AMALA COLLEGE OF NURSING
AQAR (2022-2023)

CRITERION 8 – B 3 NURSING COLLEGE

Key Indicator 8.1

Metric No. 8.1.3 Students are exposed to quality of care and patient safety procedures including infection prevention and control practices as practiced by the teaching hospital in didactic and practical sessions during their clinical postings

SUBMITTED TO

National Assessment and Accreditation Council

HIC Manual

Infection Control Manual

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AMENDMENT SHEET

Sl.No	Section no& Page no	Details of the Amendment	Reasons	Signature of the preparatory authority	Signature of the approval authority

Prepared By	Approved By	Issued By
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CONTROL OF THE MANUAL

The authority over control of this manual is as follows:

Preparation	Approval	Issue
Infection Control Officer	Director	Accreditation coordinator

The procedure manual with original signatures of the above on the title page is considered as 'Master Copy', and the photocopies of the master copy for the distribution are considered as 'Controlled Copy'. The Master copy will be sealed as 'Master Copy' and Controlled copies will be sealed as 'Controlled copy'

The holder of the copy of this manual is responsible for maintaining it in good and safe condition and in a readily identifiable and retrievable mode.

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Infection Control Officer is responsible for issuing the amended copies to the copyholders; the copyholder should `acknowledge the same and he /she should return the obsolete copies to the Infection Control Officer

If amendment regarding any point is required, the person who prepared the manual should contact the Quality Coordinator, prepare the amendment and get approval from approval authority. It should be attached to the Master copy and details to be entered in its amendment sheet. Quality Coordinator is

responsible for issuing copy of amendment(s) to the controlled copyholder and he/she should acknowledge the same. Quality Coordinator should also enter the amendment details in the amendment sheets provided in the controlled copy.

The manual is reviewed once a year and is updated as relevant to the hospital policies and procedures. Review and amendment can happen also as corrective actions to the non-conformities raised during the self-assessment or assessment audits by NABH.

DISTRIBUTION LIST OF THE MANUAL:

Sl. No.	Designation
1.	Director
2.	Accreditation Coordinator
3.	Infection Control Officer

Contents

A. INTRODUCTION

A wide variety of healthcare is delivered in Amala Institute of Medical Sciences with a noble goal of better patient care. Along with heath care, healthcare associated infections (HAI) arose across a wide range of clinical conditions and affected patients of all ages. HAIs can occur in otherwise healthy individuals, especially if invasive procedures or devices are used. These infections can exacerbate existing or underlying conditions, delay recovery and adversely affect quality of life.

Infection Control Manual brought out by the Infection Control Committee of Amala Institute of Medical Sciences is an effort towards better infection-free health care practices by the management of the hospital.

B. DEPARTMENTAL HIERARCHY

Infection Control Officer

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Infection Control Nurse- In-charge

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Infection Control Nurses

C.COMPETENCY MATRIX

Sl. No.	Name of the staff	Designation	Educational Qualification	Experience	
				HICD	Total
1.	Dr.Subi Das	Infection Control Officer	MBBS,M.D & D.N.B Microbiology	5 years	6 years 5 month
2.	Ms. Litty Thomas M	Infection Control Nurse In-charge	MSc Nursing, Certificate in Infection and Control	2 year 3 months	3 years 3 months
3.	Ms. Chippy Baby	Infection Control Nurse	BSC Nursing	1 year 6 months	3 years 6 months
4.	Ms Nimmy Vincent	Infection Control Nurse	BSC Nursing,Certificate in Infection and Control	1 year 4 months	6 years 4 months

5.	Sr.Minimol SCV	Infection Control Nurse	MSc Nursing, Certificate in Infection and Control	1 year 2 months	9 years

D. STAFFING PATTERN

Sl No. No	Designation	Working Hours	Number of Staff
1.	Infection Control Officer	8 hours	1
2	Infection Control Nurse In-Charge	8 hours	1
3	Infection Control Nurses	8 hours	3

1. ORGANISATION OF INFECTION CONTROL PROGRAMME IN AMALA INSTITUTE OF MEDICAL SCIENCES

1.1 PHILOSOPHY OF INFECTION CONTROL

In order to provide better and safer hospital facilities for its patients and personnel, the Amala Institute Medical Sciences has adopted a programme of infection control involving all sections of the hospital community.

A satisfactory infection control programme requires the co-operation of all personnel involved with patients. Any break in technique or lapse in discipline on the part of one person can render the efforts of a number of conscientious individuals ineffective.

The infection control programme will support and facilitate not only good hospital practices but also teach staff and students the necessary values, attitudes and behavior. It is hoped that this programme will serve as a guide for excellent patient care and management in our institution and act as a model for others.

It may not be possible to eradicate all hospital-related infections. However, an effective infection control programme will provide optimum protection for both the hospital 'Clientele' and the hospital staff. The purpose of this manual is to help all health care providers achieve the best possible infection control measures, as required by professional standards. Thus, this manual will contain statements of the hospital's policies as well as procedures to prevent health care associated infection.

The departmental heads and all staff are responsible for becoming familiar with and implementing hospital's policies and procedures that are designed to achieve the objectives of the infection control programme. It is only through the co-operative efforts of every member of the staff that health care associated infections can be prevented.

1.2 GOALS AND OBJECTIVES

As stated above, the goal of the hospital infection control programme is to prevent or minimize the potential for nosocomial infections, in patients as well as in staff.

The programme will have the following objectives:

i. To develop written policies and procedures for standards of cleanliness, sanitation and asepsis in the hospital.

ii. To interpret, uphold and implement the hospital infection control policies and procedures in specific situations.

iii. To provide surveillance for health care associated infections.

iv. To review and analyze data on infections that occur and to take corrective steps.

v. To develop a mechanism to supervise infection control measures in all phases of hospital activities.

vi. To ensure continuing - education of employees on infection control aspects.

1.3 INFECTION CONTROL COMMITTEE

1.3.1. Name: The name of the Committee shall be the Hospital Infection Control Committee (HICC)

1.3.2. The nature of authority of HICC: The hospital Infection Control Programme is to be organized and run by the Medical Superintendent (MS). For the implementation of the programme the MS constitutes the HICC. The Chairperson of the HICC is nominated by the MS. The MS is a member of the HICC.

1.3.3. Terms of reference of HICC: The HICC will supervise the implementation of the hospital infection control programme. Specifically, the committee shall:

i. Maintain surveillance over health care associated infections.
ii. Develop a system for identifying, reporting, analyzing, investigating and controlling health care associated infections.
iii. Develop and implement preventive and corrective programmes in specific situations where infection hazards exist.
iv. Review and update hospital infection control policies and procedures from time to time.
v. Help to provide employee health education regarding matters related to hospital acquired infections.
vi. Shall meet regularly not less than once a month and as often as required
vii. Regulate vaccination of the staff members.
viii. Lay down the written guidelines to guide implementations.
ix. Formulate annual risk reduction goals and review monthly.

1.3.4. Composition:

The Committee will consist of the following:

1. The Medical Superintendent
2. Chairperson
3. Secretary
4. Principal
5. Representatives of the Dept of Microbiology/Virology
6. Representative of Medical Faculty
7. Representative of Surgical Faculty
8. Representative of Anesthesiology
9. Representative of Pharmacology
10. Representative of Pulmonology
11. Representative of Medicine
12. Epidemiologist / Representative of Community Medicine
13. Chief Nursing Officer
14. Hospital Infection Control Officer (HICO)
15. Hospital Infection Control Nurses (HICNs)
16. Representatives of Nursing department
17. Representative of Quality department
18. Theatre In-charges
19. Representative of Central Sterile Supplies Dept (CSSD)
20. Electrical Engineer
21. Environmental Engineer
22. Purchase In-charge

23. Housekeeping In-charge

Committee members meet once in a month. The Minimum quorum for the meeting is 50 percent.

1.3.5. Duties and responsibilities of the Committee members:

Chairperson

i. Act as liaison between the committee and the hospital administration as and when the need or opportunity arises.
ii. Constitute expert committees/subcommittees for specific purposes related to the investigation or control of infection.
iii. Receive surveillance reports and other Healthcare Associated Infection related information and assist the MS to initiate appropriate action.
iv. In the absence of the Medical Superintendent, the Chairperson shall assume the responsibilities of the MS with regard to the hospital infection control programme.

Secretary

i. Calls all meetings in consultation with the Chairperson
ii. Ensures that the minutes of the previous meeting and agenda for next meeting are distributed before the next meeting.
iii. Ensures that the committee functions according to the bye-laws.
iv. In the absence of the Chairperson, the Secretary shall assume all duties and responsibilities of the Chairperson.
v. Performs other responsibilities delegated by the Chairperson.

Hospital Infection Control Officer (HICO)

i. Monitors the surveillance of HAI done by the Infection control Nurses

ii. Teaching the medical, Nursing staff and students in areas of infection control practices.

iii. Investigates needle stick injury incidents.

iv. Investigates outbreaks

Hospital Infection Control Nurse (HICN)

i. Supervises surveillance of Healthcare Associated Infection (HAI) and health care associated organisms.

ii. Assists the Medical Superintendent in identifying, reporting, analyzing, investigating and controlling hospital acquired infections.

iii. Supervises preventive and corrective programmes.

iv. Monitors Biomedical waste management.

v. Compliance monitoring (Hand Hygiene, transmission-related precautions, isolation, infection specific bundles, disinfection and sterilization procedures and checklists).

vi. Working on outbreak documentation.

vii. Education

viii. Carries out other responsibilities given to the HICO by the MS and activities given by the HICC.

Hospital Infection Control Team

The team consists of

1) The Hospital Infection Control Officer
2) The Hospital Infection Control Nurses

The team conducts active and passive surveillance regularly

1.3.6. Technical activities of HICC: The Hospital infection control committee shall have the following functions:

i. Define health care associated infections for surveillance purposes; to establish the modus operandi for early identification and reporting of HAI and to determine the prevalence rates of defined infections.

ii. To analyze, interpret and disseminate data arising out of surveillance and to recommend remedial measures and to ensure follow up action.

iii. To establish the ongoing evaluation and review of all aseptic, isolation, and sanitation techniques employed in the hospital. Such techniques shall be defined in written policies and procedures.

iv. To develop written policies defining the specific indications for patient isolation requirements.

v. To ensure the proper conduct of sterilization and disinfection practices and to ensure that the central services, housekeeping, laundry, engineering maintenance, food sanitation, and waste management are in conformity with the hospital infection control policies. The necessary procedures shall be evaluated and revised periodically.

vi. To guide the scope and content of the Staff and Students' health programme.

vii. To help in the education and orientation of all new employees as to the importance of infection control and the relevant policies and procedures.

viii. To act upon recommendations related to infection control, received from the administration, departments, service units and other hospital committee.

ix. To ensure day to day functioning of infection prevention and control programme.

x. To support the surveillance process and detect outbreak.

xi. To participate in audit activities and day to day based infection control activities.

2. SURVEILLANCE AND REPORTING OF HEALTHCARE ASSOCIATED INFECTION

2.1 INFECTION SURVEILLANCE PROGRAMME FOR HEALTH CARE ASSOCIATED INFECTION

Surveillance encompasses collection, analysis, interpretation and dissemination of relevant data related to actual Healthcare Associated Infection (HAI) or the risk for the same. Under the hospital infection control programme, surveillance covers infections and their microbiological causes.

The surveillance for infections acquired in the hospital may be passive or active. Passive surveillance consists of 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.

Passive clinical reporting of suspected HAI:

i. Whenever clinicians suspect the occurrence of HAI it shall be reported to the Hospital Infection Control Department (HICD). Details regarding the patients, all procedures, medications with details of duration, dates etc should be made available.

ii. The microbiology department shall be responsible for reporting any information about infections suspected to have been acquired in the hospital.

iii. Passive clinical surveillance will be correlated to relevant microbiological information by the HICO and action taken.

Active surveillance of HAI

a. The HICO will monitor the rates of HAI in the various units. In case of any increase in the rates or of clustering of cases due to a particular organism, the Medical Superintendent/ Chairperson will assign the task of investigation to the HICO or to a subcommittee. A hospital infection surveillance team is necessary to establish and maintain ongoing active surveillance of all HAI.

b. The suggested clinical units for active surveillance include Operation theatre complexes, all ICUs, all wards, Dialysis, Emergency Department, ENT Department, Ophthalmology, Dental Clinic, Labour Room, Blood Bank, CSSD, Cathlab,Endoscopy, Broncoscopy etc

We have surveillance route for collecting and analyzing data regarding health care associated infections.

2.2 REPORTING OF COMMUNITY ACQUIRED INFECTIONS TO GOVERNMENTAL HEALTH AUTHORITIES

The health care system is broadly divided into preventive and curative services. Traditionally, disease preventing activities belong to the public health services and curative care to hospitals, dispensaries and clinics. When people with illnesses come to curative services, it is the duty of the Health Care Worker to

remember that certain illnesses may have public health importance for which reason that public health system should be alerted.

AIMS have the policy to report notifiable diseases to the local health authorities. For certain infections, even one case may be of extraordinary importance in the context of present day epidemiology. Every such case has to be considered significant by the public health authorities and immediate steps need to be taken to find further cases and to prevent further infection. Plague and Cholera are examples. Certain other diseases are already under surveillance and the earliest evidence of an outbreak can be picked up from the reporting frequency. This surveillance activity is done under the Integrated Disease Surveillance Project (IDSP)

IDSP

Decentralized state based surveillance programme is intended to detect early warning signals of impending outbreaks. It provides essential data to monitor progress of on-going disease control programmes.

Methods of Data collection

This data is collected on a daily basis from the wards and a report is sent online every week in the prescribed format to the District Surveillance Officer.

DISEASES REPORTED:

a) TB/HIV

Although the Medical Superintendent is ultimately responsible for reporting, the reporting process begins from the time of diagnosis, either at the bedside or in the laboratory. Thus, the flow of information will be from the clinicians and microbiologists, to the IDSP for most diseases. HIV reporting occurs through the ICTC (Integrated counseling and testing center) while the notification of Tuberculosis cases – irrespective of whether on RNTCP Drug Regimen or other treatment regimen – are reported from the DOTS Centre functioning in the Hospital through an online portal called *Nikshay*.

b) Vaccine Preventable Diseases

Childhood vaccine preventable diseases are reported since a case is evidence for inadequate immunization in the area of residence of children with such diseases. For the above reasons, such diseases are informed without delay and with complete residential address to the health authorities.

c) AIDS

Acquired Immune Deficiency Syndrome (AIDS) and Human Immunodeficiency Virus (HIV) infection have recently been included in the list of reportable diseases by Government Directive. However, reporting is only for statistical purposes of determining the time-trend of prevalence. Hence, the report does not contain any details pertaining to identity of the patient, so as to maintain confidentiality.

List of other notifiable diseases

To be reported by laboratories:

Clinical Microbiology	**Clinical Virology**
Cholera	Dengue
Dengue Hemorrhagic Fever	Hepatitis

Enteric Fever
Influenza like illness
ARI
Pneumonia
Whooping cough
Tetanus
Plague
Tuberculosis
Cerebro spinal fever
Scarlet fever, PUO
Leptospirosis,
Bacillary dysentery
Viral Encephalitis
AIDS
Smallpox
Covid -19

Others

Malaria
Snake Bites
Anemia
Malnutrition
Iodine deficiency
Leprosy
Vitamin A deficiency

2.3.INVESTIGATION OF AN OUTBREAK

2.3.1. Definition of an outbreak

An outbreak of infection is defined as:

- An incident in which two / more people experiencing a similar illness are linked in time or place

- The situation where a greater than expected incidence of infection compared to the usual background rate for the particular location or
- A single case for certain rare disease or a significant pathogen (Diphtheria or hemorrhagic fever)
- A suspected, anticipated or actual event involving microbial or chemical contamination or food and water

A outbreak is epidemiologically is linked to time, place and person

2.3.2. Outbreak investigation and management

A suspected outbreak may be identified by a physician or by laboratory personnel, or by ICT while conducting routine surveillance.

When an outbreak is detected, the HICC/Infection control team (ICT)/ICO/ICN is immediately informed andan urgent meeting of HICC/ ICT is called depending on the size and seriousness of the outbreak**.**

2.3.3. Formation of an outbreak control team (OCT)

An **Outbreak Control team (OCT)** is immediately formed, relevant to the size and seriousness of the outbreak and the health care facility involved.

If required the head of the institute and /or state/territory public health unit is also notified.

2.3.4. Steps of an outbreak investigation

Immediately initiate relevant immediate infection prevention control measures to prevent further transmission and ensure minimum disruption to services.

Step 1. Recognise outbreak and prepare to investigate

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Step 2. Verify the diagnosis and confirm that an outbreak exists

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Step 3. Establish case definition and find cases

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Step 4. Characterise outbreak by person, place, and time

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Step 5. Determine who is at risk

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Step 6. Develop hypothesis—the 'how' and 'why'

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Step 7. Test hypothesis with established facts

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Step 8. Carry out further studies if necessary

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Step 9. Implement ongoing control / prevention measures

(This can be done at any time during the outbreak as deemed necessary)

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Step 10. Communicate findings

Step 1. Recognize outbreak and prepare to investigate

- ✓ Ascertain the reliability of both clinical and laboratory information.
- ✓ Establish background rate of disease
- ✓ Consider if observed number of cases is in excess of the usual number
- ✓ Examine HAI surveillance data
- ✓ Determine if immediate control measures are needed
  - ➢ Reinforce standard precautions
  - ➢ Apply appropriate transmission-based precautions
- ✓ Notify and communicate
  - ➢ Healthcare workers and ancillary staff in immediate area
  - ➢ Infection control professional
  - ➢ Administration
  - ➢ Microbiology Laboratory
  - ➢ IDSP-Integrated disease surveillance program (if notifiable disease)
- ✓ Urgent meeting of HICC/ICT and
- ✓ Formation of an OCT

Step 2. Verify the diagnosis and confirm that an outbreak exists

- ✓ Confirm that there are more than expected number of cases meeting the surveillance case definition of the disease of interest in the period under review

- ✓ Confirm clinical diagnoses (symptoms and features of illness)
- ✓ Review laboratory data and request additional laboratory tests if necessary,e.g. molecular typing of organisms to confirm clonality
- ✓ Complete microbiological investigations
- ✓ Consider likely outbreak definition and whether criteria are met
- ✓ Are there more cases than expected compared to previous weeks/ months?
- ✓ Review scientific literature
- ✓ Consider epidemiology of cases - are there two or more linked cases of thesame illness

Step 3. Establish case definition and find cases

- ✓ Establish a set of standard criteria to decide whether or not a person has thedisease of concern.
- ✓ Case definition is based on:
  - ➢ Clinical information about the disease
  - ➢ Characteristics of the people who are

Step 4. Characterize outbreak by person, place, and time

- ✓ Review descriptive epidemiology of all cases:
  - ➢ Person: sex, age, occupation, residence
  - ➢ Place: information that provides indication on possible source of agent and nature of exposure
  - ➢ Time: date and time of onset; record relevant events in a timeline
- ✓ Plot an epidemic curve to determine hypothesis and analyze the type of outbreak

Step 5. Determine who is at risk

✓ Identify groups at risk:

- ➢ Number of people ill
- ➢ Time and place of onset
- ➢ Personal characteristics

✓ Initiate precautionary measures

- ➢ Use of standard precautions and appropriate transmission-based precautions
- ➢ Increase frequency and efficiency of environmental cleaning using appropriateproducts
- ➢ Prophylactic treatment/immunization
- ➢ Antibiotic restrictions
- ➢ Exclusion of cases from high risk activitieso Isolation and/or cohorting of patients
- ➢ Restricting movement of patients, staff and visitors
- ➢ Screening of patients with isolation of patients and cohorting of contacts;
- ➢ Provision of health information and advice

Step 6. Develop hypothesis—the 'how' and 'why'

✓ Develop hypotheses from the factual information gathered to date on potential source, vector, pathogen, route of transmission:

- ➢ Data collected by interview
- ➢ Common links

- ➢ Plausible exposures
- ➢ Environmental test results where appropriate
- ➢ Review literature

Step 7. Test hypothesis with established facts

✓ Perform epidemiologic study:

- ➢ Retrospective Cohort study—for confined outbreaks
- ➢ Case-control—for widespread outbreaks
- ➢ Analyze the data
  - Compare risk factors among ill (cases) vs. not ill (controls)
  - Attack rates
  - Relative risk

Step 8. Carry out further studies if necessary

✓ To support the hypothesis or if analytic studies do not confirm the hypothesis:

- ➢ Further study to refine case definition
- ➢ May involve testing of environmental samples, food samples or environmentalscreening in some situations (e.g. Legionella, Pseudomonas)
- ➢ HCW screening

Step 9. Implement ongoing control / prevention measures

(This can be done at any time during the outbreak as deemed necessary)

- ✓ Review measures initiated for immediate control (Before Step 1 and Step 5)
- ✓ Implement appropriate ongoing control measures and strategies to prevent further illness:
  - ➢ Restrict spread from the case
  - ➢ Interrupt chain of infection
  - ➢ Interrupt transmission or reduce exposureo Reduce susceptibility to infection
  - ➢ Assessment of policy, regulations, standards
- ✓ Monitor-HH Audit, PPE audit, Bundle care audit
- ✓ Analyze the trend of outbreak after implementing infection control measures todetermine their effectiveness.

Step 10. Communicate findings

- ✓ Communicate and coordinate with all stakeholders (within the hospital):
  - ➢ Electronic flagging of medical records of contacts
  - ➢ Reinforcement of infection control precautions to staff, patients and visitors
  - ➢ Appropriate signage to limit access to the affected clinical unit/room
  - ➢ E-mails and multimedia to target all HCWs
- ✓ Prepare written report that evaluates methods used for the control of the outbreak
  - ➢ Include discussion of factors leading to outbreak, comprehensive timelines,

summary of investigation and documented actions

- ➢ Short and long -term recommendations for prevention of similar outbreak
- ➢ Disseminate to appropriate stakeholders including publication
- ➢ Guidelines for transparent reporting and intervention studies are available as The ORION Statement and should be referred when preparing report or an article for publication.

✓ Communicate outside the hospital

- ➢ PRO/ a designated person should do it. He/she should have a formal trainingto do it.
- ➢ This person must be attending all the OCT meetings.
- ➢ The OCT/any other HCW **must not** communicate directly to media

End of outbreak

✓ OCT meeting at the end of the outbreak:

- ➢ Review the experience of all team members involved in the outbreak management.
- ➢ Identify gaps and particular difficulties that were encountered
- ➢ Revise the outbreak control plan according to the current experience.
- ➢ Recommend, if required, structural or procedural improvements that wouldreduce the chances of recurrences of such outbreak in future.

✓ Write the outbreak report

- ➢ Preliminary and final confidential outbreak reports

- The report must summarize full investigations, lessons learnt and recommendations.
- The report must be sent to the senior management and other appropriate personnel/authorities for action.

✓ Look back investigations

➢ Refer to the process of identifying, tracing, recalling, counseling and testing patients or HCWs who may have been exposed to an infection during an outbreak.

3. STAFF AND STUDENTS HEALTH PROGRAMME

3.1 GENERAL CONSIDERATIONS

Occupationally acquired infections are common among some categories of health care workers (HCW) Such as medical and technical staff, attendees and cleaners while such risk is low among secretarial staff. This is essentially because of their potential for coming into contact with pathogens or infected specimens.

The most effective method of preventing occupationally-acquired infections is adopting safe working practices. Immunization can never be accepted as a substitute for good working practices. Based on a risk assessment of staff, specific protection may be recommended.

Employees who are in contact with patients have a risk of acquiring infection in their workplace. This can be minimized by following certain guidelines. AIMS have a Staff and Students Health Clinic (SSHC) which is primarily responsible for staff & Students' health.

Activities of the SSHC: All services provided to individuals by the SSHC will be confidential and the staff of this department will give a signed undertaking to the Head of the department stating this.

1. **Immunization Policy for staff :** The organization's policy for its staff shall be in consonance with the available evidence. At a minimum, Hepatitis B vaccination shall be provided to staff involved in direct patient care. Other relevant immunization is provided as per the risk from time to time and in accordance with applicable statutory requirements. For Dialysis staff, titre will be checked every 5 years and if titre is inadequate consult with gastroenterologist (Dr.Sojan) and take necessary steps.

2. Pre-Placement evaluation: When an employee is appointed initially, a medical check-up is performed and baseline data on certain infections are collected. A pre-placement evaluation is made to ensure that persons with special health problems are not placed in jobs that would pose undue risk of infection to them. At this time, the health service also confirms that vaccinations required (hepatitis B,TT, etc.) are complete. If the vaccination is not complete, the SSHC shall advice completion of the vaccine schedule. (Refer: Annexure)

3. Employee health & Safety education: Safety education starts at the time of employment. All staff are informed of the need to report exposure to blood or potentially infectious body fluids to the HICN without any delay, HICN will report it to SSHC. Other health and safety education will also be carried out as appropriate.

4. Health Counseling: The SSHC will conduct health counseling and offer prophylaxis when required (eg: following accidental exposure to blood or potentially infectious body fluids).They are advised to report immediately to the Hospital Infection Control Committee.

5. Work restrictions for staff: It is the responsibility of the staff to report suspected illness to the SSHC. A major function of the SSHC is to arrange for prompt diagnosis and management of illness of personnel, including alerting the heads of departments that could be affected because of this, keeping in mind that confidentiality of the individual concerned should be protected as much as possible. The SSHC shall recommend the exclusion of personnel from specific areas in which direct contact with patients may pose a risk for the HCW or to the patient and also give clearance after the work restriction is terminated.

