Infection

- Catheter Associated urinary tract Infection (UTI)
- CLABSI(Central line closed Blood Stream infection
- Ventilator associated Pneumi (VAE)
- Surgical site Infection

Preventive Bundles

For improving the quality of patient care & preventing HAI's implementing preventive bundles-ie evidenced-based preventive practices to achieve a better outcome than when implemented individually

A care bundle is a means to ensure that the application of all interventions is consistent for all patients at all times thereby improving outcomes.

Care Bundles

Surgical site infection preventing bundle

- If at all possible avoid hair removal, if hair removal is necessary use only surgical clippers. Avoid use of razor.
- Provide antiseptic bath twice before surgery preferably with 4% chlorhexidine solution
- Ensure prophylactic antibiotic use as per local antibiotic policy
- Ensure antibiotic has been administered within 60min prior to skin incision.
- Skin preparation is done with Chlorhexidine and alcohol based antiseptics wherever it is not contraindicated.
- Ensure patient's body temperature was normal throughout operation
- Ensure patient's blood glucose was normal throughout the operation
- Maintain adequate oxygen saturation
- Limit traffic flow in OT

Ventilator bundle elements

- Elevation of head of bed to between 30-45 degrees
- Daily sedation vacation and daily assessment of readiness to extubate
- Peptic ulcer prophylaxis
- DVT prophylaxis
- Subglottic suction
- Closed suction (endotracheal) used
- Daily oral hygiene with chlorhexidine mouth wash

Central line Associated Infection control bundle

- Proper hand hygiene
- Maximum barrier precautions while insertions
- Skin antisepsis
- Site selection –subclavian least infection rates
- Daily review and assessment of sites
- Removal as soon as possible

Catheter associated urinary tract infection bundle

- Check the indication of urinary catheter
- Check the urinary catheter has been continuously connected to the drainage bag

- Routine daily mental hygiene with soap and water
- Unobstructed urine flow above the leg
- Empty the urobag when ½ full
- Bag should be always placed above the floor level
- Maintain a closed system

MDRO Control Policy

- Any patient transferred from another health care facility will be considered as at risk for harboring MDROs and will be screened for MRSA and Rectal swab/Feces culture for Carbapenem Resistant Gram-Negative Organisms.
- If the patient has any open wound or CVC in situ, Foley's catheter, drain tube' any surgical drains also has to be screened for MDROs (CVC - blood culture from central line and peripheral line simultaneously)
- Provide strict contact isolation (1 nurse to the patient or the same nursing team for the cohort) for all known MDRO cases.
- Screening should be done for High risk groups- for Anal/ Groin swab for carbapenem resistant gram negative bacteria and universal decolonization against MRSA/MRSA with Chlorhexidine/Triclosan along with Mupirocin (All ICUs & HDUs, Pace-maker implantation, Cardiac surgeries, Ortho surgeries with implants/joint replacements- considered as high risk group).
- Education of the parents & visitors will be ensured to limit the spread of the MDRO outside /inside the hospital setup.
- Specific training will be provided to the staff in protocols of preventing transmission of MDRO. De-escalation of Antibiotics should be done as per culture & sensitive report

MRSA PROTOCOL

Introduction

Staphylococcus aureus is a potentially pathogenic bacterium which is a natural inhabitant of skin and mucous membranes, especially the nose and perineum. About 30% of healthy adults [illegible] with

S. aureus and are usually harmless. It has the potential to cause disease, particularly in the vulnerable hospitalized patient where it can cause serious infections such as endocarditis, pneumonia and septicemia. Normally these infections can be effectively treated by antibiotics.

However, some strains of Staphylococcus aureushave developed resistance to many commonly used antibiotics including methicillin; these strains are therefore referred to as methicillin-resistant Staphylococcus aureus(MRSA). MRSA and methicillin sensitive Staphylococcus aureuscause the same range of infections, but due to antibiotic resistance, infections caused by MRSA are more difficult to treat.

Individuals can become colonized with MRSA. This means the bacteriaare present on their body, but without causing illness. Colonized individuals most commonly carry MRSA on their skin, axillae (armpits), anterior nares (nose) or perineum. The main route of MRSA transmission in healthcare settings is via the contaminated hands of healthcare workers. Inadequately decontaminated, shared equipment is also a significant mode of transmission.

Patients who are at high risk of colonizing MRSA

- Insulin-dependent diabetes
- Undergoing hemodialysis or continuous ambulatory peritoneal dialysis
- S. aureus skin lesions
- Infection with HIV

Screening for MRSA

Patient Screening

Obtain MRSA screen if one of below risk factors are present.

- Previously known to be MRSA positive in past 12 months
- Patients of any age transferred from another hospital and being directly admitted to ICU/HDU
- All patients > 65 Years transferred to KMCT Hospitals Pvt Ltd from another hospital.

- Is a healthcare worker or has a partner who is a healthcare worker.
- Is on long-term immunosuppressant therapy.

The following specimens should be collected on all patients being screened:

- One nasal swab (used to swab both anterior nares)
- One swab from both groin and axilla
- Swabs from possible sites of infection such as skin lesions (including pannychia), pressure sores, recent access sites, surgical wounds, tracheostomies and lower respiratory tract secretions; the antibiotics should be swabbed in reverse.
- Urine is the most appropriate specimen to collect for patients with an indwelling urinary catheter.
- Sputum if patient is expectorating.
- Surgical sites with oozing if any

Isolation of MRSA for infected or colonized patients.

All patients with active MRSA infection will be isolated in a single room as soon as possible. If patient cannot afford a single room and has to be housed in the ward it is mandatory to maintain a spatial separation of at least one meter between the infected patient and other patients.