6. Food handler's examination: The food handlers in the hospital Canteens are examined routinely for the infectious diseases. They are also advised to maintain proper personal hygiene.

3.2 SPECIFIC PROPHYLAXIS

1. Pre-employment and upon employment

According to the national policy, everyone is expected to have had immunization against Diphtheria, Pertussis, Tetanus, Poliomyelitis, and Measles in early childhood, with boosters for Diphtheria, Pertussis and Tetanus subsequently. The immunization history of all prospective staff shall be documented by the SSHC. If tetanus immunization is not updated, the SSHC will provide the necessary doses as soon as possible.

Prospective staff that has not had a full course of Hepatitis B immunization will be offered the same upon employment at their own cost. The Hepatitis B Immune status of staff who claims to have had the vaccine previously will be tested titre value at their cost. Non-immune subjects will be offered immunization as stated above. All staff is informed that accidental exposure to blood or potentially infectious body fluids should be immediately communicated to the HICN.

Immunization for all conditions other than the above will be based on a risk assessment of the individual and his/her workplace, by the SSHC. Staff working in different sections of laboratories will have a risk assessment in conjunction with the HOD and appropriate vaccines administered, when available.

2. Protocol for managing exposure to blood or potentially infectious body fluid

Parenteral (needle stick) exposures to HIV infection are estimated by the Centre for Disease Control, Atlanta, Georgia to have a 0.3% risk of transmission of HIV. This is because of the low concentration of virus in the blood of infected patients. The risk in the case of HBV infected specimen in similar situations is 5-30%.

A. Management of blood and body fluid exposure

Needle stick injury:

- Wash the wound with soap and water.
- Do not squeeze or suck the area
- No need to use any disinfectants.

Exposure to blood/body fluids

- Nose, mouth, or skin should be flushed with water
- Irrigate eyes with clean water or saline.

REMEMBER TO:

- Alert your supervisor and fill the incident reporting form
- Identify the source patient, who should be tested for HIV, Hepatitis B, and Hepatitis C infections, after seeking consent.

- Report to infection control nurse, if HICN is not available inform Emergency department duty medical officer
- The infection control nurse will inform the infection control officer immediately, and then the staff will be directed to Emergency department duty medical officer.
- Further orders will be carried out based on the incident.

B. Report the exposure

All sharps 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 HICN immediately following exposure. Prompt reporting is essential because in some cases post exposure treatment may be recommended and it should be started as soon as possible.

All blood and body fluids with visible blood are considered infectious.

Other body fluids may be potentially infectious (see section on Universal Precautions in the chapter 'Prevention of transmission of blood borne pathogens') and must be evaluated on case-to-case basis.

C. Management

Assessing the risk of transmission of HBV or HIV infection

For all exposures the following investigations need to be done:

Index Patient should be checked for the following: if not already done:

After obtaining consent, blood of the index patient is checked for:

i. Human Immunodeficiency Virus Antibody

ii. Hepatitis B Surface Antigen
iii. Hepatitis C Virus Antibody

Health Care Worker: After obtaining consent, blood of the health care worker is checked for:

i. HBsAg (If not vaccinated)
ii. HIV
iii. Anti-HBs titre
iv. HCV

The blood samples for the investigations listed above are sent for 'rapid' testing.

Drug Regimen:

Post-exposure prophylaxis (PEP) is medicine you take after you've come into contact with HIV, the virus that causes AIDS, to lower your chance of infection . PEP start within 72 hours (3 days) of exposure. It has little to no effect if you start it 3 days or more after exposure. PEP can lower your risk of HIV infection by 80% if you take it as your doctor prescribes.

- Three drugs – Tenofovir 300mg+ Lamivudine 300mg+ Efavirenz 600mg once daily for 28 days.

If the index patient is already on anti-retroviral treatment, ART Centre (Govt. Medical College, Thrissur) have to be consulted for treatment regimen.

Follow up of HCW

The HCW should be tested for HIV antibodies after six weeks, three months and six months following the exposure, irrespective of the HIV status of the index patient.

Protocols to be followed:-

1. Needle Stick injury from an HCV positive case

- ✓ Verify other serology status of index patient (HIV,HBs Ag)
- ✓ At the time of prick check Anti HCV antibody
- ✓ -After 6 weeks check HCV PCR

2. Needle Stick injury from a HBsAg positive case

- ✓ Verify other serology status of index patient (HIV,HCV)
- ✓ If vaccinated individual, check Anti HBs titre
- ✓ If titre is <100, Take one dose of vaccine.
- ✓ If titre is inadequate, Check HBsAg status
- ✓ If HBsAg negative, give immunoglobulin or 3 doses of vaccine as per doctors advise. And check titre after 6 months.
- ✓ If HBsAg positive, Gastro consultation.
- ✓ If non vaccinated individual
  - Check HBsAg status at the time of prick
  - If HBsAg negative, give immunoglobulin and 3 doses of vaccine & check titre after 6 months
  - If HBsAg positive, Gastro consultation.

3. Needle Stick injury from an HIV positive case

- ✓ Verify other serology status of index patient (HCV,HBsAg)
- ✓ Post Exposure prophylaxis is given
- ✓ At the time of prick check Anti HIV antibody
- ✓ After 6 weeks, 3 months and 6 months check Anti HIV antibody

4. Needle Stick injury from an unknown case:

- ✓ At the time of prick -Anti HIV & Anti HCV tested.
- ✓ If vaccinated, check Anti HBS titre
- ✓ If titre is adequate, nothing to be done.

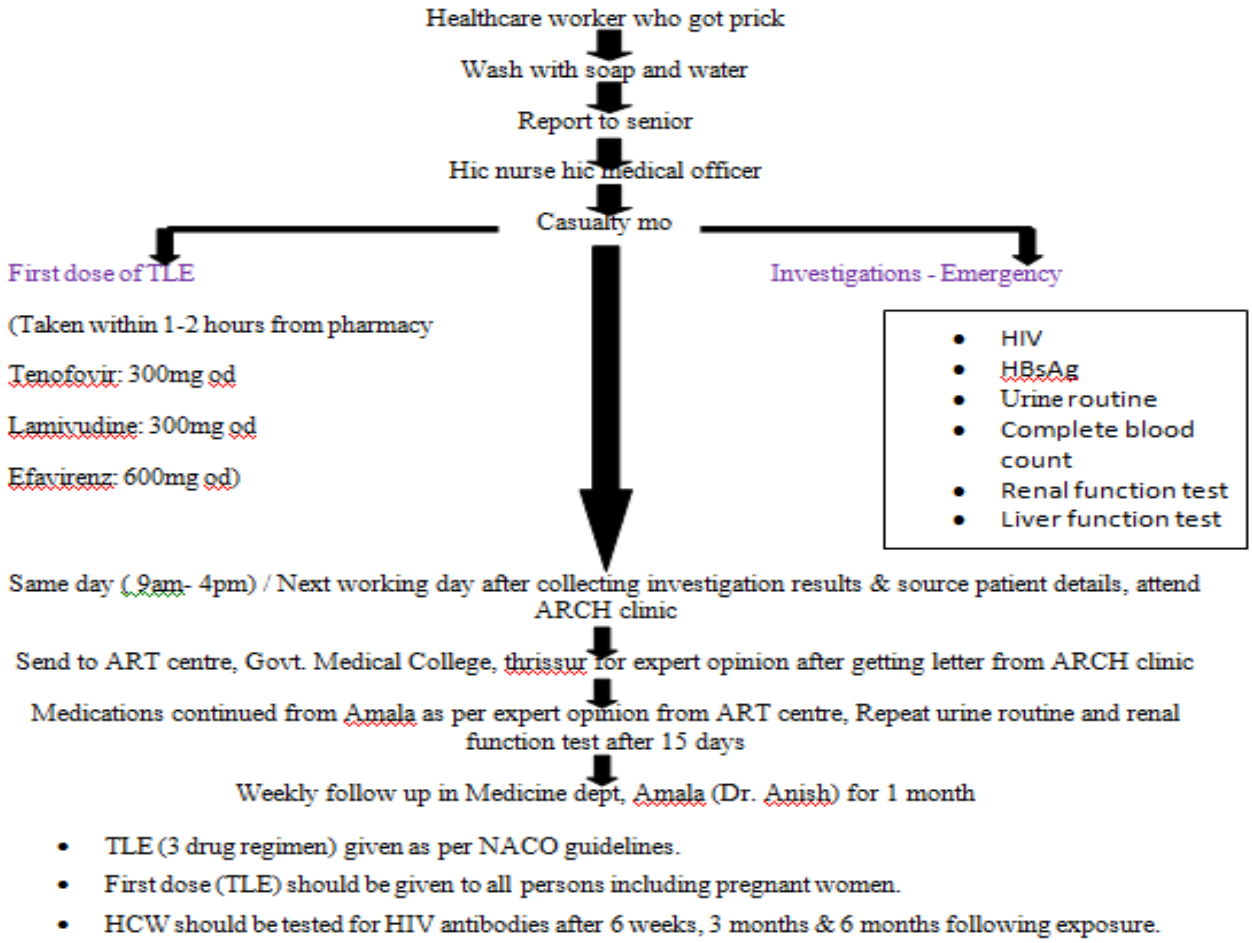
- ✓ If titre is inadequate, check HBsAg status
- ✓ If HBsAg negative, give vaccine and check titre after 6 months.
- ✓ If HBsAg positive, Gastro consultation.
- ✓ If not vaccinated, check HBsAg status,
- ✓ If HBsAg negative, give vaccine and check titre after 6 months.
- ✓ If HBsAg positive, Gastro consultation.
- ✓ Anti HCV and Anti HIV antibody to be repeated after 6 months of exposure

Drug Regimen:

- Three drugs –Tenofovir 300mg+Lamivudine 300mg+Efavirenz 600mg once daily for 28 days.

If the index patient is already on anti-retroviral treatment, ART Centre (Govt. Medical College, Thrissur) to be consulted for treatment regimen.

NEEDLE STICK INJURY FROM AN HIV POSITIVE CASE



- TLE (3 drug regimen) given as per NACO guidelines.
- First dose (TLE) should be given to all persons including pregnant women.
- HCW should be tested for HIV antibodies after 6 weeks, 3 months & 6 months following exposure.

D. Counselling: Counselling of the HCW is performed when necessary.

i. **Tuberculosis**: Staff and Students diagnosed to have tuberculosis should have sputum (tissue sample in extra pulmonary cases) sent for mycobacterium culture. As per Anti-tuberculosis Control

Programme Guidelines, Patients with sputum positive pulmonary tuberculosis usually become non-infectious within two weeks of treatment .Therefore, segregation for reasons of infectiousness is generally required only for two weeks or smear becomes negative. This is not applicable for extra pulmonary tuberculosis where the staff can continue their work.

ii. **MRSA**: Measures used to control the spread of these infections include ongoing laboratory-based surveillance, placing colonized and infected patients in isolation, the use of appropriate barrier precautions and hand washing. There is no role for routine screening of staff for MRSA nasal carriage. Screening of staff will be used selectively in the control of MRSA outbreaks. Intranasal 2% Mupirocin (recommended dosage - 0.5g inserted into each nostril thrice a day for five days) and 4 % Chlorhexidine (Lysowash) bath are advised for MRSA decolonization. Staff who are infected or colonized with MRSA will be allowed to return to work in patient care areas only after cultures are persistently negative for MRSA.

iii. **Other Diseases:** In case of exposure to uncommon and transmissible diseases such as meningococcal diseases, chicken pox, measles etc, the incident shall be reported to the SSHC and prophylaxis may be prescribed by the SSHC in consultation with the infectious disease physician.

4. PREVENTING TRANSMISSION OF BLOOD BORNE PATHOGENS

4.1 INTRODUCTION

Bloodborne pathogens are any pathogenic microorganisms found in the blood or other bodily infectious material that can cause disease in humans. Examples of bloodborne pathogens include hepatitis B virus hepatitis C virus , human immunodeficiency virus (HIV), malaria, syphilis, viral hemorrhagic fever, arboviral infections, Creutzfeldt-Jakob disease, and relapsing fever. The three bloodborne pathogens that are the most commonly involved in occupational exposures in healthcare workers are hepatitis B, hepatitis C, and HIV

The following precautionary measures should be followed by the staff in dealing with all patients.

The clinical materials that can transmit HIV and hepatitis B and C are:

- Blood and blood products
- Saliva, Semen, vaginal secretions, synovial fluid, Amniotic fluid, pleural, pericardial, peritoneal fluid and any body fluids contaminated with blood.

The main routes of blood borne infection in a Health Care worker are:

Transmission of Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), and Hepatitis C Virus (HCV) in the workplace occurs in the following ways:

1. **Accidental exposure to blood (AEB):** Any contact with blood or body fluids as a result of injury with a needle or any other sharp instruments, or via mucous membrane (eye, mouth), or contact via damaged skin (eczema, wounds).
2. **Percutaneous exposure (PE):** Exposure to blood or body fluids through non-intact skin.
3. **Needle-stick or other sharps injury:** Puncture with a needle or sharp instrument that is contaminated or potentially contaminated with blood or body fluids.
4. **Blood splash:** Skin or mucus membrane exposed to blood or body fluids.

4.2 THE RISK OF INFECTION

Risk of transmission of Infection from patient to HCW

Hepatitis B is a vaccine-preventable liver infection caused by the hepatitis B virus (HBV). Hepatitis B is spread when blood, semen, or other body fluids from a person infected with the virus enters the body of someone who is not infected. Research studies shown that prevalence rates of present HBV infection in the HCWs are three to five-fold higher than in the general population. The hepatitis B virus can survive outside the body atleast 7 days and still be capable of crossing infection. The rate of transmission of HBV infection by percutaneous injury is estimated to be 30% from HBsAg and HBeAg positive patient. The risk of transmission of HBV is higher than that for HCV or HIV. Among susceptible health workers, the risk of HBV infection after a needle-stick injury involving an HBV-positive source is 23–62%.

Hepatitis C Virus (HCV) Exposure to blood is the major mode of transmission. The rate of HCV transmission via a needle stick injury is estimated to be 10% of patients infected with HCV; fewer than 25% have acute hepatitis. However, almost all of those who have acute Hepatitis develop chronic infection. The risk of transmission of HCV is relatively low. HCV is rarely transmitted from exposure of mucous membranes or non intact skin to contaminated blood.

Human Immunodeficiency Virus (HIV)

Health care workers who are exposed to a needle stick involving HIV-infected blood at work have a 0.23% risk of becoming infected. In other words, 2.3 of every 1,000 such injuries, if untreated, will result in infection. Risk of exposure due to splashes with body fluids is thought to be near zero even if the fluids are overtly bloody. Fluid splashes to intact skin or mucous membranes are considered to be extremely low risk of HIV transmission, whether or not blood is involved. Occupational exposure is considered an urgent medical concern and should be managed immediately after possible exposure—the sooner the better; every hour counts. The CDC guidelines outline considerations in determining whether health care workers should receive PEP (antiretroviral medication taken after possible exposure to reduce the chance of infection with HIV) and in choosing the type of PEP regimen. For most HIV exposures that warrant PEP, a basic 4-week, two-drug regimen is recommended, starting as soon as possible after exposure (within 72 hours). For HIV exposures that pose an increased risk of transmission (based on the infection status of the source and the type of exposure), a three-drug regimen may be recommended.

The risks of transmission of infection from an infected patient to the health worker following a needle-stick injury are estimated to be:

- Hepatitis B – Percutaneous exposure : 9-30%
- Hepatitis C – Percutaneous exposure :1.8%
- HIV
    a. Percutaneous exposure : 0.05-0.4%
    b. Percutaneous exposure : 0.006-0.05%

Risk of Transmission of Infection from HCW to Patient:

There are many instances of transmission of HBV infection from HCWs to their patients. Most instances of transmission occurred when universal precautions were not followed, though in some instances

transmission occurred with universal precautions. Thus, the use of Universal Precautions not only prevents infection from patient to HCW but also prevents transmission of infection in the reverse direction.

4.3. PRECAUTIONS FOR PREVENTING TRANSMISSION OF BLOOD- BORNE VIRUSES

A. VACCINATION

- All healthcare providers should check the Hepatitis B titer value in the pre employment check up; if the Hepatitis B titer result shows as non immune receive hepatitis B vaccine (3-dose series) according to current CDC recommendations. In case of needle stick injuries, to be verified with their vaccination status.
- Vaccines are currently not available for other blood borne pathogens, including HCV and HIV. Therefore, prevention primarily consists of taking adequate barrier precautions to prevent transmission.

B. UNIVERSAL PRECAUTIONS

OSHA states, "According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens."

Cardinal rules of Universal Precautions:

- Consider all patients potentially infectious.
- Assume all blood and body fluids and tissue covered by Universal Precautions are contaminated with a blood borne pathogen.
- Assume all unsterile needles and other sharps are similarly contaminated.

Universal precautions includes:-

1. Care of skin
2. Hand Hygiene
3. Use of PPE
4. Safe handling and disposal of sharp
5. Management of blood and body fluid spillage
6. Waste management
7. Linen management

SELECTION OF PPE ACCORDING TO UNIVERSAL PRECAUTIONS:

Type of Exposure	Protective Barrier	Example
Low Risk: Contact with intact skin; no exposure to blood	Gloves not essential	Injection Minor wound dressing
Medium risk: Probable contact with blood, but splashing unlikely	Gloves Gown or apron may be necessary	Pelvic exam Handling of laboratory Specimens IUD insertion IUD removal Large, open wound dressing Intravenous Drawing of blood catheter insertion or removal
High risk: Contact with blood likely; splashing probable; uncontrolled bleeding	Gloves Apron Eyewear Mask	Major surgical procedures Oral surgery Vaginal delivery

C. POST EXPOSURE PROPHYLAXIS:-For details of management after accidental exposure to blood or potentially infectious body fluids, please refer Chapter- 3.

4.4 OPERATION THEATRE- RECOMMEDATION FOR PATIENTS WITH BLOOD BORNE DISEASES

- Serology testing within 3 month is mandatory for all patients who undergo major, minor surgeries and other local anesthesia needed procedures. Universal Precautions are to be followed for all patients undergoing surgeries. Because serology tests results are not to be considered completely protective. Hence, all patients must be considered as potentially infectious and preventive measures taken. Consent should be taken from the patient to do HIV test.
- If the Patient's result is positive, lab staff informs the result to the consultant. Then he reveals the result to the patient and is then sent for counselling. Always take the serology positive cases as last surgery.
- In intra operative period, the healthcare personnel should wear PPEs accordingly. In Amala Hospital a separate single use PPE kit is available and is used for all serology positive surgeries.
  - ✓ Gloves should be changed between procedures and should not be used to handle any equipment. Health care workers should not leave the operating room with gloved hands. Wear gloves to sort soiled linen.
  - ✓ Plastic aprons, which are to be worn below the sterile gowns, are recommended for the surgical team. They are mandatory in areas where large column splashes are expected. These are to be removed before leaving the operating room.
  - ✓ Masks are to be worn, covering the nose and lower part of the face completely.

- ✓ Goggles or other eye protection are recommended where there is a risk of splash.
- ✓ Protection for the feet (sole and dorsum) is recommended by shoe covers.

- Biomedical waste should be labeled with biohazard sticker and handle cautiously.
- Cleaning & disinfection of equipments, environment, and linen etc should be done as soon as possible, according to the infection control protocols.

  The healthcare personnel should take universal precautions during the peri-operative period for all serology positive cases.

5. INFECTION PREVENTION AND CONTROL PROGRAMME IN CLINICAL AREAS

It includes:

- Standard precautions
- Transmission based precautions
- Isolation barrier nursing
- Antibiotic policy and antibiotic stewardship program

5.1 STANDARD PRECAUTIONS

Standard precautions consist of the following elements:

Standard Precautions are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where health care is delivered. Standard precautions are based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible infectious

agents. These practices are designed to both protect DHCP and prevent DHCP from spreading infections among patients.

Standard Precautions include —

1. Hand hygiene.
2. Use of personal protective equipment (e.g., gloves, masks, eyewear).
3. Respiratory hygiene / cough etiquette.
4. Safe injection practices (i.e., aseptic technique for parenteral medications).
5. Sharps safety (engineering and work practice controls).
6. Sterile instruments and devices.
7. Clean and disinfected environmental surfaces.
8. Collection and transport of specimens

5.1.1. HAND HYGIENE

During the delivery of healthcare, avoid unnecessary touching of surfaces in close proximity to the patient to prevent both contamination of clean hands from environmental surfaces and transmission of pathogens from contaminated hands to surfaces.

The two major hand hygiene methods are alcohol-based hand rubs and hand washing with soap and water.

Hand washing is the act of cleaning one's hands with the use of soap & water or antiseptic solution for the purpose of removing micro organisms from the hands before transfer of micro organisms can occur. Hand washing is the most important procedure for preventing health care associated infections. When done with plain soap, it results in mechanical removal of micro-organisms, and if done with detergents

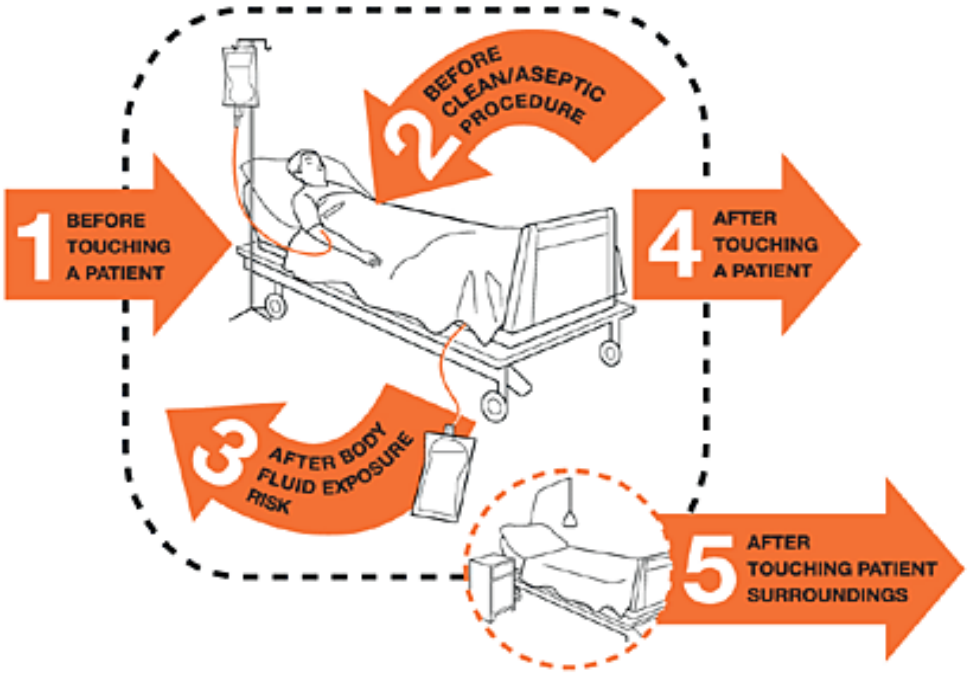
containing antimicrobial agents, it results in chemical removal of micro-organisms as well. Whenever the hands are visibly soiled hand washing is the most appropriate method.

Hand washing (40–60 sec): wet hands and apply soap; rub all surfaces; rinse hands and dry thoroughly with a single use towel; use towel to turn off faucet.

Alcohol based hand rubs are antiseptic products used to prevent the transmission of pathogens from the hands, if the hands are not visibly soiled. Alcohol based hand rubs containing at least 70% alcohol (mainly ethyl alcohol) kill 99.9% of the bacteria on hands 30 seconds after application.

When using an alcohol-based hand rubs:
Hand rubbing (20–30 sec): apply enough product to cover all areas of the hands; rub hands until dry.

FIVE KEY MOMENTS FOR HAND HYGIENE



1 BEFORE TOUCHING A PATIENT	WHEN ? Perform hand hygiene on entering the patient's zone before touching the patient. WHY ? To protect the patient against acquiring harmful germs from the hands of the HCW.
2 BEFORECLEAN/ASEPTIC PROCEDURE	**WHEN?** Clean your hands immediately before performing a clean/aseptic procedure. **WHY?** To protect the patient against harmful germs, including the patient's own, from entering his/her body

3	AFTER BODY FLUID EXPOSURE RISK AFTER TOUCHING A PATIENT AFTER TOUCHING PATIENT SURROUNDINGS	**WHEN?** Clean your hands immediately after an exposure risk to body fluids (and after glove removal). **WHY?** To protect yourself and the health
4	AFTER BODY FLUID EXPOSURE RISK AFTER TOUCHING A PATIENT AFTER TOUCHING PATIENT SURROUNDINGS	**WHEN?** Clean your hands immediately after an exposure risk to body fluids (and after glove removal). **WHY?** To protect yourself and the health
5	AFTER BODY FLUID EXPOSURE RISK AFTER TOUCHING A PATIENT AFTER TOUCHING PATIENT SURROUNDINGS	**WHEN?** Clean your hands immediately after an exposure risk to body fluids (and after glove removal). **WHY?** To protect yourself and the health

General Hand washing Technique:

- Remove watch and other jewellery from the hands before the procedure.
- Stand well away from the sink, turn on the tap using the elbow or automatic tap (methods varies from unit to unit)
- Wet hands thoroughly.
- Apply adequate amount of soap solution on each hand using rotatory movements from the finger tips to the elbows, with special attention to the nails and webs of fingers.

- Rub hands to produce lather, including all areas of hand and wrist in following manner
  i. Rub palm to palm.
  ii. Right palm over the left dorsum and vice versa.
  iii. Palm to palm interlaced.
  iv. Back of the fingers to opposing palms with fingers interlocked.
  v. Rotational rubbing of right thumb clasped in left palm and vice versa.
  vi. Rub finger tips on palms of both hands.
  vii. Rinse and dry hands thoroughly using clean dry towels/ tissue paper/ hot air.
- At the start of the shift, a two minute scrub is considered the shortest acceptable duration for hand washing. A thirty second scrub should be done in between patients who are not grossly contaminated. If grossly contaminated, a sixty second scrub is recommended.

Areas most often missed while hand washing:

- Thumbs
- Between fingers
- The tips of the fingers
- The back of the hands

Steps of hand washing

Hand hygiene in high risk areas/ unit:

Patients in these areas (ICUs, Isolation Wards/Units) are at a higher risk of infection. Therefore, importance of hand washing cannot be over emphasized. Procedure as described above is followed.

<u>Surgical hand washing technique</u>:

A surgical hand scrub is indicated in the following situations.

- Prior to all operative procedures that enters the tissue below the skin
- Prior to treatment of serious burn wounds.
- Prior to insertion of invasive devices eg.Cardiac catheters, pacemaker wires, swan-ganz catheters, and arterial lines.

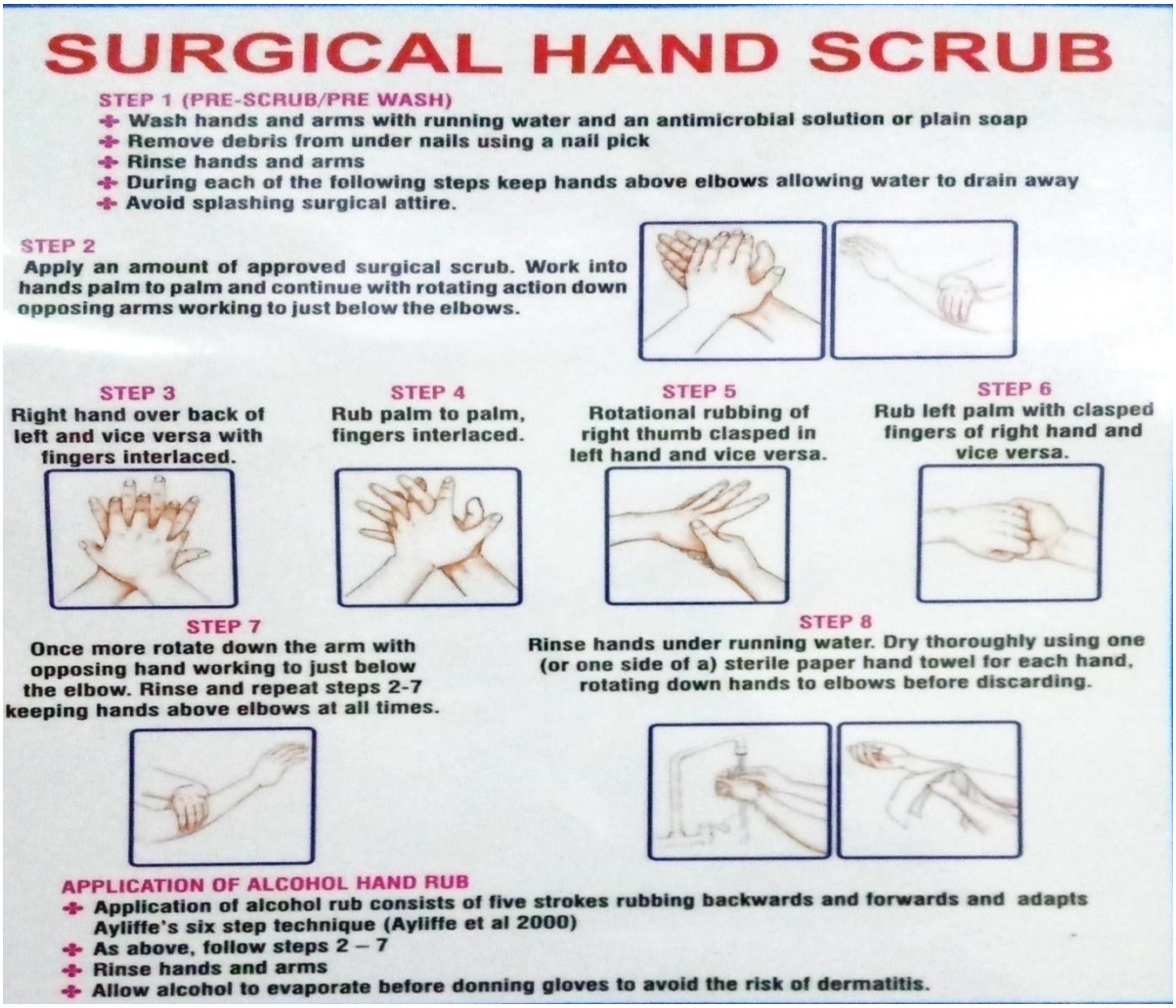
Procedure of the surgical scrub

Strict aseptic techniques are to be followed by all personnel involved in surgical procedures. The most effective duration for surgical scrubbing is debatable, but is thought to be between 3 and 10 minutes. Recommended times for hand washing and surgical scrubbing are only that recommendations. When followed, these times are good guidelines for most circumstances. If, however a "3 minute scrub with a brush and heavy friction" leads to irritated skin, microbial re growth is likely to occur rapidly and in

some case, negates the original effect of skin scrubbing. Instead, it would be better to decrease friction or time to the degree that skin integrity, antiseptic cleansing, and microbial reduction are all attained**.**

Hand washing in special areas:

- Strict prescribed disinfectant techniques are to be followed by all personnel involved in surgical procedures.
- Remove the jewellery and watch.
- A minimum of 2-5 minutes scrub is necessary before each operation.
- After the preliminary wash of both hands with water, use povidone iodine 7.5% w/v/ Chlorhexidine 4% v/w starting from hands to elbow.
- Close the tap with elbow.
- Dry hands with a sterile towel.



5.1.2. USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

Definition

Personal protective equipment, or PPE, as defined by the Occupational Safety and Health Administration, or OSHA, is "specialized clothing or equipment, worn by an employee for protection against infectious materials."

Types of PPE Used in Healthcare Settings

- ❖ Gloves – protect hands
- ❖ Gowns/aprons – protect skin and/or clothing
- ❖ Masks and respirators– protect mouth/nose
- ❖ Respirators – protect respiratory tract from airborne infectious agents
- ❖ Goggles – protect eyes
- ❖ Face shields – protect face, mouth, nose, and eyes

GLOVES:-

- Wear when touching blood, body fluids, secretions, excretions, mucous membranes, non intact skin.
- Change between tasks and procedures on the same patient after contact with potentially infectious material.
- Remove after use, before touching non-contaminated items and surfaces, and before going to another patient.
- Perform hand hygiene immediately after removal

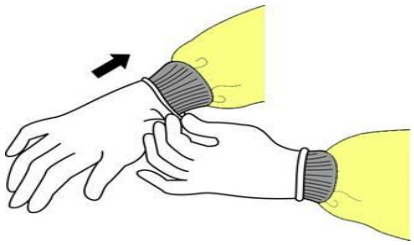
Type of gloves

- **STERILE GLOVES;** Wear when likely to have contact with sterile body cavity or tissue of a client.
- **NON STERILE GLOVES**; wear to reduce contact with blood, bodily secretions, excretions disinfectants, chemicals.

- **UTILITY GLOVES;** wear for cleaning and manual decontaminations of used instruments and equipments.
- **HEAVY DUTY GLOVES;** wear to reduce the risk of cuts punctures or lacerations. Wear to reduce the risk of injury from chemical or thermal burns.

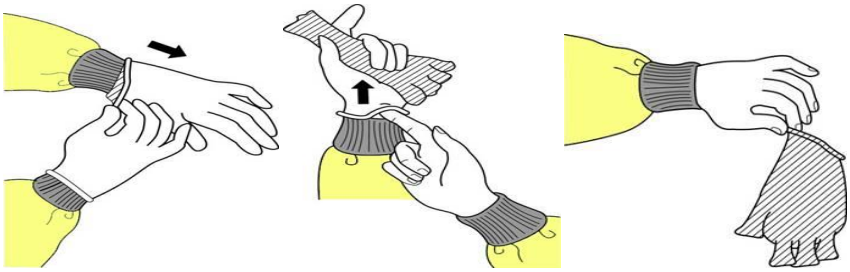
Donning of gloves

- Use non-sterile for isolation
- Select according to hand size
- Extend to cover wrist of isolation gown



Doffing of gloves

- Outside of gloves are contaminated
- Grasp outside of glove with opposite gloved hand; peel off
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist



GOWNS

- Wear to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- Remove soiled gown as soon as possible, and perform hand hygiene

Gowns are available as different types:

- **Isolation Gowns:** These gowns are clean but not sterile. They are used while handling patients who require isolation. These prevent transmission of infection from the patient to the health care worker.
- **Surgical Gowns:** They are sterile gowns that are used for aseptic procedures.
- **Plastic Aprons*:*** They are used whenever spills are expected. They prevent fluids from soaking the clothes of the health care worker.

Gowning Technique (for sterile gowns):

Sterile gowns are always folded inside out to avoid contamination. As it is impossible to render the hands sterile, they must not come in contact with the outside of the gown or gloves.

Procedure:

- Hands must be washed thoroughly.
- Pick up the gown holding it well away from the trolley and your own body.

- Hold the neck band and control until the sleeves are seen.
- Slide both hands and arms into the sleeves at the same time.
- The floor nurse/assistant slides her hands under the gown at the shoulder and pulls out and fastens all the back tapes.
- Cover the back with the back flap with the help of the scrub nurse.

Remember

- Do not keep the hands lower than the waist line.
- Do not keep the hands near ones neck or shoulder.
- Do not touch the axillary area once gowned.
- Do not touch the back of the gown.

Removal of Gown at the end of the Procedure:

- The circulating nurse will unfasten the gown.
- The gown is carefully removed by the scrub nurse
- The gown with the inside folded out is placed in the appropriate bin.

MASKS:

Masks are used for three primary purposes in healthcare settings:

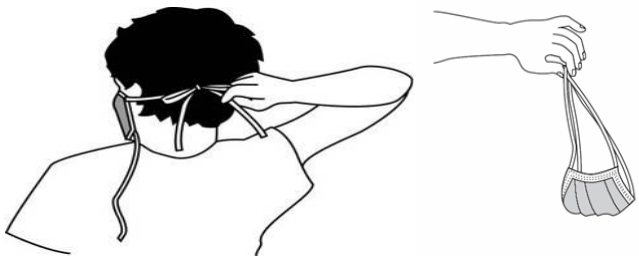
- Placed on healthcare personnel to protect them from contact with infectious material from patients e.g. respiratory secretions and sprays of blood or body fluids, consistent with standard precautions and droplet precautions
- Placed on healthcare personnel when engaged in procedures requiring sterile technique to protect patients from exposure to infectious agents carried in a healthcare workers' mouth or nose
- Placed on coughing patients to limits potential dissemination of infectious respiratory secretions from the patient to others(i.e: respiratory hygiene/cough etiquette)

Donning of mask or respirator

- Secure ties or elastic band at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

Removing of mask or respirator

- Front of mask/respirator is contaminated – DO NOT TOUCH!
- Grasp ONLY bottom then top ties/elastics and remove
- Discard in waste container



Protective eyewear

Protective eyewear / goggles should be provided to the worker or client with protection from splashes. Splashes may be from blood, body fluids, chemical spray, dust or particles. Protective eyewear should be washed and decontaminated after removal and in between use.

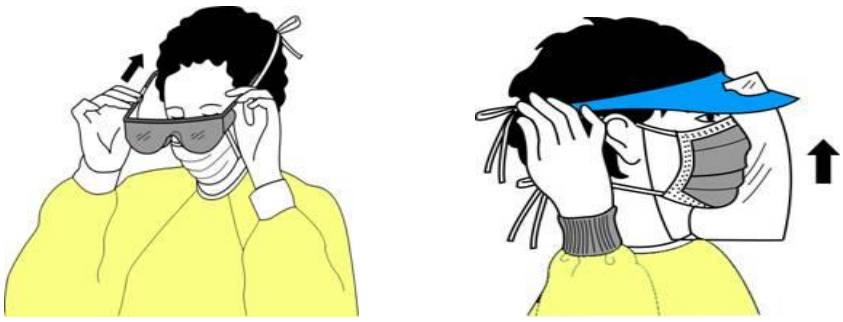
Types of eyewear

- Safety spectacles;

- Goggles

Donning of goggles/face shield

Put on face and adjust to fit



Removing of goggles/face shield

- Outside of goggles or face shield are contaminated
- To remove, handle by "clean" head band or ear pieces
- Place in designated receptacle for reprocessing or in waste container

CAP/HEAD WEAR

Wear to prevent contamination from falling hair.

FOOTWEAR

Appropriate footwear should be worn at all times for your own safety and to prevent the spread of infection.

Types of Footwear

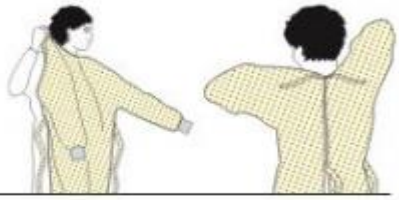
- Shoe covers: - wear to protect from contamination when entering an area of infection.
- Enclosed footwear or foot wear with non slip soles:-*wear at all time to reduce* contact with blood, bodily secretions, excretions, disinfectants and chemicals.
- Protective foot wear or boots: -wear to protect from splashes, drips, and the drooping or rolling of heavy objects.

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

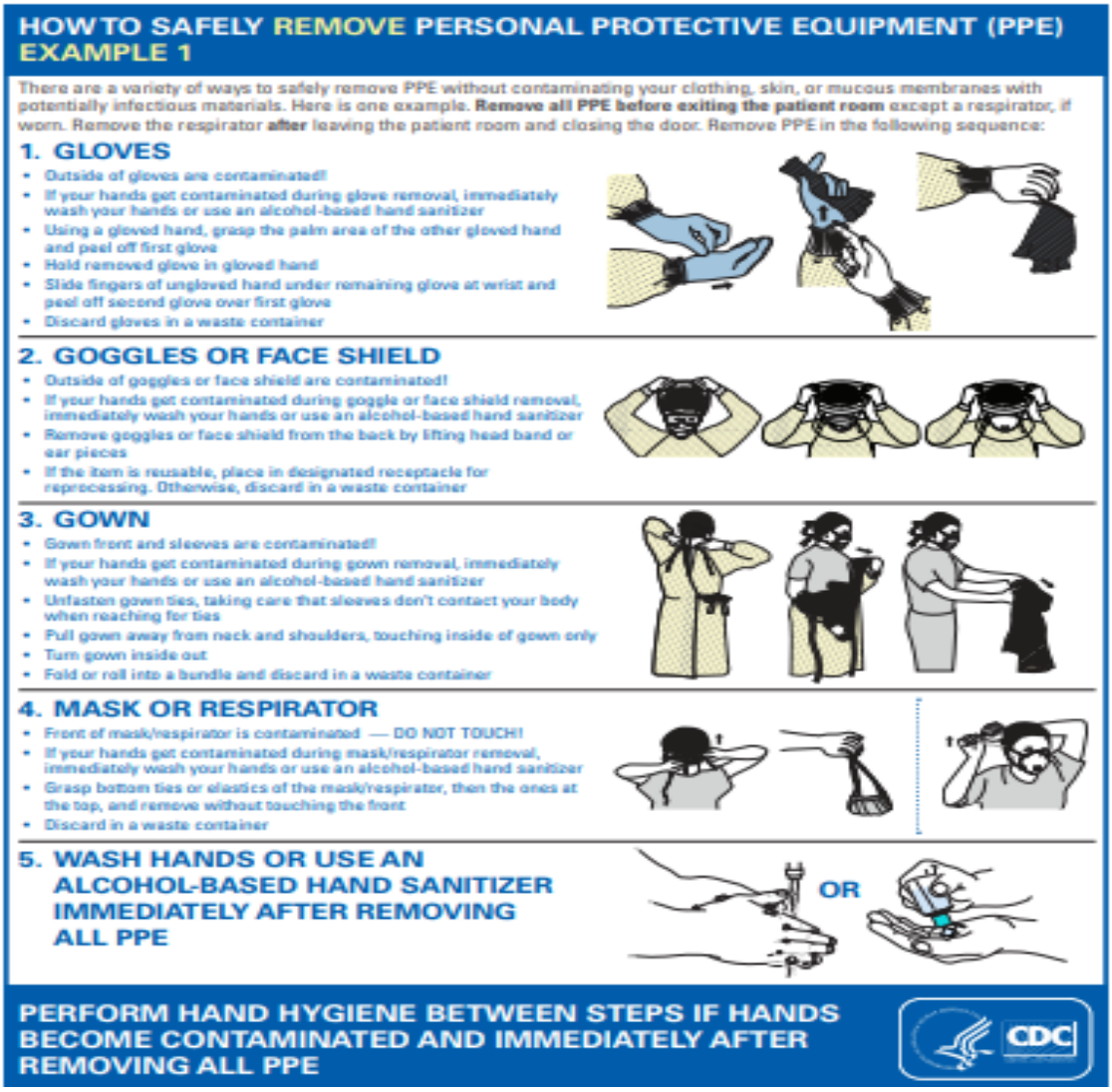
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit

4. GLOVES

- Extend to cover wrist of isolation gown

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION



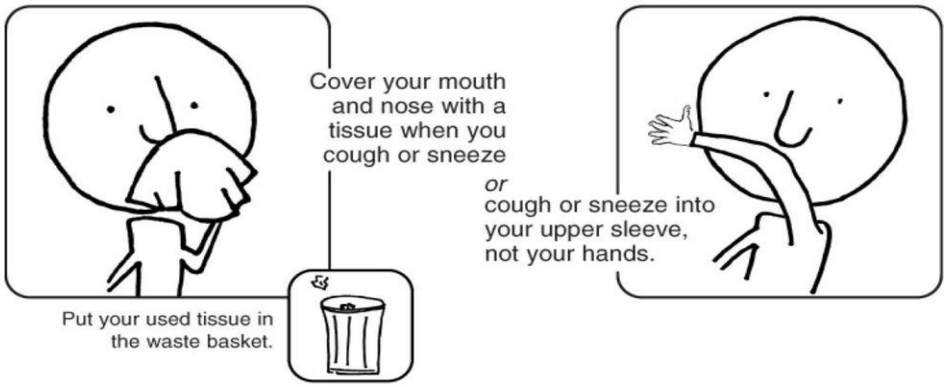
5.1.3. RESPIRATORY HYGIENE AND COUGH ETIQUETTE

Persons with respiratory symptoms should apply source control measures: 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.

Health-care facilities should:

1. Place acute febrile respiratory symptomatic patients at least 1 meter (3 feet) away from others in common waiting areas, if possible.
2. Post visual alerts at the entrance to health-care facilities instructing persons with respiratory symptoms to practice respiratory hygiene/cough etiquette.
3. Consider making hand hygiene resources, tissues and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.

RESPIRATORY HYGIENE/COUGH ETIQUETTE



5.1.4. SAFE INJECTIONS & INFUSION PRACTICES (SIP):

Injections are an important mode of administration of drugs. It may be the only mode of administration in some situations; however it is also misused frequently. Infections like HIV, Hepatitis B and C virus can be transmitted through needles and unsafe injection practices. Keeping this in mind following guidelines are recommended for injections use in the hospital. **(Refer:Anexure)**

The following recommendations apply for the safe injection & infusion practices.

a) ASEPTIC TECHNIQUE

- Hand hygiene is performed (soap/water or hand sanitizer) prior to accessing supplies, handling vials and IV solutions, and preparing or administering medications.
- Medications and supplies are stored and prepared in a clean area on a clean surface.
- Needles and syringes are stored in their original packaging/wrapper. They are not stored unwrapped as sterility cannot be assured.
- Skin at the injection/insertion site is prepared with the appropriate skin disinfectant which is allowed to dry on the skin.
- The injection site is not touched after skin antisepsis has been done.

b) NEEDLES/SYRINGES

- Sterile, single use syringes are always used for any type of injection or infusion. Manufacturer's prefilled syringes are always used for only one patient.
- Needles, cannulas and syringes are always used as single use (used for only one patient) and are never re-used on other patients or to access medications/solutions more than once.
- Medications are never administered from the same syringe or needle to more than one patient. Changing the needle but not the syringe is unacceptable.
- The sterile needle/cannula and/or syringe are removed from the packaging just prior to use. Storage of syringes removed from packaging (even with capped needle) is prohibited
- Medications are not prepared in one syringe and then transferred to another syringe.
- All medications drawn up in a syringe should be discarded after 24 hours or when completely used.
- Time and date of loading of medication should be mentioned on the syringe.

c) VIALS

- Single-use or single-dose vials are used whenever possible. Single-dose (single-use) medication vials are used only for one patient. Discard after one use.
- Entry into a medication vial is always done with a new needle or cannula and syringe
- Multi-dose vials are dated when first opened and discarded within 28 days of opening or 10 withdrawal
- Do not keep multidose vial in the immediate patient treatment area and store in accordance with the manufactures recommendations; discard if sterility is compromised or questionable.
- Needles are never left inserted in any vial rubber septum for multiple withdrawals.

d) IV SOLUTIONS

- Bags/bottles of IV solutions are never used as common source supply (i.e. flush solutions) for more than one patient.
- Infusion supplies such as needles, syringes, flush solutions, administration sets, IV fluids are never used for more than one patient.
- Administration of spiked IV solutions is initiated within 1 hour of preparation.
- Do not puncture bottles with needles to create airways.
- The bottle must be carefully checked for any damage before its use.
- If there is any visible contaminant present in the IV bottle, immediately inform & replace it in the Pharmacy so that the particular batch of IV fluids can be withdrawn.
- IV sets need to be changed every 24hrs. If blood, blood products or lipid emulsions have been used, change sets promptly every time.
- Disinfect IV bottle tops with alcohol swab wipe before puncturing bottle.
- If an IV bottle has been opened or accessed (e.g. IV set-punctured) it should be dated and discarded within 24 hrs.

e) DISPOSAL OF WASTE USED FOR SIP

- Sharps & other waste are segregated and disposed appropriately.

f) PRACTICAL GUIDANCE ON SKIN PREPARATION AND DISINFECTION (WHO GUIDELINE)

For the disinfection of skin, use the following steps:

- ✓ Use single-use sterile packed alcohol swab.
- ✓ Wipe the area from centre to periphery in a circular motion by using an alcohol ball without going over the same area.
- ✓ Wait for 30 seconds and allow drying the site completely.

Note:-

DO NOT pre-soak cotton wool in a container – these become highly contaminated with hand and environmental bacteria.

DO NOT use alcohol skin disinfection for administration of vaccinations.

MULTI DOSE VIAL (MDV) POLICY

- If a multi-dose has been opened or accessed (e.g. needle-punctured) the vial should be dated and discarded within 28 days or after 10 withdrawal unless the manufacturer specifies a different (shorter or longer) date for that opened vial.
- Write the patient's identification with hospital number, opening date and time over the vial
- Check the label always.
- To inspect all vials and their expiry date every month. Most multi-dose vials are safe until the manufacturer's expiry date printed on the vial if not opened or accessed.
- To examine all vials for cracks in the stoppers, precipitation in the vial, and any abnormal appearance in the medicine during monthly inspections.

- Multi-dose vials are stored in the medication room and not in the immediate patient treatment area.
- Cleanse the access diaphragm of multi dose vials with 70% isopropyl alcohol before inserting a device into the vial.
- Never leave a needle inserted into the septum of a medication vial for multiple draws.
- Discard multi dose vial if sterility is compromised.
- Use a sterile device to access a multi dose vial and avoid touch contamination of the device before penetrating the access diaphragm.
- Refrigerate multi dose vials if recommended by the manufacturer.
- A fresh needle must be used for loading the solution and another fresh needle should be used for injecting the solution every time.
- The person administering a multiple dose medication must read the label on the container to confirm that the medication is intended for multiple uses.
- Solutions used for injections can be left open for a maximum of one day only.
- After loading the solution for one injection, remove the needle from the vial and discard it in the sharps container.

Multi Vial Drugs

- Inj. Heparin
- Inj. Human Actrapid
- Inj. Human Mixtard
- Inj. Xylocaine
- Inj. Hepatitis B
- Oral polio Vaccine etc

5.1.5.SHARP SAFETY

This Policy describes the proper procedure for the disposal of used disposable needles and other sharps in Amala Hospital, Thrissur.

Definition

a) **Sharps** are anything, which can puncture skin and may be contaminated with blood and/or other body fluids. These include hypodermic needles, suture needles, blades and broken glass.

b) **Disposal** is the correct method for discarding used needles, syringes and sharps.

c) **Used Disposable Needles and Other** Sharps are those which have been used or are contaminated, which have a potential for transmitting blood borne pathogens.

Purpose

a) To define the policies and procedures for the disposal of sharps.

b) To effect a significant reduction in the incidence of needle stick and cut injuries.