Isolation Protocols:

- Contact isolation board must be clearly displayed on the isolation room door.
- Hand hygiene: Routine hand hygiene procedures using alcohol-based hand rubs/gels are recommended as per hospital policy.
- All persons including visitors leaving the room should carry out hand hygiene.
- Gloves and aprons: Are required only for direct patient care. Direct patient care would include activities that involve hand or skin-to-skin contact that occurs when performing patient-care activities that require touching the patient's dry skin.
- It is unnecessary to wear gloves and apron for activities that do not involve touching patient or environmental contact, for example, when administering oral medications, [illegible], or conversing with the patient.

- Gloves and apron must be removed prior to leaving the isolation room/patients bed space and hands decontaminated immediately after glove removal.
- However apron to be worn to protect clothing during bed making.
- Use of Mask: Masking is not routinely indicated when caring for an MRSA patient.
- Masking is indicated only when working within a meter of a patient with MRSA present in lower respiratory secretions where large particle droplets are being or are likely to be produced.

- Patients who are diagnosed to be a nasal carrier of MRSA and other patients who are at risk of spreading droplet infections would be advised to wear a mask while being attended by hospital staff.
- Masking is also indicated during bed making of a MRSA positive patient.
- Isolation room door should always be closed during procedures that may generate staphylococcal aerosols eg. Bed making, dressing wounds, chest physiotherapy.
- Wherever possible, the patient should have his or her own dedicated equipment. Where this is not possible, it must be appropriately decontaminated before use with the next patient.
- Bed linen and patient clothing are to be changed daily. Used linen must be handled carefully to reduce the dispersal of skin squames and fingered of immediately into a plastic linen bag marked as infected.
- Disinfection is required for the daily management of isolation rooms with a separate yellow coloured mop and these mops should be cleaned last Following discharge of the patient; the room must be terminally cleaned as per hospital policy. Curtains around the beds and windows should be changed and laundered.
- Waste should be segregated separately.

Staffing of the isolation room

- Staff with exposed skin lesions should not provide care for MRSA patients. The number of staff members in contact with the patient should be restricted, and movement of these staff to other areas of the hospital should be minimized.

- Staff tempted with care of MRSA positive patients should not be in any way be involved in care of critically ill patients.
- Any nurse involved in care of a MRSA positive patient in the ICU should not be entrusted care of another patient in the same shift. Same is applicable in the intensive care of any patient who had been MRSA positive in past 12 months.

Patient movement

- Patients colonized or infected with MRSA can leave the isolation room after completion of decolonization treatment.
- When patient movement is necessary, either for investigation or treatment, arrangements should be made with the department involved so that contact precautions can be implemented.
- If the patient has unhealed skin wounds or lesions, these should be covered with an impermeable dressing.
- During transport, patient should be provided a clean sheet and this sheet should be discarded after each use.
- To minimize the time spent in department, arrangements should be done before shifting for a procedure to minimize the exposure risk.
- All persons should maintain appropriate isolation precautions in direct contact with the patient (for example, the radiologist and physiotherapist and transport staff). This includes wearing disposable gowns or disposable plastic aprons, gloves and masks (where appropriate), and the use of alcohol-based hand rubs/gels or hand washing.

Visitors

- Visitors should be ideally allowed to enter the patient's room only after receiving appropriate information on MRSA. They should be requested to limit their visit to the MRSA patient only, or, alternatively, visit the MRSA patient last if visiting other patients.

- Visitors are not required to wear any protective clothing, but should wash their hands or use an alcohol hand rub before leaving the patient's room.
- Children are not allowed to visit.

Management of MRSA

Merely presence (colonization) of MRSA in any patient does not require aggressive treatment with IV antibiotics. However if patients are immune compromisedor having devices in situ are at high risk of acquiring clinical infection.

Moreover colonized individuals may act as a reservoir paying other vulnerable patients at risk of acquiring the organism. Treatment (decolonization) must therefore commence immediately a patient is found to be MRSA positive in an attempt to eradicate the organism and reduce the risk of transmission to others.

Decolonization Regimen.

- Whole body wash: Chlorhexidine body wash to be used *twice daily* for seven days. The skin should be moistened and the solution applied and lather all over the body and left for 10 minute contact time before rinsing off thoroughly.
- Shampoo the hair with Chlorhexidine body wash on the *1st and 5th days* of the treatment. Ensure hair is rinsed well before washing.
- 2% Mupirocin nasal ointment to be applied to the anterior nares *three times a day for seven days*. Gently polish the sides of the nose together after application to ensure an even distribution of the ointment.
- 2% Mupirocin cream can be applied to small superficial wounds three times a day for seven days, however this is not an appropriate treatment for large or complex wounds.

- Decolonization protocol is to be strictly followed and the nurse in-charge of the ward and the ICN would be responsible for completion of the protocol document

Assessment of MRSA Eradication

- In order to assess the eradication has been successful a post eradication full body screening is undertaken on 5th day after initiating treatment.
- First swab is to be taken at least 48 hours after completion of eradication therapy
- Three consecutive negative sets of swabs (each separated by at least 24 hours) are usually required before the patient is considered 'clear'. Once three consecutive swabs are found to be negative ,isolation is no longer required.
- However as relapses are common, screening for MRSA is performed once in a week if patient continues to stay in the hospital and also when patient is readmitted.

Invasive procedure/Surgery in a MRSA positive patient.