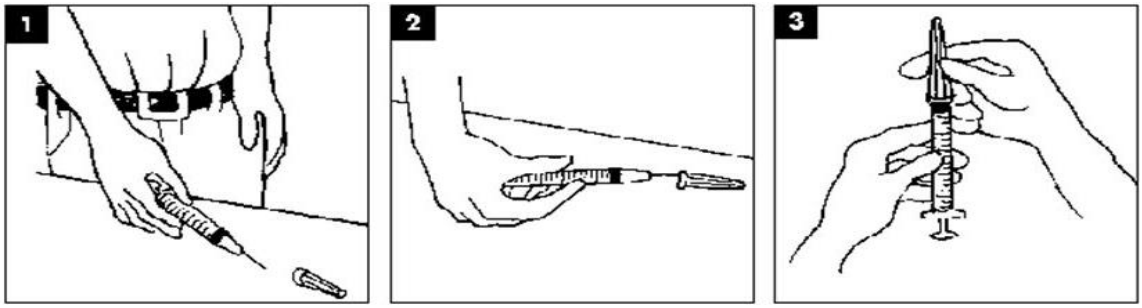
Policies

- Sharps containers are available in all clinical and other essential areas in our hospital in order to exclude injury to patients, visitors and staff.
- Used disposable needles and other sharps shall be placed in the sharps container designated for this purpose.
- Sharps shall be placed in the sharps container as soon as possible after use. Where it is necessary to disassemble a needle and syringe, such as before transferring blood from a syringe to a pathological specimen bottle, the needle should be placed in the sharps container before transferring the blood.

- Do not recap the needle. If ABSOLUTELY NECESSARY single handed technique (scoop method) should be used to recap the needles.
- Waste container should be placed in height

Single handed technique (scoop method) for recapping needles

- Place the cap on a flat surface.
- Hold the syringe in one hand.
- Without holding the cap, Slide the needle into the cap, and then lift it up.
- Press the cap firmly into place.



5.1.6.STERILE INSTRUMENTS AND DEVICES

- Handle patient care equipment soiled with blood or body fluids in such a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of pathogens to other patients or the environment.

- Clean and disinfect the articles or reprocess the reusable equipment appropriately before use on another patient.

Please refer chapter -10.

5.1.7.CLAEN AND DISINFECT ENVIRONMENTAL SURFACES

Use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces.

Please refer chapter -10

5.1.8.COLLECTION AND TRANSPORT OF SPECIMENS

a) **General instructions for collection of specimen**

- All specimens should be collected before the administration of antibiotics.
- Adequate amount of specimen should be collected with sterile precautions.
- Don't keep the specimen exposed to the environment. Specimen should be kept in the specimen carrier box.
- Fill the appropriate form for proper investigations, with clinical details and clinical diagnosis.
- Use sterile containers only. Do not fill till the brim, since over flow or absorption by plugs or caps may occur.
- Use wide mouth container for specimens like urine, sputum, faeces.
- In case of known serology positive cases, stick biohazard symbol in sample bottle & the request form.
- Whenever handling specimens by staff use disposable gloves.

Specimens for culture:

- All specimens for culture for etiological diagnosis must be taken before institution of antimicrobial therapy.

- For each specimen the appropriate container must be used and spillage must be avoided during collection, containerization and transportation.
- For blood culture the collection site is disinfected by AHD 3000 or Microshield Tincture.
- All specimen containers should be labeled with the name and hospital number of the patient.
- For urine culture, aspirate the urine from the urinary catheter in a sterile syringe and collect to a sterile specimen container
- Specimens from patients with suspected blood borne pathogens should bear the biohazard label.
- Check with the laboratory regarding this.

b) **Transport of Clinical Specimens**

- Transport the specimens to the laboratory within 2 hrs of collection.
- If not possible to transport immediately, refrigerate. Refrigeration can also be done only for 2-3 hours.
- Specimen should be transported in specimen boxes only.
- Use disposable gloves which are available in Lab for transfer of specimen.
- Do not refrigerate following specimens-CSF for anaerobic culture, Blood culture bottles, blood or urine for dark ground Microscopy for Leptospira.

5.2.TRASMISSION BASED PRECAUTIONS

There are three categories of Transmission-Based Precautions:

- Contact Precautions
- Droplet Precautions

- Airborne Precautions

Aprropriate signage board describing the precautions to be followed must be displayed in isolation room or ward. It is an effective instructional material for staff, patients and visitors on recommended precautions to be practiced with known or suspected infectious diseases.

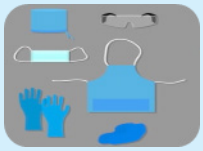
5.2.1. CONTACT PRÉCAUTIONS:

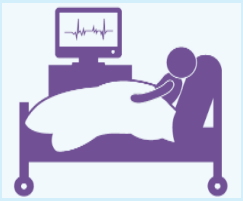
These precautions are to be applied while offering a care to patients suffering from following conditions or infected with following microorganisms.

- ✓ Abscess/wound infection: major, draining
- ✓ Bronchiolitis
- ✓ Burkholderia cepacia: patient with cystic fibrosis, infection or colonization
- ✓ Conjunctivitis: acute viral
- ✓ Gastro-enteritis: C.difficile, Rotavirus, diapered or incontinent person for other infectious agents
- ✓ Diphtheria: cutaneous
- ✓ Hepatitis, type A, B,C and E virus: diapered or incontinent person
- ✓ HIV
- ✓ Herpes simplex virus: mucocutaneous, disseminated or primary, severe, and neonatal
- ✓ Human metapneumovirus
- ✓ Impetigo
- ✓ Lice (pediculosis)
- ✓ Multidrug-resistant organisms: infection or colonization – by MRSA, VRE, CRE, MDR GNBs
- ✓ Para-influenza virus
- ✓ Poliomyelitis

- ✓ Pressure ulcer: infected
- ✓ Respiratory infectious disease: acute, infants and young children
- ✓ Respiratory syncytial virus: in infants, young children and immunocompromised adults
- ✓ Rubella: congenital
- ✓ Scabies
- ✓ Leprosy
- ✓ Gonorrhoea
- ✓ Staphylococcal disease: furunculosis, scalded skin syndrome, burns

Key aspects of applying contact based precautions:

Hand Hygiene 	• Follow all 5 moments all the time
PPE 	• Wear gloves and gowns upon entering the patient room • A surgical mask or protective eyewear must be worn if there is potential for generation of splashes or sprays of blood and body fluids into face and eyes. • Remove and discard the gloves and gown before leaving the area.

Patient Care Equipment 	• Use patient dedicated equipment or single use disposable equipment wherever possible • If dedicated equipment is not possible, clean the equipment and allow it to dry before using on another patient.
Patient Placement 	• A single-patient room is recommended • Keep patients notes and bedside charts outside the room • Keep doors closed • Disinfect hands upon leaving the room and after writing the chart • If single room is not available: 1. Avoid placing these patients with other patients with increased susceptibility of infection 2. Change protective attire and perform hand hygiene between contact with patients in the same room.
Transfer of Patients 	• Avoid transfer of patients so far as possible • If transfer is necessary, ensure that the infected or colonized areas of patients are covered and contained. • Wear PPE while handling the patients at the destination

5.2.2. DROPLET PRECAUTIONS

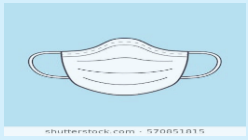
These precautions are to be applied while offering care to patients infected with organisms which are transmitted through respiratory droplets (>5µm) generated by patients during coughing, sneezing or talking. As these droplets can travel only short distance (<1 metre), precautions are required when close contact with the infected patient is expected.

Following diseases/infectious agents warrants droplet precautions:

- Diphtheria: pharyngeal
- Influenza virus: seasonal
- Invasive disease: H. influenza type b, N. meningitidis, Streptococcus group A
- Mumps
- Parvovirus B19: erythema infectiosum
- Pertussis (whooping cough)
- Plague: pneumonic
- Pneumonia: Adenovirus, H. influenza type b (infants and children), Mycoplasma
- Rhinovirus, Respiratory syncytial virus
- Rubella
- Streptococcus group A disease: pharyngitis and scarlet fever (infants and young children)
- Viral hemorrhagic fevers due to Lassa, Ebola, Marburg, Crimean- Congo fever viruses

Key aspects of applying droplet precautions include:

Hand Hygiene 	• Hand hygiene is must and should be followed as per standard protocol as some infections transmitted by droplet route can also be transmitted through contact.

PPE 	• A surgical mask is must upon room entry. • Hand hygiene should be done before putting on the maskand after removing he mask.
Patient Placement 	• A single-patient room is recommended. • If single room is not available: 1. Priority for single room is given to those patients who have excessive cough and sputum production. 2. Cohortise the patients who are infected with the same pathogen and who are suitable roommates. • If it becomes necessary to place the patients requiring droplet precautions in the same room with patients who donot require it or do not have the same infection— 1. Patients should be physically separated (>1 metre apart) from each other and a privacy curtain is drawn in between them. 2. Avoid placing such patients with in the same room with immunocompromised status or increased susceptibility to infections.
Transfer of the Patients	• Ask the patients to wear a mask while they are being transferred and follow respiratory hygiene and cough etiquette.

PP

- Wear a P2 respirator or N95 mask when entering the patients room.
- Surgical mask do not offer protection but may be given to the coughing patients to limit the spread of aerosols and droplets at the point of generation.
- Gloves and gowns are to be worn as per standard precaution.

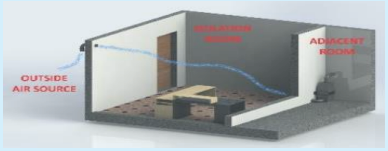
5.2.3. AIRBORNE PRECAUTIONS

These precautions are applied while dealing with patients having respiratory infections bypathogens which are transmissible through droplet nuclei ≤5 µm. These particles remain suspended in the air for longer duration and can travel longer distances (>1 metre).

Indications for following these precautions are:

- Influenza A: Avian H7N9, Asian H5N1
- Measles
- MERS-Corona virus: Middle East Acute Respiratory Syndrome
- Mycobacterium tuberculosis: Laryngeal and pulmonary disease, extra-pulmonary draining lesion
- Smallpox
- Varicella-zoster: Disseminated disease, localized disease in immunocompromised patient

Essentials of applying airborne precautions include

Patient Placement 	• A single-patient room preferably having negative pressure ventilation is recommended • Door of the room should remain closed • Visitors not allowed
Transfer of the Patients 	• Ask the patients to wear a correctly fitted mask while they are being transferred and follow respiratory hygiene and cough etiquette. • Limit transfer as much as possible • Any associated skin lesions with the condition should be covered

5.3. ISOLATION BARRIER NURSING

Isolation nursing: is carried out by placing the patient in a single room or side room.

Barrier nursing: this occurs when a patient(s) is kept in a bay and extra precautions are implemented to prevent spread of the germ.

Protective Clothing :

5 Staff will wear protective clothing for example gloves, apron and mask (if required) in order to reduce the risk of passing the infection / germ to other patients.

6 The type of clothing that staff wear will depend upon what type of care they are carrying out and how the infection is spread.

7 If the infection is likely to be spread by breathing in the germs that are causing the infection then staff will wear masks.

8 It is very unlikely that visitors will need to wear any protective clothing such as apron or gloves. If they do then nursing staff will advise.

Visitors:

- Visitors must check with the nurse in charge before entering the room. In general it is not advisable for babies or visitors who are sick to visit as they are at risk of picking up or passing on an infection themselves.
- Visitors are required to clean their hands when entering and leaving the isolation room or bay by using either the alcohol gel or soap and water provided. The method used will depend upon why the patient is in isolation.
- Please check with the nurse whether alcohol gel or soap and water is required.
- It is important that visitors do not sit on the bed as this can also transfer germs.
- Staff in any other department visited will be informed about the infection so that they can take relevant precautions.

Patient information:

9 Patients in isolation should not wander around the ward area

10 Patients will be asked to keep the door to the isolation room closed

11 For any concerns please discuss this with the nursing staff.

Duration of isolation/ barrier nursing:

This will depend upon the type of isolation. It can be anything from a few days to the whole hospital stay.

Role of Infection Control Nurse:

The Infection Prevention and Control Team are available for advice. Isolation patient details should be informed the concerned infection control nurse and follow their instructions properly.

5.4. ANTIMICROBIAL POLICY, ANTIBIOTIC STEWARDSHIP PROGRAMME AND MDR SURVEILLANCE

5.4.1 ANTIBIOTIC POLICY

The primary aim of the hospital antimicrobial policy is to minimize the morbidity and mortality due to antimicrobial-resistant infection; and to preserve the effectiveness of antimicrobial agents in the treatment and prevention of communicable diseases.

Amala has an antibiotic policy developed by multidisciplinary team to organize the antimicrobial treatment in the hospital. It is updated each year under the guidance of microbiology department and current research evidence. It is the responsibility of the physician to stick on to the institutional policy on the various use of antibiotics.

Scope of hospital antibiotic policy

The antibiotic policy is essentially for prophylaxis, empirical and definitive therapy. The policy shall incorporate specific recommendations for the treatment of different high-risk/special groups such as immunocompromised hosts; hospital-associated infections and community-associated infections.

The hospital antibiotic policy shall be based upon:

- spectrum of antibiotic activity
- pharmacokinetics/pharmacodynamics of these medicines
- adverse effects

- potential to select resistance
- cost
- special needs of individual patient groups

5.4.2 ANTIBIOTIC STEWARDSHIP

Antibiotic Stewardship Programs (ASPs) can help clinicians improve clinical outcomes and minimize harms by improving antibiotic prescribing. Hospital antibiotic stewardship programs can increase infection cure rates while minimizing toxicity and conditions for selection of resistant bacterial strains. Amala has a co-ordinated antibiotic stewardship program dedicated for judicious use of antibiotic and to contain the problems of resistance and infections. The clinical pharmacology department collaborate with other disciplines such as microbiology on improving antibiotic stewardship and curbing hospital infection through feasible infection control practices.

Benefits of prescribing against non-prescribing of antibiotics

The clinical syndromes should be carefully assessed based on the benefits of prescribing against non-prescribing of antibiotics as outlined below:

- Patient cure/improvement against failure/mortality
- Development of resistance in pathogens infecting the patient.
- Risk for spread of resistance
- Suppression of normal flora.
- Development of resistance in normal flora.
- Risk for super infection.

5.4.3 MDR SURVEILLANCE

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.

As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become increasingly difficult or impossible to treat.

Why is antimicrobial resistance a global concern?

The emergence and spread of drug-resistant pathogens that have acquired new resistance mechanisms, leading to antimicrobial resistance, continues to threaten our ability to treat common infections. Especially alarming is the rapid global spread of multi- and pan-resistant bacteria (also known as "superbugs") that cause infections that are not treatable with existing antimicrobial medicines such as antibiotics.

Prevention

Preventing infections will reduce the burden of MDROs in healthcare settings. Prevention of antimicrobial resistance depends on appropriate clinical practices that should be incorporated into all routine patient care. These include optimal management of vascular and urinary catheters, prevention of lower respiratory tract infection in intubated patients, accurate diagnosis of infectious etiologies, and judicious antimicrobial selection and utilization.

1. Administrative Support

In several reports, administrative support and involvement were important for the successful control of the target MDRO, and authorities in infection control have strongly recommended such support Interventions that require administrative support include:

1. implementing system changes to ensure prompt and effective communications e.g., computer alerts to identify patients previously known to be colonized/infected with MDROs providing the necessary number and appropriate placement of hand washing sinks and alcohol-containing hand rub dispensers in the facility (106, 19
2. maintaining staffing levels appropriate to the intensity of care required (152, 196-202); and
3. enforcing adherence to recommended infection control practices (e.g., hand hygiene, Standard and Contact Precautions) for MDRO control.

2.Education

Educational campaigns to enhance adherence to hand hygiene practices in conjunction with other control measures are help to decreases in MDRO transmission in various healthcare settings

3. Judicious Use of Antimicrobial Agents

This effort targets all healthcare settings and focuses on effective antimicrobial treatment of infections, use of narrow spectrum agents, treatment of infections and not contaminants, avoiding excessive duration of therapy, and restricting use of broad-spectrum or more potent antimicrobials to treatment of serious infections when the pathogen is not known or when other effective agents are unavailable. Achieving these objectives would likely diminish the selective pressure that favors proliferation of MDROs.

4.MDRO Surveillance

Surveillance is a critically important component of any MDRO control program, allowing detection of newly emerging pathogens, monitoring epidemiologic trends, and measuring the effectiveness of interventions.

5. Standard precautions

Standard precautions have an essential role in preventing MDRO transmission. Therefore, Standard Precautions must be used in order to prevent transmission from potentially colonized patients. Hand hygiene is one of the important component of Standard Precautions.

6.Environmental Measures

The potential role of environmental reservoirs, such as surfaces and medical equipment, in the transmission of VRE and other MDROs has been the subject of several reports .

Interventions that includes:

- The use of dedicated noncritical medical equipment
- increased cleaning and disinfection of frequently-touched surfaces (e.g., bedrails, charts, bedside commodes, doorknobs).
- Monitoring for adherence to recommended environmental cleaning practices is an important determinant for success in controlling transmission of MDROs and other pathogens in the environment
- Adherence to environmental checklist(Refer:Anexure)

7. Decolonization

Decolonization entails treatment of persons colonized with a specific MDRO, usually MRSA, to eradicate carriage of that organism.

6. HEALTH CARE ASSOCIATED INFECTIONS

6.1 DEFINITION

Health care-associated infection (HCAI) – also referred to as nosocomial infection – is defined as "an infection occurring in a patient during the process of care in a hospital or other health-care facility that was not present or incubating at the time of admission. This also includes infections acquired in the hospital but appearing after discharge and occupational infections among staff of the facility". The majority of these infections become evident after 2 calendar days or within 1 day after discharge

CDC uses the generic term 'health care associated infection (HAI) instead of 'nosocomial infection' This is determined by:

1. Susceptibility of the patient to the infection
2. Virulence of the infecting organisms
3. Nature of exposure to the infecting organism.
4. Foreign objects like intravenous catheters and urinary catheters also break the body's natural barriers to infection. HAIs may never be completely eliminated but can be prevented.
5. To provide better and safer hospital facilities all sections of hospital community have to be involved. Our staff is instructed to follow universal standard precautions, barrier nursing techniques to prevent infections and other Standard operating procedures (SOPs) etc.
6. Observations show that Healthcare Associated Infections (HAIs) are mostly blood borne with special reference to HIV and Hepatitis group. Indiscriminate use of antibiotics has led to growth of antibiotic resistant bacterial flora which is very difficult to control. Common blood borne infections are both bacterial and viral in origin.

7. Most common bacterial pathogens are: MRSA (Methicillin Resistant Staphylococcus Aureus) , Acinetobacter, Burkholderia cepacia, Clostridium difficile, Clostridium Sordellii,
   CRE(Carbapenem Resistant Enterobacteriaceae) Pseudomonas, MDR Klebseilla and other ESBL organisms, gram negative bacteria, Mycobacterium abscessus, Staphylococcus aureus, Tuberculosis (TB) , Vancomycin-intermediate Staphylococcus aureus and Vancomycin-resistant Staphylococcus aureus , Vancomycin-resistant Enterococci (VRE)
8. Some important viruses in order of prevalence are: Hepatitis B, HIV I & II, Epstein Barr Virus & Hepatitis C, Norovirus, Influenza etc.
9. Prevalence of HAI in staff depends upon the state of immunization habit of taking precautions, amount of exposure, safety measures and waste disposal.
10. Severity of viral infections depends on viral load at the time of infection whether the virus is free in circulation or cell associated of strain variant. The severity of infection is also determined by the portal of entry by Potential route: prick by a hollow bore needle is more dangerous than a solid needle puncture as it carries more infected material.

6.2 HOSPITAL INFECTION CONTROL SURVEILLANCE PROGRAMME

6.2.1. Definition

Surveillance is defined as the continuing scrutiny of all aspects of the occurrence and the spread of a disease that are pertinent to effective control.

It is an ongoing systematic collection, analysis and interpretation of health-related data essential to planning, implementation and evaluation of the public health practice. HAI surveillance is a program designed to investigate, control and prevent health care associated infections.

6.2.2 Scope of Surveillance

1. Central Line Associated Blood Stream Infection (CLABSI)
2. Ventilator Associated Event (VAE)
3. Catheter Associated Urinary Tract Infection (CAUTI)
4. Surgical site infections (SSI)
5. Device Related thrombophlebitis
6. Needlestick injuries
7. Blood and body fluid exposure
8. Hand hygiene
9. Pressure injury after admission
10. Water Culture
11. Student and employee health
12. Overall HAI rate

i. Form available with the ICN to be filled up for each patient with suspicion of HAI.
ii. Such patients are monitored and reviewed each day.
iii. Necessary action needs to be initiated according to HIC protocols.
iv. Results of monitoring to be tabled in the next HICC meeting.

6.2.3 Objectives

i. To reduce Healthcare Associated Infection and related cost
ii. To improve awareness of clinical staff and other hospital workers (including administrators) about HAI and antimicrobial resistance, so they appreciate the need for preventive actions.
iii. To monitor trends, incidence and distribution of HAIs, prevalence and where possible, risk adjusted incidence for intra and inter hospital comparison

iv. To identify the need for new or intensified prevention programs and evaluate the impact of prevention measures

v. To identify possible areas for improvement in patient care, and for further epidemiological studies (i.e. risk factor analysis).

vi. To identify priorities for preventive interventions and improvement in quality of care.

6.2.4. Required elements in data

i. Administrative data (e.g. hospital number, admission data)

ii. Additional information describing demographic risk factors (e.g. age, gender, severity of underlying illness, primary diagnosis, immunological status) and interventions (e.g. device exposure, surgical procedure, treatment) for infected and for non–infected patients

iii. Presence or absence of infection: date of onset, site of infection, microorganisms isolated and antimicrobial susceptibility.

6.2.5. Validation of Data

Before analysis a retrospective data validation to be performed to identify missing values, inconsistencies, possible errors, unexpected values or codes.

6.2.6. Analysis

An analysis includes the description of the population frequency at risk of exposure and infection, Calculation of rates, comparison with different patient groups, and comparison of rates over time etc.

6.2.7. Evaluation

Evaluate the impact of interventions and find out whether expected results are achieved

6.2.8. Feedback to HICC

Infection Control Team is responsible to submit the data collected, analysis, interventions and evaluation to HICC.

6.2.9 Sources for Data

1. Wards / ICU's

To look for the following:

a. The presence of devices or procedures known to be a risk for infection (indwelling urinary and intravascular catheters, mechanical ventilation, surgical procedures)
b. Record of fever or other clinical signs consistent with infection
c. Antimicrobial therapy
d. Laboratory tests
e. Medical and nursing chart review

2. Laboratory reports

Laboratory reports to be checked for urinary tract infection, bloodstream infections, sputum, pus and MDR bacteria surveillance etc.

3. Other diagnostic tests

E.g. white blood counts, diagnostic imaging etc.

Diagnosis of cases with the clinical staff during periodic ward visits

6.2.10. Method of Surveillance

1. Microbiology report scrutiny

Infection control nurse examines microbiology lab reports periodically and discusses it with the infection control officer (ICO)

2. Daily Visits to all Wards and Units

i. Infection control nurse visits all the wards on daily basis and examine all records of all clinical infections and discuss it with HIC Officer

ii. Helps in identifying cross infections and outbreaks.

iii. She/ He gives input in the identification, prevention, monitoring and control of infection within the hospital

iv. She/ He identifies, investigate and monitor infections, hazardous practices and procedures.

3. Collection of swabs if any out breaks occurs

- Infection control nurse will randomly collects swabs from nursing staff hands and nose to find out carriers.
- Collect swab from equipments/devices

4. Microbiological Surveillance

Routine Microbiological examination is recommended for active surveillance. This is particularly so in the evaluation of contamination known to be associated with risk of HAIs

Certain approved indications for routine microbiological sampling are given below:

- To monitor the performance of steam, gas and dry heat sterilization
- To determine the safety on infants milk feed.
- To monitor water used for dialysis (RO water culture & endotoxin test)
- Monthly high risk area surveillance (OT, ICUs, Post-operative wards, Blood bank etc)
- Water surveillance (IP canteen-monthly, drinking water culture- randomly selected areas)

6.3 CATHETER ASSOCIATED URINARY TRACT INFECTION (CAUTI)

6.3.1 Introduction

Urinary tract infections are the fifth most common type of HAI. Approximately 12%-16% of adult hospital inpatients will have indwelling urinary catheter at some time during their hospitalization and each day the indwelling urinary catheter remains. A patient has a 3%-7% increased risk of acquiring a catheter associated urinary tract infection.

CAUTI can lead to such complications as prostatitis, epididymitis and orchitis in males and cystitis, plyeonephritis, gram negative bacteremia, endocarditis, verbal osteomyelitis, septic arthritis, endopthalmitis, and meningitis in patients. Complications associated with CAUTI cause discomfort to the patient, prolonged hospital stay, and increased cost and mortality. It has been estimated that each year more than 13,000 death are associated with UTIs.

6.3.2 Inclusion Criteria

i. Catheter Associated Urinary Tract Infection in any age patient

Patient must meet 1, 2, and 3 below:

A. Patient had an indwelling urinary catheter that had been in place for > **2 days** on the **date of event** AND was either:

1. Present for any portion of the calendar day on the day of event,

   OR

2. Removed the day before the day of event

B. Patient has at least **one** of the following signs or symptoms:

- Fever (>38.0^{0}C)
- Suprapubic tenderness

- Costovertebral angle pain or tenderness
- Urinary urgency
- Urinary frequency
- Dysuria

C. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml

ii. Catheter Associated Urinary Tract Infection in patients 1 year of age or less

Patient must meet 1, 2, and 3 below:

- Patient is ≤1 year of age
- Patient has at least one of the following signs or symptoms:
  - fever (>38.0°C)
  - hypothermia (<36.0^{0}C)
  - apnea
  - bradycardia
  - lethargy
  - vomiting
  - suprapubic tenderness
- Patient has a urine culture with no more than two species of organisms identified, atleast one of which is a bacterium of $\geq 10^5$ CFU/ml.