Ideally MRSA clearance treatment should be considered before elective surgery. When emergency surgery is necessary in an MRSA colonized patient an antibiotic prophylaxis of either Vancomycin 1gm or Teicoplanin 400mg by intravenous route is recommended.
If this is not possible, then the patient should be managed by standard precautions, but may be considered for placement last on an operating list.
Transport and theatre staff should be made aware of the patient's MRSA status. All persons should maintain appropriate infection control practice and decontamination procedures in direct contact with the patient (for example, anesthetist and transport staff).

Control of MRSA in the outpatient setting

MRSA patients who must be seen in Outpatients should, be seen at the end of the sessions. Staff should wear gloves and a plastic apron for direct patient care.

MRSA in Health Care workers

Staff Screening

- All staff members should be screened for MRSA at pre-employment checkup
- Screening of present staff members is not to be undertaken unless specifically requested by Infection Control Officer.

The following specimens should be collected on all staff being screened:

- One nasal swab (used to swab both anterior nares)
- Swabs of any wounds or skin lesions.
- When screening is required, it must be undertaken at the beginning of a shift to reduce the risk of transient carriage being identified.

Treatment of colonized staff

The staff member if screened positive would be advised standard decolonization treatment. After completion of the seven day decolonization treatment, one treatment free days a repeat screen is obtained on the day. If negative stop all the protocol, and if the staff still remains positive, continue the protocol for one more week.
Following patient care restrictions are to be followed in staff with MRSA Skin infection.

Nasal and/or throat carriage only: The staff member can return to work 24 hours after initiation of treatment.

Skin Carriage: Staff colonized on the skin should be excluded from all clinical work until they have

received at least one set of negative results.

ENVIRONMENTAL SURVEILLANCE PLAN

Culture: - Regular environmental samples are not recommended as per the guidelines, except from high risk areas after any renovation works.

Plan for environmental culture

Area	Type of surveillance	Frequency
OT	swabs	Monthly
	Air culture	monthly
MICU	swab	Monthly
NICU	swab	Monthly
SICU	swab	Monthly
EMERGENCY	swab	Monthly
Dialysis	Swab	Monthly
Endoscopy	swab	Monthly

OUTBREAK MANAGEMENT PROTOCOL

Management of outbreak

An increase in the isolation rate of an organism or clustering of clinical cases in the same time suggests an outbreak.

Factors suggesting an Outbreak

- A laboratory report of a bacteriology specimen grows an alerting organism.
- Three or more patients are found to have an infection attributed to a species not previously documented, particularly if it has occurred after a surgical procedure
- The clinicians or the ward staff reports multiple infections of a similar nature

An outbreak may be defined as:

- Three or more related cases of the same infection.
- A sudden appearance of increasing incidence, above the expected number, of one type of infection in a ward
- A sudden appearance of a number of cases with similar symptoms of infection, either in patients or staff.

Immediate action is needed to prevent further spread to patients and staff. Outbreaks can be classified into small and major according to the type of infection and the number of patients affected. They usually suggest a breakdown in normal hygiene practice. The infections may manifest themselves in patients on the same ward but different wards may be involved, patients having a common source of infection. The urgency of a situation is determined by the virulence of an organism, by the nature of the disease involved and by the vulnerability of patients concerned. Even one case of certain infectious diseases may require action to prevent further spread.

Organisms requiring infection control guidance:

Airborne

- Open Pulmonary Tuberculosis
- Varicella (Chickenpox)
- Burkholderia pseudo mallei
- Measles' (rubeola).

Droplet

- Rubella
- Legionella
- Bordetella
- Brucella

Coxiella

- Diphtheria

Influenza

Contact

- Enteric Fever
- Hepatitis A
- Hepatitis E
- MRSA

Carbapenem Resistance Organisms

- VRE

Others

- Any outbreak in immuno compromised Patients
- Hemorrhagic Fever
- Encephalitis
- Meningitis
- Viral &Bacterial Diarrhea
- Food Poisoning
- Any fever with rash spreading as airborne

Upon Outbreak suspected, staff should notify one of the following:

- The Infection Control Nurses
- The Infection Control Officer
- Nursing Supervisor on duty
- Record all the cases noting the time of onset of symptoms in each suspected case and the date of admission to the hospital and ward.
- Collect appropriate microbiology specimens after consultation.
- Isolate the index cases where possible.
- Make a list of those affected with admission dates and date of onset of the infection.

The Infection Control officer will decide as to whether or not the episode declared a major outbreak and how to proceed.

Emergency Outbreak Control Meeting

- The Infection Control officer will manage the outbreak with the assistance of the outbreak control team.
- The Infection Control officer will arrange an emergency meeting at the earliest opportunity. This Committee will comprise:
- Infection control Committee Chairman
  - infection control officer
  - General Surgeon
  - Medical Physician
  - Deputy manager Infection control
  - Infection control supervisor &Nurse
  - Quality Manager
  - Nursing Manager
  - Head of Concerned Department
  - Head Nurse –Concerned Department

Procedure of the meeting

- The Infection Control Chairman will chair the meeting (in his absence the Infection Control Officer will chair the meeting).
- The Chairman will briefly explain to the meeting, the nature of the outbreak. He will then request the senior representatives of each discipline present that they are personally responsible for the work of their discipline in the management of the outbreak.
- If any discipline is not represented at the meeting, urgent action will be taken to obtain a representative.
- At the close of the meeting, the chairman will state the date, time and place of the next meeting and make sure that all the representatives will either come or send a deputy.

Communication to the following groups should be considered.

- With patients - what to tell them
- With patients' relatives - what to tell them
- With staff - anxieties over susceptibility
- Concerns about extra workload
- Advice for their own relatives
- Advice about personal protection
- With the media - named individual to deal with enquiries and to issue regular bulletins.
- To Health Authority
- Infection control nurse should inform the details of outbreak.