6.3.3 Exclusion criteria

- A positive culture of a urinary catheter tip is not an acceptable laboratory test to diagnose a urinary tract infection.
- A urine specimen with "Mixed flora" cannot be used to meet the urine criterion.

- Additionally, the following excluded organisms cannot be used to meet the UTI definition:
    1. Candida species or yeast not otherwise specified
    2. Mold
    3. dimorphic fungi
    4. parasites

6.3.4 Risk factors for development of CAUTI

- The duration of catheterization is the most important risk factor for developing infection.
- Additional risk factors include female sex, older age, and not maintaining a closed drainage system.
- The drainage bag of the bacteriuric patient is a reservoir for organisms that may contaminate the environment and can be transmitted to other patients through the hands of healthcare personnel.

6.3.5 Prevention of urinary catheter infection

➢ Appropriate Urinary Catheter Use

I. Insert catheters only for appropriate indications and leave in place only as long as needed.

1. Minimize urinary catheter use and duration of use in all patients, particularly those at higher risk for CAUTI or mortality from catheterization such as women, the elderly, and patients with impaired immunity.

2.Use urinary catheters in operative patients only as necessary, rather than routinely

3.For operative patients who have an indication for an indwelling catheter, remove the catheter as soon as possible postoperatively, preferably within 24 hours, unless there are appropriate indications for continued use

Examples of Appropriate Indications for Indwelling Urethral Catheter

- Patient has an acute urinary retention or bladder outlet obstruction.
- Need for accurate measurements of urinary output in critically ill patients.
- Peri-operative use for selected surgical procedures: Patients undergoing urologic surgery or other surgery on contiguous structures of the genitourinary tract.
- Anticipated prolonged duration of surgery
- Patients anticipated receiving large-volume infusions or diuretics during surgery.
- Need for intra-operative monitoring of urinary output.
- To assist in healing of open sacral or perineal wounds in incontinent patients.
- Patient requires prolonged immobilization (e.g., potentially unstable thoracic or lumbar spine, multiple traumatic injuries such as pelvic fractures).
- To improve comfort for end of life care if needed.

Examples of Inappropriate Uses of Indwelling Catheters

- As a substitute for nursing care of the patient or resident with incontinence.
- As a means of obtaining urine for culture or other diagnostic tests when the patient can voluntarily void.
- For prolonged postoperative duration without appropriate indications (e.g., structural repair of urethra or contiguous structures, prolonged effect of epidural anesthesia, etc.)

II. Consider using alternatives to indwelling urethral catheterization in selected patients when appropriate

➢ Proper Techniques for Urinary Catheter Insertion

- Perform hand hygiene immediately before and after insertion or any manipulation of the catheter device or site.

- Ensure that only properly trained persons or juniors under the supervision of trained personnel, who know the correct technique of aseptic catheter, insertion and maintenance are given this responsibility.
- In the acute care hospital setting, insert urinary catheters using aseptic technique and sterile equipment. Use sterile gloves, an appropriate antiseptic or sterile solution for periurethral cleaning, and a single-use packet of lubricant jelly for insertion.
- Properly secure indwelling catheters after insertion to prevent movement and urethral traction.
- Unless otherwise clinically indicated, consider using the smallest bore catheter possible, consistent with good drainage, to minimize bladder neck and urethral trauma.

➢ Proper Techniques for Urinary Catheter Maintenance

1. Following aseptic insertion of the urinary catheter, maintain a closed drainage system.

If breaks in aseptic technique, disconnection, or leakage occur, replace the catheter and collecting system using aseptic technique and sterile equipment.

2. Maintain unobstructed urine flow

- Keep the catheter and collecting tube free from kinking.
- Keep the collecting bag below the level of the bladder at all times. Do not rest the bag on the floor.
- Empty the collecting bag regularly using a separate, clean collecting container for each patient; avoid splashing, and prevent contact of the drainage spigot with the non sterile collecting container. Do not touch the patient surroundings with the gloves used for emptying the urobag.
- Use Standard Precautions, including the use of gloves and gown as appropriate, during any manipulation of the catheter or collecting system.

- Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended. Rather, it is suggested to change catheters and drainage bags based on clinical indications such as infection, obstruction, or when the closed system is compromised.
- Unless clinical indications exist (e.g., in patients with bacteriuria upon catheter removal post urologic surgery), do not use systemic antimicrobials routinely to prevent CAUTI in patients requiring either short or long-term catheterization.
- Do not clean the peri urethral area with antiseptics to prevent CAUTI while the catheter is in place. Provide catheter care with 7% povidone iodine and rinse the site with 0.9% NS.
- Unless obstruction is anticipated (e.g., as might occur with bleeding after prostatic or bladder surgery) bladder irrigation is not recommended. If obstruction is anticipated, closed continuous irrigation is suggested to prevent obstruction.
- Routine irrigation of the bladder with antimicrobials is not recommended
- Routine instillation of antiseptic or antimicrobial solutions into urinary drainage bags is not recommended.
- Clamping indwelling catheters prior to removal is not necessary
- Obtain urine samples aseptically. If a small volume of fresh urine is needed for examination (i.e., urinalysis or culture), aspirate the urine from the junction between the urine port and balloon port after clamping the tubing/catheter with a sterile syringe/cannula adapter after cleansing the aspiration site with a disinfectant.

➢ Catheter change Interval

- Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended. Rather, it is suggested to change catheters and drainage bags based on clinical indications such as
  - ✓ Infection persisting after 2 days initiation of antibiotics.
  - ✓ Obstruction

- ✓ When the closed system is compromised

- ➢ If catheterization is indicated for longer duration, silicon catheter should be preferred.
- ➢ The urobag has to be changed when it become visibly soiled.
- ➢ Follow catheter insertion bundle checklist (AIMS/AAC/CS/ICU/39).

6.3.6 CAUTI prevention bundle

1. Follow sterile technique during catheterization
2. Maintain dependent and closed drainage system
3. Provide catheter care in thrice a day in ICU and twice a day in ward
4. Ensure proper placement of catheter at the anterior thigh to avoid contamination with feces.
5. Empty the urobag before positioning or transferring the patient.
6. Unnecessary catheters to be removed at the earliest.

6.3.7 CAUTI rates

$$\frac{\text{The number of CAUTIs for a location}}{\text{The number of Urinary Catheter Days for a location}} \times 1000$$

6.4 VENTILATOR ASSOCIATED EVENT (VAE)

Mechanical ventilation is an essential, life-saving therapy for patients with critical illness and respiratory failure. These patients are at high risk for complications and poor outcomes, including death. Ventilator-associated pneumonia (VAP), sepsis, Acute Respiratory Distress Syndrome (ARDS), pulmonary embolism, barotrauma, and pulmonary edema are among the complications that can occur in patients receiving mechanical ventilation; such complications can lead to longer duration of mechanical ventilation, longer stays in the ICU and hospital, increased healthcare costs, and increased risk of disability and death.

Ventilator associated pneumonia: A pneumonia where the patient is on mechanical ventilation for >2 calendar days on the date of event, with day of ventilator placement being Day 1 *,

AND

the ventilator was in place on the date of event or the day before.

*If the ventilator was in place prior to inpatient admission, the ventilator day count begins with the admission date to the first inpatient location.

6.4.1 VAE (Ventilator Associated Event) criteria

STEP 1: VAC (Ventilator- Associated Condition)

Daily min FiO2 increase ≥ 0.20 (20 points) for ≥ 2 days† OR Daily min PEEP increase ≥ 3 cm H2O for ≥ 2 days† †after 2+ days of stable or decreasing daily minimum values

STEP 2: IVAC (Infection-related Ventilator – Associated Complication)

Temperature > 38°C or < 36° OR White blood cell count ≥ 12,000 or ≤ 4,000 cells/mm3

AND

A new antimicrobial agent(s) is started, and is continued for ≥ 4 days

STEP 3: PVAP (Possible VAP)

Criterion #1: Positive culture of one of the following specimens, meeting quantitative or semi-quantitative thresholds as outlined in protocol,‡ without requirement for purulent respiratory secretions:

- □ Endotracheal aspirate
- □ Lung tissue
- □ Bronchoalveolar lavage
- □ Protected specimen brush

OR

Criterion #2: Purulent respiratory secretions‡ (defined in the protocol) plus organism(s) identified from one of the following specimens: ‡

- □ Sputum
- □ Lung tissue
- □ Endotracheal aspirate
- □ Protected specimen brush
- □ Bronchoalveolar lavage

OR

Criterion #3: One of the following positive tests (as outlined in the protocol): ‡

- □ Organism(s) identified from pleural fluid
- □ Diagnostic test for Legionella species
- □ Lung histopathology
- □ Diagnostic test for selected viral pathogens

‡collected after 2 days of mechanical ventilation and within +/- 2 days of onset of increase in FiO2 or PEEP.

Daily minimum PEEP: The lowest value of PEEP during a calendar day that is set on the ventilator and maintained for > 1 hour

Daily minimum FiO2: The lowest value of FiO2 during a calendar day that is set on the ventilator and maintained for > 1 hour.

6.4.2 Exclusion criteria

Excluded organisms that cannot be used to meet the VAP definition are as follows:

1. "Normal respiratory flora," "normal oral flora," "mixed respiratory flora," "mixed oral flora," "altered oral flora" or other similar results indicating isolation of commensal flora of the oral cavity or upper respiratory tract
2. The following organisms unless identified from lung tissue or pleural fluid specimens:
   i. Candida species* or yeast not otherwise specified
   ii. Coagulase-negative Staphylococcus species
   iii. Enterococcus species
3. Additionally, because organisms belonging to the following genera are typically causes of community-associated infections and are rarely or are not known to be causes of healthcare-associated infections, they are also excluded, and cannot be used to meet any NHSN definition: Blastomyces, Histoplasma, Coccidioides, Paracoccidioides, Cryptococcus and Pneumocystis.

6.4.3 Prevention of VAP in mechanically ventilated patients

- Adhere to hand hygiene guidelines
- Health care workers should wear a mask and an apron or gown when anticipates soiling of respiratory secretions from a patient. (eg. Intubation, tracheal suctioning, tracheostomy and bronchoscopy) and change it after the procedure and before providing care to another patient.
- Elevate head end of the bed 30-45 degrees of a patient on mechanical ventilation or at high risk for aspiration (eg. On oro or nasoenteral tube).
- Remove devices such as endotracheal, tracheostomy, oro or nasogastric tubes from patients as soon as they are not indicated.
- Perform orotracheal rather than nasotracheal intubation unless contraindicated
- Use non-invasive ventilation whenever possible

- Perform daily assessments of readiness to wean and use weaning protocols
- Avoid unplanned extubation and re intubation
- Use a cuffed endotracheal tube with in-line or subglottic suctioning
- Avoid histamine receptor blocking agents and proton pump inhibitors for patients who are not at high risk for developing stress ulcer or stress gastritis.
- Perform regular oral care with an antiseptic solution.
- Avoid gastric over distension
- Remove condensate from ventilator circuits. Keep the ventilator circuit closed during condensate removal.
- Change the ventilator circuit only when visibly soiled or malfunctioning
- Store and disinfect respiratory therapy equipment properly
- Follow Insertion Bundle Checklist(AIMS/AAC/CS/44)

6.5 SURGICAL SITE INFECTIONS (SSI)

SSIs were the most common healthcare-associated infection, accounting for 31% of all HAIs among hospitalized patients. While advances have been made in infection control practices, including improved operating room ventilation, sterilization methods, barriers, surgical technique, and availability of antimicrobial prophylaxis, SSIs remain a substantial cause of morbidity, prolonged hospitalization, and death. SSI is associated with a mortality rate of 3%, and 75% of SSI associated deaths are directly attributable to the SSI. Surveillance of SSI with feedback of appropriate data to surgeons has been shown to be an important component of strategies to reduce SSI risk.

6.5.1 Surgical wound classification

1. Clean: An uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital, or uninfected urinary tracts are not entered. In addition, clean wounds are primarily

closed and, if necessary, drained with closed drainage. Operative incisional wounds that follow non-penetrating (blunt) trauma should be included in this category if they meet the criteria.

2. Clean-Contaminated: Operative wounds in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina, and oropharynx are included in this category, provided no evidence of infection or major break in technique is encountered.

3. Contaminated: Open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (e.g., open cardiac massage) or gross spillage from the gastrointestinal tract, and incisions in which acute, non purulent inflammation is encountered including necrotic tissue without evidence of purulent drainage (e.g., dry gangrene) are included in this category.

4. Dirty or Infected: Includes old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

6.5.2. Surgical site infection criteria

6.5.2.1. Surveillance periods for SSI:

Following Selected NHSN Operative Procedure Categories. Day 1 = the date of the procedure.

30-DAY SURVEILLANCE

Sl.No	Operative Procedure
	Abdominal aortic aneurysm repair
	Limb amputation
	Appendix surgery
	Shunt for dialysis
	Bile duct, liver or pancreatic surgery

Carotid endarterectomy
Gallbladder surgery
Colon surgery
Cesarean section
Gastric surgery
Heart transplant
Abdominal hysterectomy
Kidney transplant
Laminectomy
Liver transplant
Neck surgery
Kidney surgery
Ovarian surgery
Prostate surgery
Rectal surgery
Small bowel surgery
Spleen surgery
Thoracic surgery
Thyroid and/or parathyroid surgery
Vaginal hysterectomy
Exploratory Laparotomy

90-DAY SURVEILLANCE

SL. No	Operative Procedure
1.	Breast surgery
2.	Cardiac surgery
3.	Coronary artery bypass graft with both chest and donor site incisions
4.	Coronary artery bypass graft with chest incision only
5.	Craniotomy
6.	Spinal fusion
7.	Open reduction of fracture
8.	Herniorrhaphy
9.	Hip prosthesis
10.	Knee prosthesis
11.	Pacemaker surgery
12.	Peripheral vascular bypass surgery
13.	Ventricular shunt

6.5.2.2. Superficial incisional SSI- Must meet the following criteria:

Date of event for infection occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date)

AND

involves only skin and subcutaneous tissue of the incision

AND

patient has at least ***one*** of the following:

a. purulent drainage from the superficial incision.

b.organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment.

c.superficial incision that is deliberately opened by a surgeon, attending physician or other designee and culture or non-culture based testing is not performed.

AND

patient has at least one of the following signs or symptoms: pain or tenderness; localized swelling; erythema; or heat.

d. diagnosis of a superficial incisional SSI by the surgeon or attending physician or other designee.

There are two specific types of superficial incisional SSIs:

1.Superficial Incisional Primary (SIP) – a superficial incisional SSI that is identified in the primary incision in a patient that has had an operation with one or more incisions (for example, C-section incision or chest incision for CABG)

2. Superficial Incisional Secondary (SIS) – a superficial incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (for example, donor site incision for CABG)

6.5.2.3. Deep incisional SSI:

Must meet the following criteria

The date of event for infection occurs within 30 or 90 days after the NHSN operative procedure (where day 1 = the procedure date)

AND

involves deep soft tissues of the incision (for example, fascial and muscle layers)

AND

patient has at least one of the following:

a. purulent drainage from the deep incision.

b. a deep incision that spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, attending physician or other designee

AND

organism is identified by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment or culture or non-culture based microbiologic testing method is not performed

AND

patient has at least one of the following signs or symptoms: fever (>38°C); localized pain or tenderness. A culture or non-culture based test that has a negative finding does not meet this criterion.

c. an abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathologic exam, or imaging test.

There are two specific types of deep incisional SSIs:

1. Deep Incisional Primary (DIP) – a deep incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (for example, C-section incision or chest incision for CABG)
2. Deep Incisional Secondary (DIS) – a deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (for example, donor site incision for CABG)

6.5.2.4. Organ/Space SSI:

Must meet the following criteria:

Date of event for infection occurs within 30 or 90 days after the NHSN operative procedure (where day 1 = the procedure date)

AND

infection involves any part of the body deeper than the fascial/muscle layers, that is opened or manipulated during the operative procedure

AND

patient has at least one of the following:

a. purulent drainage from a drain that is placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, CT guided drainage)

b.organisms are identified from fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment.

c.an abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test evidence suggestive of infection.

AND

meets at least one criterion for a specific organ/space infection site listed in Table 3

Table 3. Specific Sites of an Organ/Space SSI.

S.No	Site	S.No	Site
1	Osteomyelitis	**13**	Mediastinitis
2	Breast abscess or mastitis	**14**	Meningitis or ventriculitis
3	Myocarditis or pericarditis	**15**	Oral cavity (mouth, tongue, or gums)
4	Disc space	**16**	Other infections of the male or female reproductive tract

5	Ear, mastoid	**17**	Periprosthetic Joint Infection
6	Endometritis	**18**	Spinal abscess without meningitis
	Endocarditis	**19**	Sinusitis
8	GI tract	**20**	Upper respiratory tract
9	Intraabdominal	**21**	Urinary System Infection
10	Intracranial, brain abscess or dura	**22**	Arterial or venous infection
11	Joint or Bursa	**23**	Vaginal cuff
12	Other infections of the lower respiratory tract		

Exclusion criteria

1. Diagnosis/treatment of cellulitis, by itself, does not meet criterion 4 for superficial incisional SSI.
2. A stitch abscess alone (minimal inflammation and discharge confined to the points of suture penetration) is not to be reported as an SSI.
3. A localized stab wound infection is not to be reported as SSI, instead report as skin (SKIN), or soft tissue (ST), infection, depending on its depth.
4. Report infection of the circumcision site in new- born as CIRC.
5. Infected burn wound is reported as BURN, not SSI.

6.5.3 Prevention of postoperative wound infections

Preparation of the patient:

- Whenever possible, identify and treat all infections remote to the surgical site before elective operation and postpone elective surgeries on patients with remote site infections until the infection has resolved

- Keep preoperative hospital stays as short as possible while allowing for adequate preoperative preparation.
- Encourage nonsmoking/use of cigarettes, cigars, pipes, or any other form of tobacco consumption for at least 30 days prior to the surgery.
- Do not withhold necessary blood products transfusion.
- Serology of patients screened within three months is only acceptable.

Antibiotic prophylaxis: Administer a prophylactic antibiotic agent only when indicated, and select it based on its efficacy against the most common pathogens causing SSI for a specific operation.

- Administer by IV route the initial dose of prophylactic antibiotic agent, time such a bacterial concentration of the drug is established in serum and tissues when the incision is made. Maintain therapeutic levels of the agent in serum and tissues throughout the operation and until at most a few hours after the incision is closed in the operating room. In most cases, antibiotic should be given within 60 minutes before the incision and the antibiotics should be stopped within 24 hours after surgery.
- In clean and clean-contaminated procedures, do not administer additional prophylactic antimicrobial agent doses after the surgical incision is closed in the operating room, even in the presence of a drain.

Skin Preparation: Do not remove hair at the operative site unless it will interfere with the operation preferably using electric clippers not razor blades.

Skin care: pre operative scrub with 4% Chlorhexidine gluconate on the previous night and the day of surgery.

Glycemic control: Implement peripoerative glycemic control and use blood glucose target levels less than 200 mg/dl in patients with and without diabetes.

Normothermia: Maintain perioperative normothermia. Maintain immediate postoperative normothermia

Skin disinfection: It is essential that the operating site is well disinfected before incision. A rapid reduction of skin flora is required. Alcoholic solutions containing long acting skin disinfectants such as Chlorhexidine or 10% Povidone Iodine is preferred. Apply preoperative antiseptic skin preparation in concentric circles moving towards the periphery. The prepared areas should be large enough to extend the incision or create new incisions or drain sites, if necessary.

During Surgery: Keep OR doors closed during surgery except as needed for passage of equipment, personnel, and the patient

Theatre Staff: Excessive presence and movement of staff contributes to an increase in air-borne bacterial particles. In the case of bacterial skin infections dispersal of pathogens (S. Aureus, beta-hemolytic streptococci) may be large. It is advisable to keep the operating theatre staff to the essential minimum(14). Staff with a boil or septic lesion of the skin or eczema colonized with Staphylococcus aureus should not be allowed in the theatre.

Asepsis and Surgical Technique:

- Adhere to principles of asepsis when intravascular devices, spinal or epidural anesthesia catheters, or when dispensing and administering intravenous drugs.
- Assemble sterile equipment and solutions immediately prior to use.

Surgical attire and drapes:

- Wear a surgical mask that fully covers the mouth and nose when entering the operating room if an operation is about to begin or already under way, or if sterile instruments are exposed. Wear the mask throughout the operation.
- Wear a cap or hood to fully cover the hair on the head and face when entering the operating room.
- Wear sterile gloves if a scrubbed surgical team member. Put on gloves after donning a sterile gown.

- Use surgical gowns and drapes that are effective barriers when wet.
- Change scrub suits that are visibly soiled, contaminated, and/or penetrated by blood or other potentially infectious materials.

Sterilization of surgical instruments: Sterilize all surgical instruments according to guidelines

Post-operative incision care:

- Protect with a sterile dressing 24 to 48 hours post operatively an incision that has been closed primarily.
- Wash hands before and after dressing changes and any contact with surgical site.
- Use sterile technique to change incision dressing
- Educate the patient and family regarding proper incision care, symptoms of surgical site infection and the need to report such symptoms.

Transportation of patients with drainage or shunt:

a) Maintain a closed sterile drainage system during transportation

b) Make sure that the drainage bag is closed with the attached cork/ spiget.

c) Avoid disconnection while transporting.

d) Do not raise the drainage bag or bottle above the level of the body cavity from which drainage is connected.

e) Do not clamp the drainage tubes or catheter or do anything to disrupt the drainage system.

f) Use portable stands/ holders for drainage bottle/ bags while transporting a patient with intercostals.

Shunts: - make sure that the shunt is covered with sterile dressing during transportation.

Microbiological sampling: Routine environmental sampling of the patient room is not required. Perform microbiological sampling of environment surfaces or air as part of epidemiological investigation.

Cleaning and disinfection of environmental surfaces: When visible soiling or contamination with blood or other body fluids of surfaces or equipments occurs during an operation, use approved hospital disinfectant to clean the affected areas before next operation.

6.6. CENTRAL LINE ASSOCIATED BLOOD STREAMINFECTION (CLABSI)

Definitions Specific to BSI / CLABSI Surveillance:

Primary bloodstream infection (BSI): A Laboratory Confirmed Bloodstream Infection (LCBI) that is not secondary to an infection at another body site, Pneumonia, and SSI.

Secondary BSI: A BSI that is thought to be seeded from a site-specific infection at another body site, UTI, Pneumonia, and SSI.

Secondary BSI Attribution Period (SBAP): the period in which a blood specimen must be collected for a secondary BSI to be attributed to a primary site of infection. This period includes the Infection Window Period (IWP) combined with the Repeat Infection Timeframe (RIT). It is 14-17 days in length depending upon the date of event

Central line (CL): An intravascular catheter that terminates at or close to the heart, OR in one of the great vessels that is used for infusion, withdrawal of blood, or hemodynamic monitoring. Consider the following great vessels when making determinations about CLABSI events and counting CL device days:

•Aorta •Pulmonary artery •Superior vena cava •Inferior vena cava •Brachiocephalic veins •Internal jugular veins •Subclavian veins •External iliac veins •Common iliac veins •Femoral veins •In neonates, the umbilical artery/vein.

Types of Central Lines:

1. Permanent central line: Includes:
   a. Tunneled catheters, including tunneled dialysis catheters
   b. Implanted catheters (including ports)
2. Temporary central line: A non-tunneled, non-implanted catheter
3. Umbilical catheter: A vascular catheter inserted through the umbilical artery or vein in a neonate. All umbilical catheters are central lines.

Eligible Central Line: A CL that has been in place for more than two consecutive calendar days (on or after CL day 3), following the first access of the central line, in an inpatient location, during the current admission.

Devices Not Considered CLs:

Arterial catheters • Arteriovenous fistula • Arteriovenous graft Atrial catheters (also known as transthoracic intra-cardiac catheters, those catheters inserted directly into the right or left atrium via the heart wall) • Extracorporeal membrane oxygenation (ECMO) • Hemodialysis reliable outflow (HERO) dialysis catheter • Intra-aortic balloon pump (IABP) devices • Peripheral IV or Midlines • Ventricular Assist Device (VAD)

Common Pathogens Associated with CLABSI:

- Coagulase Negative Staphylococci
- Staphylococcus aureus
- Enterococcus spp.
- E.coli
- Enterobacter spp.
- Pseudomonas aeruginosa
- Klebsiella spp.
- Candida spp.

Signs and Symptoms of CLABSI

- Fever (>100.4°[>38ºc], chills, or hypo tension, and any skin contaminants
- Exit site infection
- Erythema or indurations with in 2 cm of the catheter exit site
- Bacteremia/fungemia in a patient with an intravascular catheter with atleast one positive blood culture obtained from a peripheral vein, clinical manifestation of infection (fever, chills, and/or hypotension), and no apparent source for the BSI except the catheter.

Prevention of central venous catheter infection:-

Hand washing

- Wash hands thoroughly before the central venous cannulation. Hand washing should be like for a surgical procedure.
- Barrier precautions during catheter insertion
- Use sterile gowns and gloves, a mask/faceshield and a large drape for the insertion of central venous catheter.