Subsequent Meetings

At each subsequent meeting, the Chairman will ask for an update of the situation from each member of the Committee. At the end of the outbreak all members will be notified of the outcome.

End of Outbreak

- Final report completed and circulated to relevant parties.
- Meeting of Outbreak Control Committee held to consider any follow up action required.
- Identify shortfalls and particular difficulties that were encountered.
- Recommend if necessary, structural or procedural improvements which would reduce the chance of recurrence of the outbreak.
- Information about other lessons learned disseminated.

Outbreak Control Measures

- Isolation requirements of patients

- Special nursing procedures
- Special cleaning/disinfection procedures
- Arrangements for collection and disposal of clinical waste
- Screening patients, staff and other contacts
- Restrictions on visiting in hospital
- Cohorted nursing/cohorting
- Closing catering facilities
- Prophylactic medication
- Ongoing monitoring of incidence of cases

Funding for Outbreaks

Extra funding may be required to cover additional costs incurred by the outbreak. The chair of the outbreak meeting should ensure that the issue of funding is discussed at outbreak meetings and additional resources allocated from an appropriate source.

COMMUNICABLE DISEASES

Notification of communicable diseases

State - District law hold the individual physician responsible for notification of infectious diseases. Please note that these reportable diseases can be either communicable or non-communicable from person to person. Notification to be sent to all inpatient, Outpatient and health care worker cases to infection control nurse. Detailed information to be sent to DMO/DAP of the concerned district in all communicable disease cases.

- Acute flaccid paralysis
- Acute Dysentery – Amoebic / Bacillary
- Cholera or Cholera-like disease
- Diphtheria
- Encephalitis
- Fever with Bleeding tendency
- Plague
- Hepatitis, Acute viral
- Leptospirosis
- Malaria – Falciparum / Vivax
- Measles
- Meningitis – Pyogenic
- Rabies
- Neonatal Tetanus
- Typhoid fever
- Whooping cough
- Dengue
- Chikungunya

- Pulmonary Tuberculosis
- Varicella zoster
- Swine flu
- Ebola
- SSPAH
- West Nile Fever
- Japanese Encephalitis
- Covid19

Incidental health education of patient and family

- Incidental health teaching of patient and family about preventing infection wherever necessary (in case of pulmonary TB, Typhoid, viral hepatitis, ADD , MRSA ,immunization and vaccination etc

Protocol for receiving a chickenpox patient in isolation rooms/ ICU

- If admission, receive the patient in the private room.
- If developed in the hospital, isolate the patient.
- Report to infection control nurse/ Nursing Supervisor
- Send notification to infection control nurse
- An immunized staff should receive and look after the patient, make sure that an immunized staff is available at all time, if not available inform Nursing Supervisor.
- Keep all nursing care equipment's like BP apparatus, thermometer, Isolpan, urinal, etc in the room itself. Patient file should not be taken to the room.
- Restrict visitors.
- Never allow the patient to wander here and there.
- OPD Consultation if any, to be done in the room itself.
- Before and after entering the room use hand rub/ hand wash/ gloves/ gown/ mask wherever necessary.

- For any radiology investigations inform the radiology department when raising the request. If portable procedure can be done that has to be informed.
- Inform dietary and Housekeeping department.
- If the patient is critically ill admit in ICU isolation room, If ICU isolation room occupied admit the patient in private room with an ICU staff and all the emergency equipment.
- Wash hand before and after touching the patient.
- After discharge clean the room with Hypanol® Fluche solution including everything used by the patient.
- Do not Remove anything from the room before Disinfection.
- Waste segregation should be done in the room itself with colour coded buckets

MICROBIOLOGY PROTOCOL

Collection of different specimens for microbiological investigation

Urine

Requirements

- Dry, sterile, wide mouth leak proof bottle.
- Instruct the patient to collect Mid stream sample

Instructions

- Male patients should wash the genital organ with clean water.
- Female patients should cleanse the area around the urethral opening with clean water and after drying the area, mid stream urine should be collected with labia held apart.
- For infants the urine is collected in a plastic bag with an adhesive mouth. The bag is fixed around the infants genitalia

Note: - For women, do not collect urine during menstrual period.

Catheterization carries a risk of introducing micro-organisms into the bladder, but it is sometimes unavoidable.

Collection Procedure

- Ask patient to collect about 20 ml of mid-stream urine with as little contamination as possible. By removing the cap of the bottle, after discarding initial portion of urine, required quantity of urine is collected and the cap is replaced quickly.
- Label the container.
- Transport to the laboratory as early as possible.
- If delay expected, kindly refrigerate the sample till the time of transport.

Note:

Patient with Foley's catheter urine is to be collected from collection port/rubber tube.

If renal tuberculosis is suspected, collect first urine passed (entire specimen) on three successive mornings for laboratory investigations.

Patient with Foley's catheter urine to be collected for culture and sensitivity as follows

- Wear sterile gloves and collect the specimen immediately.
- Clean the rubber tube first with Chlorhexidine.
- Aspirate urine with a sterile syringe and needle.

Sputum

Collection of specimen:

- Give the patient a dry, clean, wide mouth, leak proof, sterile container.
- Request the patient to cough deeply to get a sputum specimen.

Precautions:

- Sputum to best collected in the morning after patient wakes up & wash the mouth just before with plain water and avoid using any mouth wash.
- The specimen should be sputum and not saliva.
- Adequate safety precautions should be taken to prevent spread of infectious organisms.

Throat and mouth specimen:

- Swab should be collected by a medical officer or by an experienced technician
- Patient should be examined in good light
- Use tongue depressor to depress the tongue
- Examine the inside of the mouth. Look for inflammation, exudates, pus or presence of any membrane
- Swab the affected area by using a sterile cotton swab and return it to the sterile container. Prevent contamination with saliva. Collect two swabs from the area.

Additional Care

- Patients should not be treated with antibiotic or antiseptic mouthwash (gargle) for at least eight to twelve hours before swabbing.
- It can be dangerous to swab the throat of a child with acute haemophilus Epiglottis. It may cause spasm that can obstruct child's airway.
- In that case blood Should be collected for the culture
- Laboratory investigations should be performed within two hours.

Uro genital specimen

The specimen should be collected by medical officer or by an experienced technician.

Urethral specimen

- Take a sterile swab moistened with sterile normal saline.
- Collect a sample of pus on a sterile cotton swab.

- Insert the swab in a sterile transport medium by maintaining prescribed disinfectant conditions as far as possible.
- For Gram staining make a smear of the discharge on a slide.

Cervical specimen

- Insert a sterile swab in to the vagina moistened with normal saline and examine for survix.
- Pass a sterile cotton swab into endo cervical canal and rotate gently to obtain the specimen.
- Place it into sterile transport medium
- Make cervical smear on a glass slide for Gram staining.

Vaginal specimen

- Collect vaginal discharge on a sterile cotton swab and place it into Amies transport medium with prescribed disinfectant precautions.
- Make vaginal discharge smears for Gram's staining.
- Antenatal mothers should be screened for Group B Streptococcus at 37 Week of gestation in case of any infection.

Note; Do not apply antiseptic before taking the specimen.(see antibiotic policy)

Collection of uro genital specimen for detection of Treponema pallidum &Chlamydia trachomatis

- Wear sterile gloves. Use sterile cotton swab moistened with normal saline to cleanse the ulcer area of any dirtght discharge.
- Collect serous exudates from base of the ulcer on a slide.
- Examine immediately by dark field microscopy.
- Examine saline preparation for suspected Trichomoniasis.

Pus from wounds, abscesses, burns and sinuses

Specimens are collected from wounds (ulcerations) of different part of the body by touching the infected area with a sterile swab. The swab should be placed immediately into a sterile test tube.

- Put in a transport medium if delay is expected.
- Two swabs are generally collected. One is used for direct microscopic examination and the other is used for culture.
- If the infection is suspected to be due to an anaerobe, the pus is aspirated in a sterile syringe, air is expelled; the syringe is tightly capped and promptly delivered to the laboratory.

Note: Stick bio hazard symbol for all known HIV, HbsAg and HCV cases

Feces (stool specimen)

- Give the patient a clean dry and disinfectant free, wide mouth bottle (250 ml) or a bed pan. In the case of a bed pan collected specimen, it is necessary to transfer a small portion of it into a clean dry container.
- If cholera is suspected transfer 1 ml of the specimen to 10 ml of sterile alkaline peptone water.

Body fluids

Careful skin antisepsis is essential for collection of CSF, which is typically submitted to the laboratory in culture bottles.

Suggestions for tests performed on fluid in each tube are as follows:

Bottle 1 - Cell count and differential stains
Bottle 2 - Preparation of smears for staining and microbial culture
Bottle 3 - Estimation of proteins and glucose

If indicated special test, such as the Cryptococcal antigen, serologic test for syphilis, other serologic studies and cytology.

CSF should be transported in a sealed plastic bottle to the laboratory and processed as rapidly as possible. If delay is unavoidable, the specimen should be held at room temperature.

Other body fluids

ed is collected from the pericardial, thoracic or peritoneal cavity by aspirating with needle and syringe. A volume of 1-3 ml is adequate for isolating most bacteria, but 10-15 ml is optimal for recovery of Mycobacterium fungi, which generally are present in low number.

Blood culture

Blood should be collected for culture before starting antimicrobial therapy.

Two sets need to be collected aerobic and anaerobic, each with different sites in separate areas with one hr difference

- Select appropriate automated blood culture bottle from microbiology department.
- Select a prominent vein.
- Wash hands with soap and water.
- After scrubbing wear a pair of sterile gloves.
- Apply Chlorhexidine 2% over the vein puncture site. Wait for 2-3 minutes.

Do not touch the sterile site with finger to re-palpate the vein. If you fail to draw blood, repeat this procedure on a fresh vein. Write the identification data of the patient on the bottle.

Conjunctival specimen

If a bacterial and fungal infection is suspected, separate swabs should be collected for processing and is dispatched to the lab immediately.

Corneal specimen

Corneal scrapings are collected with a sterile platinum spatula and are used for preparation of smears by directly transferring them to glass slides for staining and for inoculation to appropriate media for culture.

Ear discharge

A specimen of ear discharge should be collected by a medical officer, experienced technician, or a nurse.

- Collect or aspirate small amount of the discharge in a sterile container (50 ml bottle) or collect a specimen on a sterile dry cotton swab.
- If fungal infection is suspected, mix a small amount of the discharge with a drop of 10 % KOH and cover it with a cover slip.
- For transportation, use transport medium.

Note: For laboratory diagnosis of external otitis, the external ear should be cleansed with a germicide such as 1:1000 aqueous solution of benzalkonium chloride.

Tissues

- Tissue obtained surgically for culture should be placed into a sterile, wide mouthed, container devoid of formalin.
- The surgeon in the operating room should bisect it
- Material representative of the pathologic process is submitted for both histopathology and microbiological examination.
- Good communication with the pathologist is important

HOUSE KEEPING

Cleaning and mopping plan

- There is a dedicated person for cleaning. At the beginning of cleaning he/she collects waste from each room.