Optimal catheter site selection

Risk and benefits inherent to the subclavian, internal jugular and femoral catheterization should be considered. Catheters inserted through the subclavian route have a lower incidence of infection as compared to the internal jugular cannulation. Femoral catheters have the highest rates of infections.

7. PREVENTION AND CONTROL OF HEALTH CARE ASSOCIATED INFECTION (Care of invasive devices)

This section deals care of patients with indwelling devices (vascular, respiratory and urinary). Wound care is also included in this section because similar principles are involved.

7.1 VASCULAR CARE

7.1.1 Prevention of Central line Associated Infections

Promptly remove unnecessary central lines

1. Perform daily audits to assess whether each central line is still needed

Follow proper insertion practices

2. Perform hand hygiene before insertion
3. Adhere to aseptic technique
4. Use maximal sterile barrier precautions(i.e. mask, cap, gown, sterile gloves and full body drape)
5. Perform skin antisepsis with 2% Chlorhexidine with alcohol
6. Choose the best site to minimize infections and mechanical complications
7. Avoid femoral site in adult patients
8. Cover site with sterile gauze or sterile, transparent, semi-permeable dressings

Handle and maintain central lines appropriately

- Comply with hand hygiene requirements
- Use a split-spectrum needleless access port to reduce chance of infections

- Scrub access port or hub immediately prior to each use with an appropriate antiseptic Chlorhexidine 2%
- Access catheters only with sterile devices(Use sterile pre-filled devices for flushing)
- Replace dressings that are wet, soiled, or dislodged
- Perform dressing changes under aseptic technique using clean or sterile gloves

Hand washing: Perform hand hygiene procedures, either by washing hands with conventional soap and water or with alcohol-based hand rubs. Hand hygiene should be performed before and after palpating catheter insertion sites as well as before and after inserting, replacing, accessing or dressing an intravascular catheter.

Maximal Sterile Barrier Precautions:

Use maximal sterile barrier precautions, including the use of a cap, mask, sterile gown, sterile gloves, and a sterile full body drape, for the insertion of Central venous catheters (CVC).

Preparation of Skin:

- Prepare clean skin with a 2% Chlorhexidine preparation with alcohol before central venous catheter and peripheral arterial catheter insertion and during dressing changes. An analysis based on available evidence suggested that the use of Chlorhexidine, rather than Povidone Iodine, for CVC care would result in a decrease in the incidence of CLABSI.
- Antiseptics should be allowed to dry according to the manufacturer's recommendation prior to placing the catheter.

Catheter Site Dressing Regimens:

- Use sterile, transparent, semi permeable 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
- Dressing should be changed under aseptic technique with chlorhexidine or povidine 10%
- Use topical antibiotic ointment or creams on insertion sites, except for dialysis catheters, because of their potential to promote fungal infections and antimicrobial resistance
- Do not submerge the catheter or catheter site in water. Showering should be permitted if precautions can be taken to reduce the likelihood of introducing organisms into the catheter
- Replace dressings used on short-term CVC sites at least every 7 days for transparent dressings or when it soiled, except in those pediatric patients in which the risk for dislodging the catheter may outweigh the benefit of changing the dressing
- Replace transparent dressings used on tunneled or implanted CVC sites no more than once per week (unless the dressing is soiled or loose), until the insertion site has healed.
- No recommendation can be made regarding the necessity for any dressing on well-healed exit sites of long-term cuffed and tunneled CVCs.
- Ensure that catheter site care is compatible with the catheter material
- Use a sterile sleeve for all pulmonary artery catheters
- Monitor the catheter sites visually when changing the dressing or by palpation through an intact dressing on a regular basis, depending on the clinical situation of the individual patient. If patients have tenderness at the insertion site, fever without obvious source, or other
- manifestations suggesting local or bloodstream infection, the dressing should be removed to allow thorough examination of the site
- Encourage patients to report any changes in their catheter site or any new discomfort to their provider

- Do dressings on CVC sites, when it contaminated.

Replacement of Central IV Catheters: Central IV catheters do not require routine removal and reinsertion until there is no sign of catheter related infection or other complications.

7.1.2 Peripheral IV sites (Short term catheters):

Replacement of Peripheral IV Catheters: -

- Peripheral IV Catheters should be removed 96 hours after insertion or may be kept longer if VIP score is 0 with proper documentation.
- Write the date and time of insertion on the IV site dressing.
- In case of any IV complications found, a new peripheral IV catheter should be inserted at a new site and reported to HICD in a given format.

SL No	Date	Age	Sex	Hosp No	Cannula insertion Date & Time	Company name	Cannulation done by	Size of cannula	Site	Cannula removal reason Date, and time	VIP score	Name/ List of Injections/Infusions given through cannula

VIP (VISUAL INFUSION PHLEBITIS) SCORE ANALYSIS

Criteria	Score	Remarks
IV site appears healthy	0	• No signs of phlebitis • Observe cannula
One of the following signs is evident: • Slight pain near IV site OR Slight redness near IV site	1	• Possibly first signs of phlebitis • Observe cannula
TWO of the following are evident: • Pain at IV site • Redness • Swelling	2	• Early stage of phlebitis • Re site cannula
ALL of the following signs are evident: • Pain along path of cannula • Redness around site • Swelling	3	• Medium stage of phlebitis • Re site cannula • Consider treatment
ALL of the following signs are evident and extensive: • Pain along path of cannula • Redness around site • Swelling Palpable venous cord	4	• Advanced stage of phlebitis • or the start of thrombophlebitis • Re site cannula • Consider treatment
ALL of the following signs are evident and extensive: • Pain along path of cannula	5	• Advanced stage thrombophlebitis • Initiate treatment

• Redness around site • Swelling • Palpable venous cord ➢ Pyrexia		• Resite cannula

Dressing Changes: Wet or soiled dressing is changed if necessary. Remove carefully to preserve line.

Frequency of flushing is recommended every 8th hourly. Before & after every drug administration, check the patency. 0.9% NaCl or posiflush are used for flushing, never use sterile water for flushing.

Flushing of a peripheral IV catheter with or without extension

• 1 ml for assessing — Medication —2ml for clearing & locking

Flushing of a peripheral IV catheter with or without extension for multiple medications

• 1 ml for assessing - Medication —2mL for clearing —Medication — 2ml for locking

7.2 RESPIRATORY CARE

In addition to the general guidelines that are to be adhered to, the following should also be noted with regard to respiratory care:

Mouth flora influences development of health care associated pneumonia in ventilated patients. Frequent Chlorhexidine mouth washes minimize the chances of pneumonia.

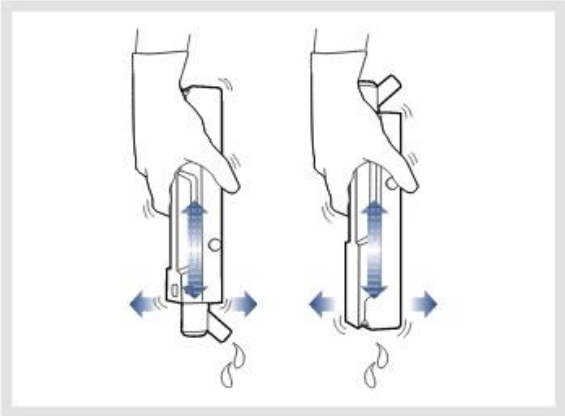
i) Ventilator

- Sterile water is to be used in humidifiers if oxygen therapy prescribed more than 8litres or else upon request by patient. This should be changed daily.

- Pneumatic circuits (masks, Y connection and tubes) are to be changed when visibly soiled. Condensate in tubing should not be drained into the humidifier or airway as they contain large numbers of pathogenic organisms. This should be drained only into water traps. Use disposable circuits if cost permits.
- Use heat and moisture exchanging filter (HMEF) at Y connection for all patients if feasible and cost permits. Heat and moisture exchanging filter (HMEF) to be changed every 24 hours.
- Change the bacterial filter – servo guard (24 hrs) and servoduoguard (72hrs)
- **Ventilator cassette cleaning:**

I. Pour high level disinfectant inside the cassette and close one of the opening for 5 min (OPA) and 20 min (HOSPAL/CIDEX)

II. After high level disinfection pour water inside the cassette and rinse it thoroughly remove all traces of disinfectant. Carefully shake and tilt the cassette, turn upside down and repeat at least 5-7 times.



III. Dry the cassette in room air, depending on surrounding conditions.

IV. If bacterial filter was not used, sent the cassette for ETO sterilization.

- Oxygen masks, venturi devices and nebulizer chambers are cleaned carefully with 70% isopropyl alcohol.
- Ambu bags are cleaned thoroughly and are then sent for Ethylene Oxide gas sterilization.
- Although routine microbiological surveillance of respiratory therapy equipment is NOT required, it is however necessary for the epidemiological evaluation of an outbreak.

ii) Tracheostomy Care

- The patient with a Tracheostomy is at risk for health care associated pneumonia since this procedure bypasses the nasopharyngeal defense mechanisms.
- Tracheostomy should be an elective procedure. This procedure should be done in an operating room, under sterile conditions, unless there are strong clinical indications for an emergency or bedside operation. Sterile technique must be used at the bedside.
- Careful attention to post-operative wound care is mandatory.
- The patient should receive aerosol therapy to prevent desiccation of the tracheal and bronchial mucosa or the formation of crusts. The skin around the tracheostomy tube should be cleaned with Betadine (Povidone-iodine 10%) in every shift or as per the condition of the patient.
- In the case of metal tracheostomy tubes, the inner cannula should be cleaned every shift and more often if necessary to prevent the formation of crusts. The inner cannula is cleaned with water, immersed in hydrogen peroxide for 15 minutes and then rinsed with distilled water and normal saline. The plastic tracheostomy tubes are removed, another plastic tube is inserted, and the tube is cleaned, with hydrogen peroxide and rinsed well with normal saline before reuse.
- The tracheostomy tape should be changed every 24 hours. This tape must be tied securely at all times.

- The first complete tube change should be performed no earlier than 4-5 days to allow time for the tract to be formed. Subsequent changes should be done weekly or as necessary.

iii) Suctioning of Endotracheal/Tracheostomy tube

Suctioning of the tracheostomy tube should be done frequently to ensure that the airway is free of secretions. However, too frequent or excessive suctioning may irritate the trachea bronchial tree. Employees should be instructed and supervised by trained personnel in proper technique before performing this procedure on their own. Assess the patient by auscultation, ECG (if available) and vital signals prior to suctioning.

a. Sterile Suctioning

1. Wash your hands
2. Aprons, gloves, and goggles/ faceshield should be worn to reduce the risk of infection.
3. Use a sterile catheter with a blunt tip.

The wall suction should be set between 80 and 150 mmHg for adults and between 60 and 80 IU mm of Hg for children.

4. Disinfectant solution is not recommended in suction jar while doing procedure.
5. Attach the suction catheter to the suction tubing; do not touch the catheter with bare hands. (Leave it in its protective covering).
6. Put on sterile gloves. The wearing of a mask is also strongly recommended.
7. However, if saline does need to be instilled, ½ cc of sterile saline is put into the tracheostomy tube on inspiration only.

8. If on a respirator, pre -oxygenate the patient by connecting the resuscitation bag to the artificial airway and ventilating the patient with three or four deep breaths. A mechanical ventilator on 100% oxygen may also be used by depressing the manual ventilation button three or four times.
9. Insert the catheter gently through the inner cannula until resistance is met. Do not apply suction during insertion.
10. With draw the catheter approximately 1cm and institute suctioning.
11. Carefully withdraw the catheter, rotating it gently between the thumb and forefinger applying intermittent suctioning.
12. The recommended practice suggests that suctioning should take between 10 and 15 s to perform, as longer durations are associated with an increased risk of hypoxaemia and trauma.
13. The patient should be given time to rest between suctioning episodes. If possible, this time should be from two to three minutes. If the patient is receiving oxygen or ventilator support, reapply the oxygen or ventilator for at least two minutes before re-suctioning.
14. Observe for unfavorable reactions such as increased heart rate, hypoxia, arrhythmia, hypotension, cardiac arrest etc.
15. If oral suctioning is necessary, it should be done after the tracheostomy is suctioned.
16. When suctioning is completed, clear the catheter and tubing of mucus and debris with sterile water or saline. Suctioning catheter is single use item, it should be discarded after use. Sterile catheter should be used for each suctioning.
17. Empty the suction jar after the procedure, disinfectant and keep it dry.
18. Discard the catheter, water container, and gloves appropriately.
19. Wash hands.
20. The suction canister should be changed when it is filled one third .The canister should be labeled with the date and time when they are changed. The canister should be disinfect with 1%

Lysoformin solution for 20min, rinse with water and dry before use. If debris adheres to the side of the tubing or the canister, either or both should be changed. The tubing should be secured between suctioning periods so that it will not fall to the bed, floor etc.

7.3 URINARY CATHETER

The urinary tract is a common site of nosocomial infection. Proper technique of inserting and maintaining an indwelling catheter will reduce the chance of nosocomial infection.

Catheter associated urinary tract infection (CAUTI) is caused by a variety of pathogens, including E. coli, Klebsiella, Proteus and Pseudomonas. Many of the micro-organisms are part of the patient's endogenous bowel flora, but they can also be acquired by cross contamination from other patients or hospital personnel or by non -sterile techniques.

Urethral Catheterizations

Catheter Use: Urinary catheters should be inserted only when necessary and left in place only as long as medically necessary. They should not be used solely for the convenience of patient-care personnel. For selected patients, other methods of urinary drainage such as condom catheter drainage, supra pubic catheterization, intermittent urethral catheterization, and adult disposable diaper pads can be useful alternatives to indwelling urethral catheterization. Unless obstruction is anticipated, bladder irrigation is not recommended.

Hand washing: Hand washing should be done immediately before and after any manipulation of the catheter site or apparatus.

Ensure that only properly trained persons or juniors under the supervision of trained personnel, who know the correct technique of aseptic catheter, insertion and maintenance are given this responsibility.

Catheter Insertion: Catheters should be inserted using aseptic technique and sterile equipment. Use an appropriate antiseptic solution (Povidone iodine) for peri urethral cleaning. Cleaning should be done inside to outside so as not to contaminate the urethra.(Refer: Nursing Manual)

Fix the Catheter: Strapping of the catheter is done to the inner aspect of the thigh. This is to prevent direct transmission of the weight of the bag on the catheter, so that pulling and inadvertent dislodgment of the catheter does not occur. This also helps to prevent stricture of the penile urethra in males if the patient is on a catheter for a long duration.

Catheter Change Interval: Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended. Rather, it is suggested to change catheters and drainage bags based on clinical indications such as

- Infection persisting after 2 days initiation of antibiotics.
- Obstruction
- When the closed system is compromised
- If catheterization is indicated for longer duration, silicon catheter should be preferred.
- The urobag has to be changed when it become visibly soiled.
- Label the date and time of insertion on urobag.
- Follow catheter insertion bundle checklist (AIMS/AAC/CS/ICU/39).

Transportation of a patient with a urinary catheter

1. The urine collecting bag has straps; make sure that these are untied before shifting the patient to avoid inadvertent pulling of the catheter with resultant trauma.

2. During transit, maintain the closed drainage system. Empty urine bag before transport and record volume of urine.

3. Though most of the commercially available urine bags have a non-return valve, maintain the level of the urine bag below the level of the bladder during transit. This is to ensure that no reflux of urine occurs from either the tubing or the bag, back into the bladder.

4. Avoid inadvertent clamping or occluding of catheter or the tubing. See that the urine bag does not get entrapped beneath the patient himself. Ensure that continuous bladder drainage is maintained throughout the transit period.

6. Check on the patency of the catheter to ensure continuous bladder drainage especially for patients who have undergone urinary bladder surgery.

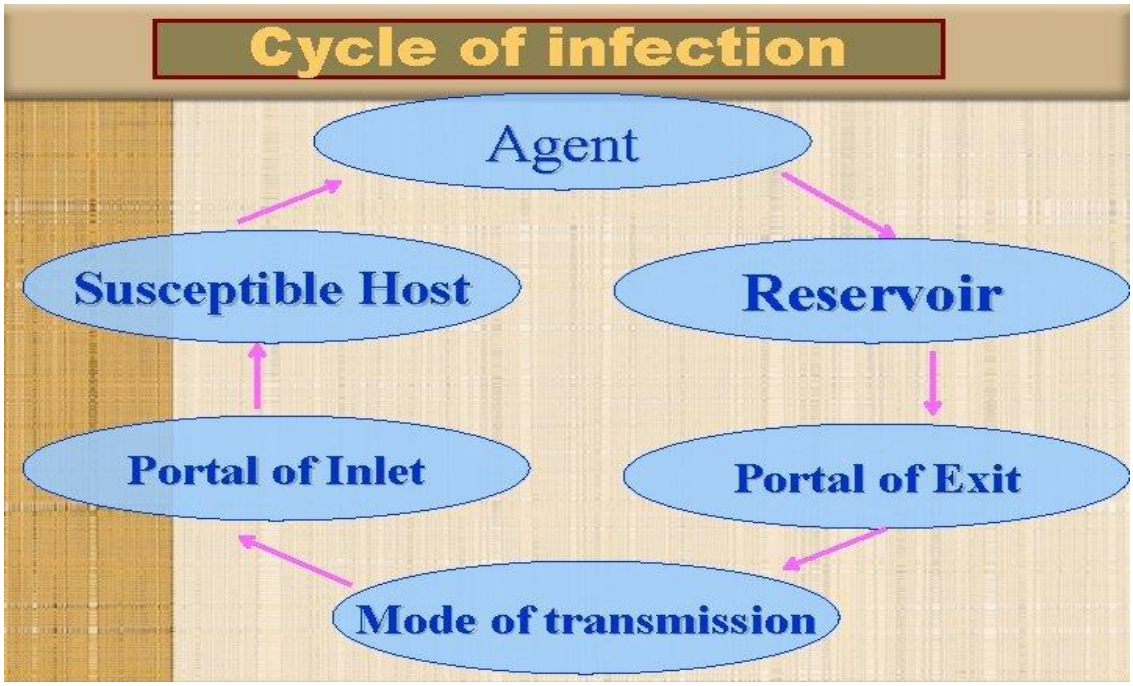
7. Look for position, and ensure a closed drainage system on receiving the patient. Also note the volume and character of urine. Maintain intake and output chart for all patients.

8. ISOLATION POLICIES AND PROCEDURES

Isolation is the separation of a patient from contact with others in order to control the spread of an infectious or communicable disease. Patients are isolated according to the mode of transmission of the disease.

8.1 RATIONALE FOR ISOLATION PRECAUTIONS IN HOSPITAL

Isolation practices are meant to prevent transmission of pathogenic micro-organisms within the hospital. Transmission of infection within a hospital requires three elements: a source of infecting micro-organisms, a susceptible host, and a means of transmission for the micro-organism.



Source: Human sources of the infecting micro-organisms in hospitals may be patients, health care workers (HCW), or, on occasion visitors, and may include persons with acute disease, persons in the incubation period of a disease, persons who are colonized by or are chronic carriers of an infectious agent. Other sources of infecting micro-organisms can be the patient's own endogenous flora, and inanimate environmental objects (equipment and medications) that have become contaminated.

Host: Resistance among persons to pathogenic microorganisms varies greatly. Host factors such as age, underlying diseases; treatment with antimicrobials, corticosteroids or other immunosuppressive agents; irradiation; and breaks in the first line of defense mechanisms caused by such factors as surgical operations, anesthesia and indwelling catheters may render patients more susceptible to infection.

Transmission: Micro-organisms are transmitted by five main routes:

- ✓ Transmission based precautions:-Contact, droplet, airborne (Refer: Chapter 5)
- ✓ common vehicle
- ✓ vector-borne

Common vehicle and vector-borne transmissions play only insignificant role in health care associated infections.

8.2 BARRIER NURSING (Refer: Chapter 5)

8.3 ISOLATION POLICY FOR SPECIAL GROUPS OF ORGANISMS

A. Methicillin Resistant Staphylococcus Aureus (MRSA):

MRSA is increasing in the hospital environment. In turn it increases the chances of someone carrying it. And this can cause serious consequences for people whose immune systems are under stress.

These organisms are resistant to commonly used antibiotics. Incidence of MRSA varies from 6-50% in different countries and in India 20-30%

Source of MRSA in the Hospital

- Infected or colonized patient.
- Hospital personnel form link for transmission between colonized and infected patients.
- Hospital staff carriers.

Mode of Transmission

- Via hands -Contact with infected or colonized patient.
- Colonized or infected body sites of personnel themselves.
- Devices, Items or Environmental surfaces contaminated with body fluids containing MRSA.

Control of MRSA

- Frequent hand washing and contact precautions.
- Good infection control procedure-room surface disinfection.
- Appropriate & prudent antibiotic use(Mupirocin intranasal).
- Follow MRSA decolonization protocol

Identification and Screening of an MRSA Patient

- If a patient is reported as MRSA positive, screening test should be performed to identify the carrier state as soon as possible.

Staff Screening

- The screening of staff for MRSA is not routinely performed.
- The staff members of a clinical unit with increased MRSA incidence will be screened for MRSA carrier state.

General Protocol

1. Admission to an isolation room (if needed) in case of respiratory or surgical site infection.
2. Cover the lesion if any
3. Collect visible soiled dressing or linen separately and label as infected and send to laundry.

4. Follow strict standard precautions (gloves, mask and gown) according to the site of infection.
5. Perform body wash with Chlorhexidine (4%) solution for 5days
6. Inform Infection Control Dept.
7. Use separate articles (e.g.: – BP apparatus, thermometer, ointment etc) for caring the patient
8. Hospital staff who comes into contact with patients should maintain high standards of hygiene
9. Follow strict hand hygiene. Perform hand hygiene before and after all patient contacts – WASH IN and WASH OUT.
10. Wash staff uniform daily.
11. Biomedical waste should be collected separately(yellow waste bin)
12. After discharge /transfer/death, clean the room including all articles curtains, carpet etc in the room thoroughly with sodium hypochlorite.

B. Pulmonary tuberculosis:

- Respiratory precautions should be taken for smear positive tuberculosis patients.
- A separate room is recommended only for adult patients with sputum/AFB positive pulmonary tuberculosis.
- Ensure to use respiratory protection(N-95mak)
- After discharge, room should be disinfected by fogging followed by cleaning..

C.HIV/ HBsAg / HCV infected patients: Refer Chapter No:4

D. Infection control measure VRE or Multi drug resistant cases.

a. Isolate any patients in single room.

b. Investigate any outbreak:

i. Other patients.

ii. Staff

c. Educate staff on hand washing, caring skin lesions, and anti-biotic use.

E. H1N1

- Patients with known or suspected H1N1 should be placed on Droplet Precautions (private room).
- Healthcare workers should don a mask (surgical mask or N95 respirator) prior to entering a room of a suspected or confirmed H1N1 patient and wear the mask even if the patient is also masked.
- An N95 respirator and face shield should be used by all healthcare workers when performing cough-inducing procedures (e.g., nasopharyngeal swabs, bronchoscopy, nebulized medications, breathing treatments etc.).
- A single mask (surgical mask or N95 respirator) should be used for an entire shift by the individual employee. When not in-use, masks should be stored in a clean zip-lock or paper bag labeled with the employee's name. They need to be discarded only if they are torn, thoroughly wet or visibly soiled.
- If the patient must travel for a procedure, the receiving area should be notified prior to transport and the patient should wear a surgical mask while outside of their room.
- Perform hand hygiene before and after all patient contacts – WASH IN and WASH OUT.

F. Chicken pox (Varicella zoster)

- Follow standard precautions plus airborne precautions (negative air-flow rooms) and contact precautions until lesions are dry and crusted.
- If negative air-flow rooms are not available, patients with varicella should be isolated in closed rooms with no contact with persons without evidence of immunity.

- Patients with varicella should be cared for by staff with evidence of immunity. If immunized staff not available, should be use N95 MSK.