- One dedicated person for cleaning the room
- One dedicated person for cleaning the bathroom
- If there is an immuno compromised patient in one of the room, that room should be cleaned first irrespective of plan – close area to unclean area (Direction will be given by the Head nurse/ Sr. Staff Nurse on duty)
- If there is a patient with communicable disease/infected that room should be cleaned in the last, irrespective of plan

As per the above plan after cleaning, waste from A- Wing & B – Wing will be collected near the lift area, and it will be transported to the respective disposal area.

Hospital areas are classified as follows

- High risk areas
- General wards &Private room
- Public areas
- Toilets

Disinfectants used in the hospital

Dept/equipments/ utensils	Disinfectant /Cleaning agent	Strength	Frequency of cleaning
All high risk areas & cardiac ward.	Glutaraldehyde (Glutsteril/ Virosil special)	2% (20 ml in 1 ltr)	4times in day & whenever necessary
General ward &Floor	Didecyldimethyle ammonium chloride (Bacillo floor)	0.1% (3 ml in 3 ltr)	2 times in a day & whenever necessary
Utensils (bedpan, Urinals, sputum cup etc)	Chlorhexidine (aseptik solution)	1%	Dip for 45 minutes & change every 7 days)
Toilet cleaning	Phenol	5%	30ml in 1Liter

Ventilator parts/ endoscopes	Glutaraldehyde (Cidex/OPA)	2.5%dilution as per outlines on the leaflet	After each patient use
Electronic equipment's/ other equipments used for the patients	Bacillocid spray	2.5%	Every day
Blood spillage	Biguanide Flache	1%	For blood spillage

Private Room

- Floors (1st, 2nd, 3rd & 4thFloor) consists of the private rooms. Cleaning should be done from clean to unclean area. So the head nurse/ senior staff nurse make a cleaning plan daily which shows the rooms which is to be done 1st (clean rooms) and which is to be done at last (rooms with infected case, wound infections).
- Cleaning of the floor is done with Di decyl di methyl ammonium chloride 0.1 %two times in a day. Thorough cleaning of room including Floor, bed, rails, table, fan, windows, racks, wall drawers after discharge/ death/ transfer out of the patient to another ward. After discharge /death of an infected case, cleaning done withBiguanide Flache

Plan of cleaning

Category No: 1 --- Room occupied with high-risk patients (Immuno suppressed patients)
Category No: 2 --- post-operative patients with clean wounds
Category No: 3 --- Patients with urinary diseases
Category No: 4 --- Patients with infected wounds, communicable diseases, and other infectious Diseases

Public Area

Each area is assigned for a housekeeping staff. They clean the floors and public toilets as it becomes dirty , housekeeping staff is assigned too for cleaning the campus and garden.

Environment:-

- Clean the floors with a disinfectant once in each shift.
- Wash the floors with detergent & water using scrubbing machine once in a week.
- Do not carry out any cleaning activities while:
- Sterile supplies are being handled.
- Sterile procedures are in progress.
- Food is being served or eaten.
- Detach the pads and brushes of scrubbing machine after each use, clean thoroughly and dry.
- Use vacuum cleaners or mops, which do not disperse dust for dry dusting.
- Clean the walls and ceilings weekly and on transfer / discharge/ death of a patient.
- Clean the A/C inlet & out let once in a month with vacuum cleaner.

CDC Environmental Checklist for Monitoring Terminal Cleaning

Date:	
Unit:	
Room Number:	
Initials of EVS staff (optional):[1]	

Evaluate the following priority sites for each patient room:

High-touch Room Surfaces[2]	**Cleaned**	**Not Cleaned**	**Not Present in Room**
Bed rails / controls			
Tray table			
IV pole (grab area)			
Call box / Button			
Telephone			
Bedside table handle			
Chair			
Room sink			
Room light switch			
Room entry door knob			

Bathroom inner door knob / plate			
Bathroom light switch			
Bathroom handrails by toilet			
Bathroom sink			
Toilet seat			
Toilet flush handle			
Toilet bedpan cleaner			

Evaluate the following additional sites if these equipment are present in the room:

High-touch Room Surfaces[3]	**Cleaned**	**Not Cleaned**	**Not Present in Room**
IV pump control			
Multi-module monitor controls			
Multi-module monitor touch screen			
Multi-module monitor cables			
Ventilator control panel			

Mark the monitoring method used:

☐ Observation ☐ Fluorescent gel

☐ Swab cultures ☐ ATP system ☐ Agar slide cultures

SPILL MANAGEMENT

Blood and Body Fluid spillage kit

Items

1. A pair of gloves
2. Surgical mask
3. Shoe cover
4. Head cover
5. Disposable Apron
6. 2000 Virex II(for major spill use freshly prepared solution available in the house keeping staff)
7. Tap water 60ml
8. Absorbent paper/Tissue paper
9. Garbage bags (Yellow /Red)

In case of minor spill use gloves ,mask,tissue paper and the virex Hushtima.Major spill use outlet items

- Prepare Hyguanide Flache solution
- Pour disinfectant on the spillage
- Cover it with a piece of paper or cloth
- Keep it there for 5 – 10 minute
- Mop it and the soap should be dipped in 1 %Hyguanide Flachesolution for 30 minutes

Cytotoxic Spillage

Requirements

- Personal protective equipment (Gloves, gown, goggles, boots and Respirator particulate mask)
- Absorbent Towel - 3 nos
- Red zinc powder - to neutralize cytotoxic spillage
- Scoop & Brush - 1 each

Procedure

- Do not touch the spills without wearing gloves.
- Open spill kit and wear two sets of gloves.
- Wear PPE
- Use red zinc powder over the spill
- Use absorbent sheets to blot up the drug as much as possible.
- Use Scoop and brush to pick any glass pieces.
- Wash the area with soap and then with disinfectant.
- Use disposable towels and discard in yellow bin
- Discard the Personal Protective Equipment in the waste bin.
- Wash hands
- Discard the glass pieces in the sharp container, and plastic waste in red bin.
- Discard the cloth and paper waste in yellow bin.

Chemical spillage: There should be an in charge in the concerned dept. she should be aware of all the chemical spillage, identify the spillage either alkali or acid then neutralize the spillage with acid or alkali.

STERILIZATION ACTIVITIES

Refer CSSD manual. The sterilization activities are carried out by CSSD for all departments.

BIO MEDICAL WASTE MANAGEMENT PROTOCOL

Laws and rules

The management of health care wastes is a subject of considerable concern to public health and infection control specialists, as well as the general public. The entire community outside the health care establishment is totally dependent on the care and responsibility with which the technical and administrative personnel of any health care establishment handle their wastes and make it totally innocuous before disposing it the general environment.

Due emphasis on management of medical waste has been stressed in the high power committee of the Planning Commission. Subsequently, as part of its National Environment Protection plans, the Ministry of Environment and Forests has promulgated the bio medical waste (Management and handling) Rules 2016.

The rules have laid down certain directions regarding segregation and storage to ensure safe and hygienic handling of infectious and non-infectious waste. Among these are

- No bio medical waste shall be mixed with other wastes.

- Bio-medical waste shall be segregated into containers /bags at the point of generation
- These containers/bags are to be made of different materials and must have different color coding , signifying the different kinds of wastes
- Segregation is mandatory prior to storage, transportation, treatment and disposal.

Storing of health care wastes after segregation:

The bio-medical rules have recommended different color codes for waste containers in which different types of waste need to be stored. The clinical and general waste should be segregated at source and place in color coded plastics bag and containers of definite specifications prior to collection and disposal.

The containers should comprise of an inner plastic bag of specified Colour depending on the type of waste. It should be of a minimum gauge of 35 micron (if of low density) or 25 micron (if of high density), leak proof and puncture proof, and should match the outer container. The outer container is a plastic bin with handles and of a size, which will depend on the amount of waste generated. The inner polythene bag should fit into the container with one fourth of the polythene bag turned over the rim

Labeling has been recommended to indicate the type of waste, site of generation, name of generating hospital or facility. This will allow the waste to be traced from the point of generation to the disposal area.

The containers are then to be transported in closed trolleys or wheeled containers, which should be designed for easy cleaning and draining

Biomedical waste

Bio medical waste means any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining there to or in the production or testing of biological and including categories mentioned in Schedule I of Bio Medical Waste (Management and Handling) Rules 2018 including waste generated while slaughtering of animals

Definitions of the various terminology **generally used while discussing Bio Medical Waste are**

- Hospital Wastes means all waste coming out of hospital of which around 80% are actually non-hazardous, around 15% are infectious wastes and around 5% are noninfectious but hazardous wastes.
- Medical Wastes means any waste, which is generated in the diagnosis, treatment or immunization of human beings or animals or in research pertaining hitherto, or in the production or testing of biological.
- Clinical Wastes means any waste coming out of medical care provided in hospitals or other medical care establishments. This is the wording and definition used in the Basel Convention regulating Trans'n boundary movement of hazardous waste.
- Pathological waste includes human tissue, organs, and body parts and body fluids that are removed during surgery or autopsy or other medical procedures, and specimens of body fluids and their containers. They are part of infectious waste as well as all the kinds of waste listed above.
- Infectious waste includes all kind of wastes which may transmit viral, fungal, bacterial or parasitic diseases to human beings. In addition to medical wastes it includes infectious animal wastes from laboratories, slaughterhouses, veterinary practices and so on.

SEGREGATION AT SOURCE SHOULD BE DONE AS EARLY AS POSSIBLE

Segregation should be done as early as possible to keep general waste from becoming infectious. If infectious waste which forms a small part of hospital waste is mixed with the other hospital waste the entire waste will have to be treated as infectious waste.

Segregation helps to

- Reduce total treatment cost.
- Prevent general waste becoming infectious.
- Reduce the chance of infecting Health Care Worker.
- Promote segregation which comprises of separation of different waste streams based on waste classification. Segregation is to be done as per the guidelines given by NOET

Label on bags should bear international biohazard symbol.

Outsourcing

All the waste after segregation must be stored in Colour coded containers with identification coding and the housekeeping staff in the concerned department should empty the container as it becomes ¾ full. After tying the covers tightly it is stored in Colour coded bins in the dirty utility room in the respective area. Metallic and nonmetallic sharp wastes are collected in separate containers.

Waste from each dirty utility room is collected by the hose keeping staff twice daily (4am & 3pm).General waste & infected wastes from each department are collected in separate bags lined with lid and transported via a separate lift to the respective storage area. Once daily sharp wastes are collected into a container with sodium hypochlorite solution by a housekeeping staff wearing personal protective equipment's under supervision and stored in the biomedical waste storage room.

There are 2 waste storage areas in which one is for biomedical waste & other for general waste. Waste collected from different areas are stored here temporarily till special a truck from IMAGE(**Indian Medical Association Goes Eco Friendly**) collects it at 4pm daily except general waste.