8.4 REVERSE ISOLATION CATEGORY

- The purpose of reverse isolation category is to prevent infections in the immunocompromised patients. The principle is to prevent contact between pathogenic micro-organisms from HCWs or fomites and susceptible patients who have severely impaired resistance.
- Diseases that require reverse isolation are-
  - Severe neutropenia
  - Leukemia and other malignancies
  - Organ and tissue transplant patients
  - Patients on immunosuppressive therapy
  - Burns and extensive wounds susceptible to infection

8.5 TYPE AND DURATION OF PRECAUTIONS RECOMMENDED FOR SELECTED INFECTIONS AND CONDITIONS

Infection/Condition	Type of Precaution	Duration of Precaution /Comments
Acquired human immunodeficiency syndrome (HIV)	Standard	Post-exposure chemoprophylaxis for some blood exposure.
Anthrax	Standard	

Clostridium difficile (see gastroenteritis, *C. difficile*)	Contact + Standard	Duration of illness
Cholera	Standard	Duration of illness
Conjunctivitis	Standard	
Cytomegalovirus infection, including in neonates and immunosuppressed patients	Standard	
Dengue fever	Standard	Not transmitted from person to person
Diphtheria (Cutaneous)	Contact + Standard	Until of antimicrobial treatment and three swabs are culture-negative from lesions taken at least 24 hours apart after antibiotic therapy
Diphtheria Pharyngeal	Droplet + Standard	Until off antibiotics and three consecutive swabs from nose and throat are culture negative
German measles,rubella	Contact + Standard	Duration of illness

Hepatitis, viral Type A-Diapered or incontinent patients	Contact + Standard	
Hepatitis, viral type B,C,D.E,G	Standard	
Herpes simplex	Contact + Standard	Until lesions dry and crusted
Herpes zoster (varicella-zoster) (shingles) (chicken pox)	Airborne + Contact + Standard	Duration of illness
Influenza	Droplet	In prodromal phase and for 5 days after onset.
Leprosy	Standard	
Leptospirosis	Standard	Duration of hospitalization
Malaria	Standard	
Measles	Airborne + Standard	4 days after onset of rash; duration of illness
Meningitis	Droplet + Standard	Until 24 hours after initiation of effective therapy

Multidrug-resistant organisms (MDROs), (e.g., MRSA, VRE, VISA/VRSA, ESBLs, resistant *S. pneumoniae*)	Contact + Standard	
Mumps (infectious parotitis)	Droplet + Standard	Until 5 days after the patient placed on effective therapy
Pertussis (whooping cough)	Droplet + Standard	Until 5 days after the patient placed on effective therapy
Plague	Droplet + Standard	Until 48 hours
Poliomyelitis	Contact + Standard	Duration of illness
Rabies	Contact + Standard	
Relapsing fever / Rheumatic fever	Standard Standard	
Rhinovirus	Droplet + Standard	Duration of illness
Scabies	Contact	Until completion of appropriate treatment

Severe acute respiratory syndrome (SARS)	Airborne + Droplet + Contact + Standard	Duration of illness
Smallpox	Airborne + Contact + Standard	Duration of illness
Syphilis	Standard	
Tetanus	Standard	
Tuberculosis (*M. tuberculosis*) Extrapulmonary,	Airborne + Contact + Standard	
Tuberculosis (*M. tuberculosis*) Pulmonary	Airborne	Discontinue precautions only when patient on effective therapy is improving clinically and has three consecutive sputum smears negative for acid-fast bacilli collected on separate days
Typhoid	Standard	Duration of illness
Covid-19	Airborne + Standard	

8.6 VISITORS POLICY

Visitors are important for the patient's well being and assist in their recovery. The purpose of the Visitor Policy is to provide guidance to:

A. Reduce disease transmission by avoiding crowded situations and by asking ill visitors not to visit.

B. Provide restful, non-disruptive nursing care.

- The ward sisters and the doctors concerned shall have the responsibility of informing the patients' relatives of the measures to be taken and the importance of restriction of visitors. This should be done at admission of the patient.
- The patient and the relatives must be given health education about the cause, spread and prevention of the infection, in detail. The need for isolation and restriction of visitors should be discussed with them.
- No more than two adult visitors should be allowed 'at a time' during the hospital visiting hours and the length of stay should be governed by the needs of the patient.
- Children below 12 years are not allowed into the isolation areas.
- Before entering the room, visitors must enquire at the nurses' station for instructions and for gown and mask if indicated. Visitors' footwear, bags etc, should be left outside the room. Only articles that can be discarded, disinfected or sterilized should be taken into the room.
- Visitors are not allowed to sit on the patient's bed.
- Visitors should disinfect their hands before entering and when leaving the room.
- Visitors should be informed regarding the hospital policy made according to prevent the infection prevention. No bystanders are allowed to enter the ICUs. If needed, use alternative methods (phone calls).

9. HIGH RISK AREAS AND PROCEDURES

Specific areas of patient care

- Intensive Care Units
- OT
- Post-operative ward
- Chemotherapy procedure room
- Obstetrics and Labour Room
- CathLab
- Blood bank
- Casualty
- Endoscopy room
- Dialysis
- ENT Department
- Dental Clinic
- CSSD
- Mortuary

9.1. INTENSIVE CARE UNIT

A. Medical Intensive Care Unit (MICU)

Design of the unit: Space around and between beds should be adequate for placement and easy access to equipment and to patients. A single, closed cubicle is used only for patients needing isolation; eg, open tuberculosis, anthrax, enteric fever, cholera, H1N1.

Good housekeeping practices should be followed. This includes regular cleaning of all areas, maintenance, linen and curtain changes etc.

Procedures to be followed by health care personnel: All personnel entering ICU must remove their street footwear and wear footwear provided by the ICU.

❖ Standard precautions

✓ **Hand washing:** All health care personnel working in ICU should follow WHO's 5 moments of hand hygiene

✓ **Use of Barriers:** Appropriate barriers such as gloves, face masks, and gowns must be used to prevent skin and mucous membrane exposure when contact with blood or body fluid is anticipated.

Infection control/other policies for visitors:

- Only one visitor at a time.
- Visitors to be allowed only twice a day
- All visitors are expected to remove the street footwear and change into the footwear provided by the ICU and should wear gown and mask.

Special care in critically ill patient to prevent infection This includes:

➢ Back care to prevent bed sores/pressure sores which can form a port of entry for micro-organisms.

- Maintenance of oral hygiene.
- Eye care for prevention of infection for the unconscious patients.
- Care of the urinary catheter.
- Care of the peripheral intravenous cannula/central line.
- Care of ventilator patients.

B. <u>Surgical Intensive Care Unit</u>

- Most patients without any major systemic illness undergoing surgery are shifted to the wards two to four hours after surgery if fully awake and hemodynamically stable.
- Patients require monitoring in view of other systemic illness are kept in the postoperative ICU for 24 to 48 hours.

Policies and procedures

Note: Similar to that mentioned in the Intensive Care Unit. Since the duration of stay is less and the patients are not critically ill, the special precautions mentioned for critically ill does not hold good here

- Any patient, with communicable diseases or infection or considered potentially infected should be isolated.
- Patients without any respiratory or overt wound infection are transferred directly from recovery room to the clean area.
- All personnel working in the area must be free from respiratory and any overt wound infection. standard Precaution must be followed .

- All personnel working in ICU are expected to change into ICU clothes and put on the slippers provided in the changing room, before entering patient care area.
- All visitors are expected to remove the street footwear and change into the footwear provided by the ICU and should wear gown and mask.
- Visitors are allowed to see the patient once immediately after surgery and if the patient stays for more than 24 hours one more visit is allowed.
- Entry of other personnel (Laundry, Dietary, CSSD, Stores etc) is not allowed. They are to use entry points provided at different places for supplying and receiving goods.
- ICU personnel and other members of the caring team should strictly wash their hands with either soap or a disinfectant before and after all patient contact.
- Aseptic precautions are to be followed for all techniques (Refer to the chapters on Techniques & care of systems and indwelling devices)
- Housekeeping: (Refer to the section on housekeeping.)

9.2 INFECTION CONTROL IN OPERATION THEATER (OT)

A. Principles of Asepsis

1. All articles used for a surgical procedure are sterilized prior to surgery.
2. If in doubt about the sterility of any item, consider it unsterile.
3. Tables are only sterile at table level.
4. Gowns are considered sterile only from shoulder to waist level in front and the sleeves.
5. The edge of anything that encloses sterile contents is not considered sterile.

7. Sterile personnel must remain well within the sterile area. Non-sterile personnel must remain well away from the sterile areas.
8. Sterile personnel must keep contact with sterile areas to a minimum.
9. Moisture may cause contamination.
10. Pouring should be done at the edge of the table, not at the middle.
12. Gloved hands must be kept at waist level or above. Below the waist is contaminated.
13. Always keep gloved hands in sight. Keep away from mask. Arms are not to be folded under axillae
14. Once in position, drapes are never moved or shifted.

B. Procedure for Prevention of Health care associated infections in Operation Theatre

Following steps must be ensured to prevent nosocomial infection in the OT:

1. <u>General</u>

- ❖ Restricted entry of personnel. Only the concerned people must be allowed to work in OT area.
- ❖ Only personnel in OT dress cap and mask to be allowed inside sterile zone.
- ❖ Slippers must be earmarked and used for the area. The slippers for bathroom must be marked. (Do not use same slippers for both areas)
- ❖ The sister in charge must be informed by doctor if any septic cases are being done prior to posting.
- ❖ All infectious case should be taken as last.
- ❖ Due precautions must be adhered to if positive patients for HIV / HbsAg / HCV is posted for surgery. The doctor must be informed about the patients status prior to posting, must inform the theatre personnel.

- ❖ Terminal cleaning must be done for each theatre at the end of the day.
- ❖ The nurse who is assisting must ensure proper disposal of sharps, blood stain, linen, gauze pieces and body parts at the end of the each case.
- ❖ During surgery, the nurse assisting must ensure that minimal spillage of blood, body fluids occur.
- ❖ Weekend cleaning must be done

2. <u>Sterile Storage</u>

i. Sterility of items will be event-related rather than date-related. The integrity of the package will be the determining factor in establishing sterility of the enclosed items.

ii. All items sterilized by Sterile Processing will be considered sterile unless the package/pack/tray/container is damaged or wet. Damage includes:

a. Holes or torn wrappers;
b. Securing tapes or locks have been tampered with or removed;
c. Broken seals in peel pouches or sterility maintenance covers;
d. Exposure to any type of moisture.
e. Exposure to a contaminated or unsafe environment;
f. Load identification labels are applied to all items sterilized for recall purposes only.
g. Each item will have the following documentation:

Department name; Item description; Date of sterilization; Date of expiry.

iii. All items packaged for sterilization shall be double wrapped, packaged in paper and/or peel pouch if there are multiple instruments, package is heavy or has sharp edges.

iv. Instruments placed in container systems are sterilized following manufacturer's instructions.

v. Packaging shall be secured and contain a chemical change autoclaving tape.

vi. Package wrapping shall include:

a. All sterilized items will be rotated to assure usage of "oldest" sterile items first, before newly processed items. Method of rotation will be determined by policy of the department.

b. Items will be stored in an environment free of moisture, excessive heat or contamination. Handling of items will be kept to a minimum to reduce compromising the integrity of the package.

c. Operation theater staff are responsible for checking integrity of packaging and storage methodology on a daily, weekly and monthly basis.

3. Surgical hand scrub: Refer hand hygiene techniques

4. Skin Preparation Protocol

- The patient's surgical site shall be assessed for moles, warts, rashes or other conditions prior to skin preparation and documented.
- Only personnel trained and skilled in skin preparation techniques shall prepare the surgical site.
- Clippers should be used for hair removal.
- Skin preparation should be done just before the surgery.
- Explain the procedure to the patient and ensure privacy.
- Preparation is doing depend up on the type and area of the surgery.

4. Handling of Anatomical Remains/Pathological Specimens/ Biohazardous Waste

i. Anatomical remains (recognizable body parts, such as amputations) are transported from the operating room wrapped in yellow plastic bag until disposal.

ii. Pathological specimens (all specimens other than anatomical remains above) are all delivered in formalin to Pathology lab.

iii. All biomedical waste bags are replaced more frequently as needed. All bags are tightly closed prior to removal. All bags and sharps containers are removed and transported to collection area room. All the biomedical waste bags are removed from sluice room twice daily and more frequently as needed.

5.Care of the environment: The operating team should take absolute care regarding disposal of blood stained items.

- ❖ All swabs, sponges, etc should be discarded/ placed only in the assigned containers.
- ❖ Gloves should be discarded directly into the bin lined by a **RED** plastic cover.
- ❖ Used instruments should be carefully segregated.
- ❖ Used linen should be collected directly in an assigned area immediately after the surgery, fastened carefully and removed from the operating room.
- ❖ If blood or fluid spill is expected, appropriate measures are to be taken before surgery. For example, small plastic containers for small spills (Neurosurgery) and buckets to collect draining fluids (Urology) are necessary.

6.Microbiological Monitoring: Swabs are taken for cultures every month from all dust settling areas, air conditioners, operating tables, monitors and lights.

Additional steps to be taken in this area:

- Minimize equipment to be used

- Remove all items from the OT which cannot be properly sterilized or disinfected and those which are not likely to be used.
- Cover the bed and armrest with plastic sheets, which will be discarded after the surgery.
- Keep sufficient containers for collecting used items.
- Handle used items with forceps or after wearing examination gloves.
- Post one person to wait outside the OT to obtain additional equipment, supplies and help.

At the end of the surgery, the scrub nurse stays in the OT without removing gloves and makes sure that the used items are carefully disposed

9.3 INFECTION CONTROL POLICY DEPARTMENT OF SURGERY

Surgical Wards

Policies and procedures:

- ❖ Postoperative patients with infections or colostomy are kept at the extreme end of the post-operative ward.
- ❖ Hand washing before and after examination of patient
- ❖ Dressing of patients are done in the OPD or in ward procedure room
- ❖ Contents of drains are discarded in the cycloflush (equipment to drain body fluids)
- ❖ Patient is asked to take bath with Chlorhexidein (Lysowash) the night before and early morning on day of surgery.
- ❖ Infected cases requiring surgical treatments are posted at the end of the list.

Waste management: Follow hospital policy

Sharp instrument disposal: Follow hospital policy.

9.4 INFECTION CONTROL PRACTICES IN ONCOLOGY UNIT

Key policies and procedures needed to meet minimal expectations for patient safety in an oncology setting. Some of these elements are:

- Using aseptic technique to access patients' ports and adhering to safe injection practices when preparing and administering medications, including saline flushes and chemotherapy infusions;
- Focusing on high-touch surfaces when cleaning patient-care areas, such as patient chairs and intravenous poles in chemotherapy suites and exam tables in patient exam rooms; and
- Practicing good hand hygiene, use of PPE, respiratory hygiene/cough etiquette, and triaging of patients upon entry to the facility, especially during periods of increased community respiratory virus activity.

A. Hand Hygiene : Hand hygiene procedures include the use of alcohol-based hand rubs (containing 70% alcohol) and hand washing with soap and water.

B. Personal Protective Equipment (refer universal precaution)

C. Injection Practices

1. General Safe Injection Practices
   - Use aseptic technique when preparing and administering chemotherapy infusions or other parenteral medications (e.g., antiemetics, diphenhydramine, dexamethasone)
   - Avoid unwrapping syringes prior to the time of use
   - Never administer medications from the same syringe to multiple patients, even if the needle is changed or the injection is administered through an intervening length of intravenous tubing
   - Do not reuse a syringe to enter a medication vial or solution

- Do not administer medications from single-dose or single-use vials, ampoules, or bags or bottles of intravenous solution to more than one patient
- Cleanse the access diaphragms of medication vials with alcohol and allow the alcohol to dry before inserting a device into the vial.

2. Spinal Injection Procedures

- Use aseptic technique and follow safe injection practices (e.g., dedicating single-dose vials to single-patient use)
- At a minimum, wear a facemask (e.g., procedure or surgical masks) and sterile gloves when injecting material or inserting a catheter into the epidural or subdural space (e.g., administration of intrathecal chemotherapy)
- For other spinal procedures (e.g., diagnostic and therapeutic lumbar punctures) or handling of devices to access the cerebrospinal fluid
    - At a minimum, use aseptic technique and follow safe injection practices
    - Facemask can be considered as an additional precaution

3. Phlebotomy Procedures

- Phlebotomy procedures are performed in a dedicated area, if possible
- Hand hygiene stations (e.g., alcohol-based hand rub dispensers) are readily accessible to the phlebotomist
- Use aseptic technique to perform the phlebotomy procedure
- Minimize environmental contamination by performing the following:
    - Label tubes before blood is drawn

- Avoid placing tubes on patient charts or other items or surfaces that cannot be properly cleaned
- Do not process or store blood specimens near medications or medication preparation area

4. Medication Storage

- Store all medications (e.g., injectables, hormonal agents) in accordance with manufacturer's instructions (e.g., shelf-life, temperature)
- Use of freezers/refrigerators

  ✓ Store medications that require refrigeration in a dedicated, labeled refrigerator that meets requirements for such storage (e.g., thermostat control, separate exterior door for refrigerator and freezer compartments)

  ✓ Designated personnel to maintain temperature log (monitor temperature at least twice daily for vaccine storage) and ensure alternative storage method is in place in the event of power or refrigerator failure

- Multi-dose vials are stored in the Medication Room and not in the immediate patient treatment area (e.g., exam room, chemotherapy suite)

5.Medication Preparation

- Draw up medications in the Medication Room or in a designated clean area that is free of any items potentially contaminated with blood or body fluids (e.g., used equipment such as syringes, needles, IV tubing, blood collection tubes, and needle holders)

- ***Note*:** Multi-dose vials should not be accessed in the immediate patient treatment area (e.g., exam room, chemotherapy suite); if a multi-dose vial enters the immediate patient-care area, it should be dedicated to that patient and discarded after use
- ***Note*:** Bags or bottles of intravenous solution (e.g., bag of saline) should not be used for more than one patient
- Use an aseptic technique to access parenteral medications:
  - Perform hand hygiene before handling the medication
  - Disinfect the rubber septum with alcohol and allow the alcohol to dry prior to piercing
  - Always use a new sterile syringe and sterile needle to draw up the medication; be careful to avoid contact with the non-sterile environment during the process
  - Never leave a needle inserted into the septum of a medication vial for multiple draws
  - Ensure that any device inserted into the septum (e.g., chemotherapy dispensing pins) are used in accordance with manufacturer's instructions and they do not compromise the integrity of the remaining vial contents
  - Minimize multiple entries into bags of fluid to add medications; if more than one entry is required, always use a new sterile syringe and sterile needle and access the bag using aseptic technique

6. <u>When to Discard Medications</u>

- Medications should always be discarded according to the manufacturer's expiry date (even if not opened) and whenever sterility is compromised or questionable
- For single-dose vials that have been opened or accessed (e.g., needle-puncture), the vial should be discarded according to the time the manufacturer specifies for the opened vial or at the end of

the case/procedure for which it is being used, whichever comes first. It should *not* be stored for future use.

- For multidose vials that have been opened or accessed (e.g., needle-punctured), the vials should be dated and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial

Chemotherapy procedure room

- Clean patient chair, IV poles/pumps, and side table between each patient use
- Clean any medication preparation area after each patient encounter and ensure contaminated items (as described above) are not placed in or near the area

Bio-safety cabinet

- Clean and disinfect with isopropyl alcohol
- Clean once daily
- While loading the chemo medicines, wear gown, cap , mask and goggles.
- Air sampling should be done monthly

Oncology ICU policy:

- Remove street footwear and wear ICU slippers
- Remove apron
- Wear hospital gown, mask and cap
- Use handrub
- In case of staff/relatives with fever or cold or any other infectious diseases, do not visit the ICU
- Children are not allowed to enter the ICU

Microbiological surveillance: Swabs are taken according to surveillance protocol (refer page no:)

Waste Disposal:

- Cytotoxic Sharps (needles and ampoules etc used for chemotherapy) should be disposed into a Medicine Paper box immediately after use.
- This Medicine Paper box should be sealed with paper plaster (Micropore) to avoid the spillage.
- The sealed Medicine Paper box is discarded directly to **YELLOW BIN** along with other cytotoxic waste.
- For others, refer chapter 11

9.5. INFECTION CONTROL POLICY - DEPARTMENT OF OBG POLICIES

1. Infection control policies for health care provider in Labor room

- All personnel remove their footwear before entering the labor room.
- Restricted entry of personnel and students
- All patients admitted are made to remove their jewellery and footwear.
- All aseptic precautions are taken prior to each procedure performed.
- Disposable gloves are used which are discarded after single use.
- Prior to each pelvic examination, hands are scrubbed, mask worn and clean the area with betadine and use supharmol (dichloro meta xylenol BPC 1.2% w/w, terpineol BP 1.5% w/w, phenol IP 0.2% w/w) cream for pelvic examination.
- Periodic cleaning of the delivery table and surrounding is done following each procedure/ delivery with freshly prepared 1% lysoformin solution.

2.Outpatient Department

Antenatal and gynecological examination cubicles are separate

- Disposable gloves are used.
- Sterile / clean instruments are provided for all the procedures

3.Infection control / other policies for visitors in Labour room

- No visitors are allowed
- Outside chappels should not be used inside.

4. Special procedures

Method of infection control, disinfection before, during and after the procedure:

- The floors are cleaned minimum 2 times /day and after each delivery using 1% Lysoformin Special.

Special equipment and their disinfection:

Method: The metallic equipment such as forceps, ventouse, dilators are cleaned, washed with running water, soaked in freshly prepared 2% lysoformin solution for 15 min, then washed with running water are wiped dry and then autoclaved.

Patients known to be infected with a blood borne pathogen:

- Follow instructions as for similarly infected persons in other areas
- Since HIV and HBV status can influence the management of individual cases with a view to minimise transmission to the infant, counseling and voluntary testing should be offered to all pregnant women.

9.6 INFECTION CONTROL POLOCY IN NICU

1. Personnel:

- All personnel must remove their footwear

- Wash hands before entering to ICU
- Wearing nursery gowns is a must
- Personnel with upper respiratory tract infections, gastrointestinal tract infections, fever, open lesions or any suspected infection should not be permitted to work in nurseries during their period of illness.
- Universal Precautions must be strictly adhered to when handling blood and body fluids.

2.Handling of Babies:

- Hand wash before & after touching babies
- For any emergency handling, apply hospisept plus hand rub to achieve hygienic hand disinfection.

3. For Mothers

- Mothers are allowed to handle their babies with the help of nursing staff
- There is a separate room for expression of breast milk and Kangaroo care.

4.Cleaning:

1. Cleaning of Warmer and Transport incubator :The incubators are cleansed with 1% Lysoformin.
2. Floor cleaning with 1% Lysiformin Special twice daily.
3. Ventilators:
    - Breathing circuits are send for ETO soon after discharge of patient.
    - Cassette cleaning is done after discharge.
    - HEPA filters and catheter mounts are changed as per protocol.

5. Infant Feeding formulae: Formulae must be prepared and stored with sterile practice.

6. Linen and Infant's clothing:

- Linen for use in the newborn nursery should be free of laundry chemicals that may cause toxic effects and skin irritation.
- New linen should be laundered and autoclaved before initial use.
- Soiled linen should be handled with standard precautions to avoid contamination.
- Soiled diapers should be placed in covered containers lined with a yellow plastic bag.

7. Skin, Cord and Eye care:

- After initial observation and stabilization, meconium and blood may be wiped off with sterile cotton sponges with warm water to remove potential blood-borne pathogens.
- The skin should then be carefully dried to minimize heat loss.
- The skin and cord may be kept dry for the rest of hospital stay. This reduces heat loss and skin trauma, and avoids exposure to topical agents with possible adverse effects.
- Bacterial colonization of the cord may be limited by applying normal saline or sterile water while cord care and local application of fusigen powder (according to doctor's order)
- Routine use of topical antiseptics such as chlorhexidine for skin and cord care is not required.
- Eyes can be cleaned with normal saline.

8. Microbiological monitoring: Infant feed and air sampling are sent every month

9.7 INFECTION CONTROL POLICY IN CARDIAC CATHETERISATION LABORATORY

Follow universal precautions for all patient care

1. Patient Preparation: Before leaving the ward, the insertion site is shaved and washed with soap. The patient is then sent to the lab in clean ward clothes. In the lab, the insertion site is cleaned as follows:

a) Radial Approach -7.5% Betadine + 4% Chlorhexidine

b) Femoral approach -Cleaned twice with Betadine solution. The catheter sites are draped with sterile towels and a sheet.

2. Lab personnel:

- Entry to the lab is restricted to the minimum essential.
- Street shoes are not allowed in the lab area. Washable slippers covering the dorsum and sole are to be worn by all personnel within the lab.
- All the personnel should change to fresh O T dress.
- Before each procedure scrub hands with betadine scrub or chlorhexidine.

3. Lab Disinfection:

- The floor of the lab is cleaned daily (at the end of all the cathlab procedures) using Lysoformin 1%. Mop in the morning.
- Blood spills should be immediately covered with 1% sodium hypochlorite for 30 minutes and then cleaned.

4. Instruments:

- Instrument tray, guide wires, suture needles, arteriotomy set, glass syringes and angiosyringes are autoclaved.
- Plastic items like transducer and dome, angiosyringe and pick up clamps are subjected ETO high level disinfection. These instruments are to be washed thoroughly with water.
- Cardiac catheters, pacemakers, pressure extension tubes and angioplasty material are subjected to ETO sterilization.

Cleaning of cardiac guiding catheters

- ✓ Initially catheters and Balloon Catheters are dipped in 30% H_2O_2, flushed with water two to three times for one hour and then air dried.
- ✓ They then undergo ETO sterilization. After ETO sterilization the catheters are placed on a clean shelf for at least three days for residual ETO in the packing to be reduced to acceptable levels. The catheters are then stored in an area free from dust and moisture.
- ✓ All angioplasty balloon catheters should be ETO sterilized before reuse.
- ✓ Valvuloplasty balloon catheters (with the exception of inove type A balloon catheters) are disinfected by filling the balloon and the guide wire lumens with 2% Glutaraldehyde and then immersing the entire catheter in Glutaraldehyde for thirty minutes. After that, the exterior, balloon lumen and wire lumen are thoroughly rinsed with distilled water and dried.

5.Waste disposal: As per hospital guidelines (refer to the chapter on hospital waste disposal)

6.Microbiological Monitoring: Cultures are done once a month from floor and equipment, and depending on the report further actions are undertaken.

9.8 INFECTION CONTROL POLICY IN BLOOD BANK

Activities of the Laboratory may pose risk of infection to patients and personnel:

- ➢ Wear appropriate barrier techniques during patient contact and specimen collection.
- ➢ Practice aseptic technique and use disposable equipment between patients, during site preparation and procedure
- ➢ Disinfect tourniquet with 70% alcohol
- ➢ Place clean gauze pads over the puncture site if necessary.

- Use proper sealed container and placed in a designated specimen rack
- If the requisition form is soiled with blood/body fluid, discard and fill out a new one.