IMAGE

GREEN BIN

General Waste

- Paper
- Food
- Magazines
- Disposable Tissues
- Paper plates
- Cups

Treatment of Biomedical waste:

- Non-infected plastic and glass waste are cleared by outsourced agency for recycling.
- The infected plastic, infected non-plastic waste and sharps are taken by the IMAGE (Outsourced agency) for incineration.
- General waste is cleared by Municipality.
- Liquid and solid excretions are disposed in to the drainage from all departments like Laboratory, Laundry, Kitchen, Toilets and bathrooms, which are drained in to the Sewage Treatment Plant.
- The chemical waste is neutralized (Acidic –Alkali) and disposed in drains. Other chemical waste/ drug that are outdated contaminated or discarded should be diluted with water at a ratio of 1:20 before disposing in drain.

EDUCATIONAL ACTIVITIES

- All employees should undergo induction programs at the time of joining and re orientation session every year.
- Post evaluation after induction and re orientation
- Specific training given for HK staff on BMW management, norms on safe injection and infusion practices etc.
- Need based training for specific infection control protocols during outbreak

RISK STARTIFICATION MATRIX OF HOPUSEKEEPING

Step 1: Categorize the risk factors that determine the need for environmental cleaning:

Probability of Contamination with Pathogens

Heavy Contamination (score = 3)

An area is designated as being heavily contaminated if surfaces and equipment are routinely exposed to copious amounts of fresh blood or other body fluids (e.g., birthing suite, autopsy suite, cardiac catheterization laboratory, hemodialysis station, emergency room, client/patient/resident bathroom if visibly soiled).

Moderate Contamination (score = 2)

An area is designated as being moderately contaminated if surfaces and equipment do not routinely (but may) become contaminated with blood or other body fluids and the contaminated substances are contained or removed (e.g., wet sheets). All client/patient/resident rooms and bathrooms should be considered to be, at a minimum, moderately contaminated.

Light Contamination (score = 1)

An area is designated as being lightly contaminated if surfaces are not exposed to blood, other body fluids or items that have come into contact with blood or body fluids (e.g., hangers, libraries, offices).

Vulnerability of Population to Infection

More Susceptible (score = 1)

Susceptible clients/patients/residents are more susceptible to infection because of their medical condition or lack of immunity. These include those who are immunocompromised (oncology, transplant and chemotherapy units), neonates (level 2 and 3 nurseries), and those who have severe burns (i.e., requiring care in a burn unit).

Less Susceptible (score = 0)

For the purpose of risk stratification for cleaning, all other individuals and areas are classified as less susceptible.

Potential for Exposure

High-touch surfaces (score = 3):

High-touch surfaces have frequent contact with hands. Examples include doorknobs, telephone, call bells, bedrails, light switches, wall areas around the toilet and edges of privacy curtains.

Low-touch surfaces (score = 1):

Low-touch surfaces have minimal contact with hands. Examples include walls, ceilings, mirrors.

Step 2: Determine the Total Risk Stratification Score:

The frequency of cleaning is based on the factors listed above. A score is given if the factors are present, and the frequency of cleaning is based on the total score as derived in the following matrix:

Appendix A Table 1. Risk Stratification Scores for High-Touch Surfaces (Score for Potential for Exposure = 3)

Probability of contamination with pathogens	More susceptible population (score = 3)	Less susceptible population (score = 0)
Heavy (score = 3)	Moderate (score = 2)	Light (score = 1)
9 (3+3+3)	8 (3+2+3)	7 (3+3+1)
8 (3+3+2)	7 (3+2+2)	6 (3+3+0)

Appendix A Table 2. Risk Stratification Scores for Low-Touch Surfaces (Score for Potential for Exposure = 1)

Probability of contamination with pathogens	More susceptible population (score = 3)	Less susceptible population (score = 0)
Heavy (score = 3)	Moderate (score = 2)	Light (score = 1)
5 (1+3+1)	4 (1+2+1)	3 (1+1+1)
4 (1+3+0)	3 (1+2+0)	2 (1+1+0)

Step 3: Determine the cleaning frequency based on the risk stratification matrix:

Cleaning frequencies for each patient care area are derived from the total score that results from the risk stratification matrix above.

Appendix A Table 3. Cleaning Frequencies Based on Total Risk Score

Total Risk Score	Risk Type	Minimum Cleaning Frequency
7	High Risk	Clean after each case/event/procedure and clean additionally as required

Total Risk Score	Risk Type	Minimum Cleaning Frequency
4-6	Moderate Risk	Clean at least once daily Clean additionally as required (e.g., grass soiling)
2-3	Low Risk	Clean according to a fixed schedule Clean additionally as required (e.g., grass soiling)

Appendix A Table 4: Patient Care Area Examples

Location	Probability of Contamination	Potential for Exposure	Vulnerability of Population	Total Score	Minimum Cleaning Frequency
Burn Unit	2-3	3	3	8-9	Clean after each case/room procedure, at least twice daily and clean additionally as required
General inpatient	1-2	3	0	4-5	Clean at least once daily and clean additionally as required

REFERENCE

a. National Accreditation Standards for Hospitals & Healthcare Providers (NABH) 5th Edition

b. Safety Manual - MHMANSM

c. CSSD Manual - MHMANCSSD

d. House Keeping Manual - MHMANHK

e. Laundry Manual - MHMANLM

f. Maintenance Manual - MHMANMAINT

APPROPRIATE APPROVAL

Prepared by	Reviewed by	Approved by	Issued by
Infection Control In charge	Medical Superintendent	Administrative Officer	Manager – Quality Department