A. Standard rule of practice:

1. Eating and drinking are prohibited in the laboratory.
2. All staff must wash their hands when entering and leaving the laboratory
3. All procedures are performed carefully to minimize splashes or aerosols.
4. Access to the laboratory is restricted to authorized personnel
5. All incidents/ accidents must be reported immediately, and appropriate action should be taken to prevent further occurrences.
6. Personnel are advised of special hazards and are required to read and follow instructions on practices & procedures.
7. Encourage personnel to receive appropriate training on potential hazards associated with the work involved, the necessary precautions to prevent exposures, and exposure evaluation procedures.
8. A high degree of precaution always is taken with any contaminated sharp items, including needles and syringes, slides, pipettes, capillary tubes & scalpel.
9. Laboratory equipment and work surfaces are decontaminated with an appropriate disinfectant routinely, especially after contamination by infectious material, (e.g., spills, and splashes).
10. Contaminated equipments are decontaminated before it is sent for repair or maintenance or packaged for transport.
11. Used disposable needles are not bent, recapped or manipulated by hands before disposal; these are to be discarded in sharp containers.

12. Practice standard precautions at all times due to concepts that all patients and laboratory specimens are potentially infectious and capable of transmitting infection.

B. Health care worker protection and safety:

- Personnel must receive appropriate immunizations
- Protective laboratory coats or uniforms designated for laboratory use are worn while in the laboratory.
- Gloves are worn when hands might contact infectious materials, contaminated surfaces or equipment and are not worn outside the laboratory.
- All laboratory personnel must wear proper Personnel Protective Equipment to protect themselves from blood borne pathogens.

C. Infectious Waste Management:

- Discard sharps into appropriate puncture – resistant containers.
- Blood and body fluids may be disposed of by pouring them down in the cycloflush

D. Blood bank

1. Universal precautions are followed while collecting and handling blood.
2. Screening of donors for infection
    - All donors are screened for history of recent and past infections
    - Donors are temporarily deferred for the following conditions and are advised to donate at a later date.
    - Fever, sore throat, common cold
    - Antibiotic therapy during the past week

- Dental procedure in the past
- Jaundice during the past one year
- Malaria during the past one year
- Any recent viral infections like chicken pox and measles
- Recent administration of live vaccines for polio, rabies, smallpox, measles, mumps and yellow fever.

i. Donors are permanently ineligible if they give history of

a) Sexually transmitted diseases
b) HIV infection or AIDS
c) Sexual exposure to any person with venereal infections
d) History of visit to a commercial sex worker or multiple sex partners

ii. Investigations

The donor's blood is tested for

- VDRL
- HBsAg
- HIV 1 and 2 antibodies
- HCV antibodies
- coombs test/ICT Test
- Malarial parasites

3. Infected units of blood and components - Any unit positive for infectious disease is autoclaved and discarded.

4. Issue and transfusion of blood components

i. All units issued are checked for evidence of haemolysis or turbidity to prevent transfusion of possibly infected units

ii. No unit is kept at room temperature for more than 30 minutes

iii. No unit is allowed to be stored in ward refrigerators.

iv. All units should be negative for transmissible diseases

Transfusion reaction investigation - The transfused units are sent back to blood bank.

9.9. INFECTION CONTROL POLOCY IN EMERGENCY DEPARTMENT

Universal Precautions are to be strictly adhered and all patients are to be treated as potentially infected with blood-borne pathogens. Importance of this cannot be over emphasized in this area.

1. Wash hands before and after patient contact.
2. Wear gloves preferably for all patient contact. It is a must for all invasive procedures, however minor. Examination gloves are placed in the shelves in all patient care areas.
3. Use Protective eye wear whenever body fluid spill is anticipated.
4. Wear masks for all situations where a splash is expected, and where infection that spreads through the respiratory route is a possible diagnosis.
5. Wear plastic aprons, in addition to a mask if splash to the body area is expected.
6. Use disposable needles and discard them into the sharps container which is placed in all patient care areas. Dispose IV cannula, Stilettes, Scalpel blades and razor blades into the sharps containers immediately after use.
7. Attenders and Sweepers are to wear gloves while handling lab samples and performing janitorial work.
8. Care is taken to see that there is no overcrowding of patients

9. The policy of shifting the patients to the respective wards as soon as they are hemodynamically stabilized is followed in all cases.

Additional precautions for patients known to harbor blood borne pathogens.

a) Use plastic aprons during procedures where body fluids may spill.

b) Disinfect all items following discharge, transfer or death of the patient as per hospital protocol - refer chapter on housekeeping. Mattress, pillow and mackintosh are to be disinfected with 1% sodium hypochlorite solution and dried in sunlight.

Infectious Diseases

Refer to the chapter on Isolation Policies.

Wound and Skin Infections

- Hands are to be washed before and after handling the patient.
- Wear gloves while handling infected wounds.
- Cover the wounds (as far as possible) before transferring the patient.
- Dispose waste as per hospital guidelines

Trauma

Always use standard precautions (Universal Precautions).

❖ The area should be guarded by adequate security round the clock to avoid public nuisance and to lessen the traffic.

- Regular use of hand washing /alcohol rubs decreases the rate of cross-infection between patients as also between healthcare worker and patient
- Tops of multi dose vials are to be disinfected with alcohol before use. They need to be punctured with sterile needles which have to be removed after use to decrease contamination rates
- Do not recap needles.
- Dispose sharps and other wastes as per guidelines
- Linen should be handled and sent to the laundry as per guidelines
- Fresh 1% hypochlorite (bleach) solution should be available in the department to pour over blood spills and for surface cleaning of contaminated surfaces.
- Impermeable disposable gowns, gloves, caps and masks should be freely accessible
- All health care providers should have had completed hepatitis-B vaccination.
- All non-medical workers should be educated about infection Control Practices

EMERGENCY DEPARTMENT MINOR OT:

1. Maintain cleanliness while at surgery and the standard surgical principles of asepsis to be maintained.
2. Treat all the patients undergoing emergency surgeries as though they were infective and take the universal precautions
3. Only essential members to be allowed in the OT
4. Cleaning the OT's meticulously after every case and the regular cleaning of the OT with 1% Lysoformin Special.

9.10 INFECTION CONTROL POLICY IN ENDOSCOPY UNIT

Endoscopy personnel may facilitate transmission of infection from patient to patient if they fail to carefully adhere to general infection control principles. In particular, appropriate aseptic techniques and safe injection practices should be followed. Thus, improper reuse of syringes and the use of contaminated multiple dose drug vials have been linked to the transmission of hepatitis B and C between consecutive patients treated at health care facilities. Such practices should be avoided, and single use drug vials are recommended.

- **Recommendations for Hand Hygiene:** Follow 5 key moments.
- **Recommendations for PPE:**
  1) Low-risk exposure activities (no direct contact with blood and body fluids or contaminated devices) require no PPE. Personnel whose exposure status may change during an endoscopy procedure should have immediate access to PPE should the need arise. High-risk exposure activities require the use of gloves, masks, impervious gowns & eyewear.
  2) Staff must remove and appropriately discard used PPE before leaving the procedure room. PPE should not be reused or worn to care for more than 1 patient.
  3) If clothing under the procedure room attire is contaminated with a significant amount of blood or body fluids, the items should be placed in a yellow bag, identified as a potential biohazard, and then sent for cleaning to a laundry facility capable of properly cleaning and disinfecting clothing used in healthcare settings.
- **Recommendations for Safe Handling of Potentially Contaminated Equipment or Surfaces**
  - Properly clean and disinfect surfaces with lysoformin solution that are frequently touched by personnel or dirty equipment in the endoscopic procedure area at the beginning of the day,

between cases, and during terminal cleansing. Frequently-touched surfaces may include endoscopy keyboards and video monitors and consoles.

- Appropriate contact time of disinfectant to achieve germicidal kill should be followed.
- Alcohol should not be used to clean environmental surfaces.

- **Flexible endoscopes:** All the channels should be flushed and brushed, if accessible, to remove all organic residue. Clean the external surfaces and accessories of devices by using a soft cloth, sponge or a brush. Clean with enzymatic detergent (CIDEX-OPA), and subject to high-level disinfection, following which all channels must be rinsed with sterile water followed by a rinse with 70% alcohol. Then the channels should be forced air-dried. The endoscopes should be hung in a vertical position (manufacturer's instructions should be followed stringently).
- **Rigid endoscopes, for example, bronchoscopes, arthroscopes, cystoscopes and laparoscopes**: As these instruments pass through normally sterile tissues they must be subjected to sterilization. If this is not possible then high-level disinfection should be done. General principles are the same as that for flexible endoscopes (manufacturer's instructions should be followed stringently).

- **Recommendations for Terminal Cleansing**

1. The unit should have a terminal cleansing plan that includes methods and chemical agents for cleansing and disinfecting the procedural space at the end of the day.
2. Agents for terminal cleansing should have efficacy in spore removal, which may differ from requirements for agents used in sterile operating rooms.
3. Before the first case of the day, staff should verify that all procedural and recovery areas have been properly cleansed.
4. A training and competency assessment program should be in place for staff members who are involved in terminal cleansing to ensure proper and safe handling and use of the chemicals.

Surveillance activities:

- ✓ The optimal frequency of surveillance cultures has not been established.
- ✓ A facility choosing to perform surveillance cultures can consider performing post-reprocessing cultures periodically, e.g., monthly or after every 60 procedures for each endoscope.
- ✓ Facilities should ensure that each endoscopic procedure is appropriately documented with regard to the specific endoscope used in order to allow identification of exposed patients should microbial growth be detected as described above. Furthermore, results of post-reprocessing endoscope cultures should be logged and tracked for each endoscope.

During outbreaks: Surveillance cultures have been used during outbreaks to identify contaminated endoscopes and to ensure that ongoing contamination is not occurring.

9.11 INFECTION CONTROL POLICY IN HEMODIALYSIS UNIT

Chronic hemodialysis patients are at high risk for infection because the process of hemodialysis requires vascular access for prolonged periods. In an environment where multiple patients receive dialysis concurrently, repeated opportunities exist for Person-to-person transmission of infectious agents, directly or indirectly via contaminated devices, equipment and supplies, environmental surfaces, or hands of personnel. Furthermore, hemodialysis patients are immunosuppressed which increases their susceptibility to infection, and they require frequent hospitalizations and surgery, which increases their opportunities for exposure to nosocomial infections.

The infection hazards of haemodialysis can be summarized as:

1. Blood borne viral infection e.g. HBV, HCV and HIV.

2. Vascular access site related infection.

3. Infections related to contamination of the dialyzer with water associated organisms, e.g. Pseudomonas Aeruginosa.

Policy & Procedure:

A. Infection Control policies and other Policies for Health Care Provider

- Footwear to be removed before entering work area.
- Staff to wear unit dress.
- Complete Hepatitis B Vaccination for all Staff.
- Hand washing before and after procedures and before giving care to patient.
- Should not eat, drink or smoke in dialysis treatment area;
- Use of standard precautions while giving patient care, handling contaminated equipment and machines.
- Staff members should wear protective gear, this should be changed if it becomes soiled with blood, body fluids, secretions, or excretions.

B. Infection Control Policies for Visitors

- Visitors are not allowed during procedure.
- Separate visitor area is provided outside the dialysis room

- Foot wears to be removed before entering dialysis room.

C. Policies related to patient care:

- Hand washing after each patient contact
- Standard Precautions to be followed
- Hemodialysis Catheter Care
- Screening for HIV, HBsAg and HCV at Entry, repeat serology screening (HIV, HBsAg and HCV) is done every 3 months.
- Vaccinate all patients against hepatitis B and ideally patients should have completed vaccination prior to initiation of Hemodialysis Schedule.
- Dedicated machines & reuse area for positive patients.
- Each patient assigned separate bed, machine, separate dressing pack and antiseptics
- Use disposable needles and protectors.
- Sterilize / disinfect non-disposable items prior to using in different patients.
- Change of linen, clean and disinfect dialysis bed & equipment after dialysis of each patient.
- Unused medication or supplies taken to the patients' station should be used only for that patient and should not be retained to a common clean area or used on other patients.
- Clean areas should be clearly designated for the preparation, handling and storage of medications and unused supplies and equipment.
- Discard all fluids. Clean and disinfect all surfaces and containers associated with prime waste including waste buckets.

Operating hemodialysis machine:

- Test must be performed each time
- RO water culture shall be checked monthly

- Discard transducer protector after every case
- Dedicated dialysis machines are used for patients known to be HCV positive
- Rinsing should be performed each time before and after dialysis
- Give chemical disinfection after every treatment for Fresenius machine -50 % citric acid / hot disinfection short (> 30mts)
- Day end –Fresenius machine give Hot disinfection and hot rinse.
  1. Weekly once - All machines are disinfected with front supply formalin in 1:9 ratio, i.e, formalized (6 hours). Then rinse the machine.
  2. Monthly once – Formalize the whole pipe machine.

Reuse steps

- For dialyzer: After each case rinse with saline
- Disconnect blood tubing connected to the pressurized RO water (20 PSI) for 5 minutes
- Connect dialyzer for back wash
- Drain water from the dialyzer and fill with renacline and dialysate lines should be closed
- Drain the entire chemical from the dialyzer and again flush with RO water for 3 minutes
- Then check for blood clots if the dialyzer is clear. Check the fiber bundle volume of dialyzer. If the volume is less than 80% of the actual priming volume discard the dialyzer.
- Otherwise drain the water content from the dialyzer and fill with 4% of renacline solution for disinfection; it takes 6 hours for proper disinfection.

Tubing

- Disconnect from the dialyzer and connect to RO water, release all the clamps and leave the water for 10minutes.
- Drain all water and fill bleach. Keep for 10 minutes.

- Drain the bleach and again fill the water and check for any blood clot. If absent, fill the disinfectant and clamp the tube.
- Both dialyzer and tube are preserved in a single rack which is labeled with patient name, OP number and the date. Tube shall be used only 20 times and dialyzer up to 10 times.

Water Treatment:

- Purified water used for all hemodialysis procedures.
- Reverse osmosis, activated Charcoal filter & up flow filter cleaned daily using wash techniques.
- Softener regeneration & cleaning once a week.
- Water from the tank to the dialyzer is passed through the ultra-violate.
- Monthly servicing of all components

Cleaning and Disinfection:

- Clean and disinfect the dialysis station (e.g., chairs, beds, tables, machines between patients.
- For single pass machines, perform rinsing and disinfection procedures at the beginning and end of the day
- Give special attention to cleaning control panels on the dialysis machines and other surfaces that are frequently touched and potentially contaminated with patients' blood.
- Discard all fluid and clean and disinfect all surfaces and containers associated with the prime waste (including buckets attached to the machines).

- HCV transmission within the dialysis environment can be prevented by strict adherence to infection control precautions recommended for all hemodialysis patients

Isolation Precautions

- One haemodialysis machine will be segregated and used to treat a patient who have an Infectious disease such as Hepatitis B, shall be used for that patient ONLY.
- If staff must care for both HBsAg-positive and seronegative patients during the same shift, change gloves and laboratory coats and wash hands between changes, and they should be sure that no cross-contamination between areas occurs. They should use gloves whenever any patient or haemodialysis equipment is touched.

Microbiological testing: RO water testing monthly

Waste Management: As per hospital guidelines.

9.12. INFECTION CONTROL POLICY IN ENT DEPARTMENT

Routine Precautions for all patients

a) Wear a mask while examining all patients

b) Use gloves when intra-oral examination is required

c) Instruments are disposed into a basin containing disinfectant solution and then sent for autoclaving.

Additional precautions for patients known to harbor blood borne pathogens:

- Wear double gloves and a plastic apron for all procedures
- After use, instruments are segregated in a white bag and sent for autoclaving.

9.13 INFECTION CONTROL POLICY IN OPHTHALMOLOGY

A. Infection control/other related policies for health care provider

- Prior to each procedure performed, all aseptic precautions are taken, hands scrubbed, sterile gowns are worn, with facemasks.
- Disposable gloves are used, which are discarded after single use.
- Prior to each eye examination, hands are scrubbed.

B. Infection Control in the Outpatient Department:

1. Hand washing: Hand disinfection after examining every patient before starting to examine the next is highly mandatory. In case of patient with AIDS, Hepatitis B and other transferable systemic/eye diseases, the examiners should preferably wear gloves. Slit lamp and other instruments should be immediately sterilized by alcohol

2. Examination Technique: (Lid Eversion etc): The examination technique should be designed to permit as little contact between secretions and examiner as possible specifically; the routine Eversion of the lids practiced by all ophthalmologists should ideally be performed using Q-tips ('Kutchi', cotton buds). In this situation too, hand washing is important.

3. Eye Drop Instillation: The bottle is held between the fingers of the right hand, and the protective cover removed. The patient is asked to look up, and the lower eyelid pulled away from the globe to expose the lower fornix as a "pouch". The eye drop is instilled into this pouch, taking care to avoid any contact between the dropper tip and the patient's tissue (lid conjuctiva) or secretions. The cap is replaced on the bottle to avoid any air borne contaminants. The opened bottle should be marked with date of opening and should not be used longer than one month.

Waste management: Follow hospital policy

9.14 INFECTION CONTROL POLICY IN MORTUARY

❖ Mortuaries are disinfected as and whenever it is empty/ when the last body is disposed at the end of the day. The mortuary is cleaned and disinfected in the following manner:

- ➢ The visible spills clean up- body fluids/blood to be cleaned up with reference to the spill clean-up body fluids/blood protocol.
- ➢ All areas contacted by the body has to be disinfected as per the Cleaning and disinfection protocol

- All attendants of the mortuary should follow the hand hygiene policy after handling each body
- Ensure temperature control of mortuary cabinet is maintained at <8 degree Celsius.
- Nurse supervisor informs facility to switch on the AC once death is declared.
- Temperature of the cabinet to be monitored and recorded 2nd hourly if body is in place.
- Disinfection Procedure

1. Disinfection of Surfaces and Equipment - Hard surfaces, floors, work-benches and tops, trolleys, sinks, walls etc.
   - Prepare a freshly prepared 1% solution of lysoformin and clean the area.
   - Spray or wipe surface with 1% lysoformin
   - Discard the contaminated material in the proper manner

2. Body Fluid Spillages

To clean and disinfect blood and other body spillages according to hospital policy.

9.15. INFECTION CONTROL POLOCY IN DENTISTRY

Prevention of cross infection

Contamination of the work area must be reduced or eliminated by using:

- Cloth sleeves for the micro motor

- Gloves to handle material bottles, mixing slabs, records etc.
- Cheatle forceps and sterile forceps to pick up instruments and gauze
- Suction to reduce aerosol formation and to avoid spitting
- Antiretraction valve for air-rotor hand pieces
- All procedures especially minor surgery and restoration must be performed with the help of a dental assistant who can manage the suction and also maintain aseptic technique.
- Hypodermic needles, suture needles and blades are disposable. Syringes used to load a local anesthetic should be discarded after single use and not be re-used to draw solution.
- Hand pieces and burrs should be disconnected after use.

Staff protection measures:

- All clinical staff, including attendees must be immunized against Hepatitis B and records of immunization status maintained.
- Apron, gloves, masks and goggles should be worn by staff during procedures. In the consultation room, clinical examination can be done with sterile diagnostic instruments and gloves must be worn for intra-oral palpation. Double gloving is mandatory for procedures requiring inter-dental wiring.
- The staff must take care to avoid injury form sharps, including wires, burrs, reamers, files and pointed instruments like the explorer. Examination gloves must be worn while cleaning instruments.
- Dispose sharps into the assigned container. Needles should not be recapped after use but must be discarded immediately into a puncture resistant container.
- Cleaning of the clinic is according to the hospital guidelines found in the chapter on housekeeping.

Additional precautions for patients known to harbor blood borne pathogens:

- Appointments for them are given towards the end of the day. They should be treated in a single chair room. Gloves should be worn routinely even for examination.
- Dental chair and unit used should be covered with water-proof sheeting (barriers). A disposable plastic bag should be placed inside the waste basket with the edges turned over its rims. All unnecessary instruments and equipments should be removed from the room before treatment. The surgeon and an assistant should strictly follow universal precautions and wear an impervious surgical gown, cap and mask. Double gloves should be worn for all procedures.
- Instruments needed for treatment should be selected in advance and kept in a tray with cover. Small quantities of any consumable material should be dispensed before the procedure and surplus discarded.
- Aerosol formation should be limited by employing suction and reducing or avoiding the use of air rotor instruments. 2% Glutaraldehyde or 1% sodium hypochlorite should be used in suction bottles. After surgery, they should be carefully rinsed and autoclaved.
- After the procedure the disposable gown, mask, cap, plastic barriers and all the materials should be put into a yellow plastic bag and labeled biohazard. The bag is then sent for incineration.

10. CLEANING, DISINFECTION AND STERILIZATION

10.1 CLEANING

Cleaning is the removal of foreign material (e.g., soil, and organic material) from objects and is normally accomplished using water with detergents or enzymatic products. Cleaning is performed after the disinfection with recommended disinfectant then do sterilization if it is required. Because inorganic and organic materials that remain on the surfaces of instruments interfere with the effectiveness of these processes. Also, if soiled materials dry or bake onto the instruments, the removal process becomes more difficult and the disinfection or sterilization process less effective or ineffective.

Manual Cleaning of Soiled Instruments and Equipment:

- Routine cleaning of soiled instruments is done immediately after the procedure.
- Instruments should not be soaked in saline, as they will become pitted. Dilute detergent properly as per supplier‘s direction.
- Use warm water, detergent and hard brush to completely remove the blood, tissue, food and other residue, paying special attention to small teeth of instruments and joints.
- Finally rinse with clean water to remove traces of detergent.
- Dry properly. Failure to remove water from trapped areas will cause corrosion.
- Prior to sterilization wrap the instruments properly to prevent recontamination.
- There is NO substitute for proper cleaning. Whether steam sterilization, ethylene oxide or disinfectants are used they CANNOT penetrate debris. These processes will NOT work when instruments are NOT cleaned properly.
- ALWAYS keep soiled items separated from clean and disinfected/sterile areas to prevent cross contamination.

- Consider the item contaminated when packaging is torn, damaged, wet, and dropped on the floor and when the expiry date has passed.

Mechanical cleaning:

Mechanical cleaning using washer/disinfector machines (either batch or multi-chambered design) remove soil from instruments. They offer a number of advantages including: an automated and controlled process, lack of aerosol generation, and reduced staff contact with contaminated instruments.

Washer/disinfectors usually operate within the following temperature ranges:

- Rinsing 40°C - 50°C
- Washing 50°C - 60°C
- Disinfecting 70°C - 95°C
- Final rinsing 80°C - 90°C

For thermal disinfection the following times and temperatures must be achieved:

- 70º for 100mins
- 75º for 30 mins
- 80º for 10 mins
- 90º for 1 min

Types of mechanical cleaners:-

a) Ultrasonic cleaning: Ultrasonic cleaning is generally used as a supplement to manual or mechanical cleaning or to clean delicate tubes or other hollow instruments such as special syringes or needles. Manual cleaning is to precede ultrasonic cleaning. Ultrasonic cleaners work by subjecting instruments to high frequency, high energy sound waves that dislodge soil from the surfaces and

crevices of the articles placed in the cleaning fluid. A neutral or alkaline, low foaming detergent is suitable; foam is undesirable because it settles on instruments when they are removed from the tank. Rubber and polyvinyl chloride (PVC) cannot be cleaned ultrasonically because these materials absorb the vibrations that are created.

b) Batch washers: Mechanical cleaning via specifically designed machines such as batch type Washer/disinfectors or multi-chambered washer/disinfectors are available. These machines are used for cleaning instruments and utensils, complex equipment such as anesthetic breathing circuits, flexible fiber optic endoscopes, and laboratory glassware. Batch type washers clean baskets of instruments by forced spraying from fixed or rotating arms in a closed chamber.

c) Continuous Process (multi-chambered) Washer/Disinfectors: These machines have several stages/chambers with different cleaning, rinsing and drying conditions. They perform a continuous process in which the articles being cleaned proceed on a moving belt/conveyor through a series of chambers on racks or load carriers. The rack conveyor system extends from before the input window of the machine to past the output window to facilitate manual handling of the racks and the items being cleaned.

10.2 APPROACHES TO DISINFECTION AND STERILISATION

Critical Items: Critical items confer a high risk for infection if they are contaminated with any microorganism. Thus, objects that enter sterile tissue or the vascular system must be sterile because any microbial contamination could transmit disease. This category includes surgical instruments, cardiac and urinary catheters, implants, and ultrasound probes used in sterile body cavities. Most of the items in this category should be purchased as sterile or be sterilized with steam if possible. Heat-sensitive objects can be treated with ETO, hydrogen peroxide gas plasma; or if other methods are unsuitable, by liquid chemical sterilants.

Semi critical Items: Semi critical items that contact mucous membranes or non-intact skin. This category includes respiratory therapy and anesthesia equipment, some endoscopes, laryngoscope blades 24, esophageal manometry probes, cystoscopes, ano-rectal manometry catheters, and diaphragm fitting rings. These medical devices should be free from all microorganisms; however, small numbers of bacterial spores are permissible. Intact mucous membranes, such as those of the lungs and the gastrointestinal tract, generally are resistant to infection by common bacterial spores but susceptible to other organisms, such as bacteria, mycobacteria, and viruses. Semi critical items minimally require high-level disinfection using chemical disinfectants (Gluteraldehyde, Hydrogen peroxide).

Noncritical Items: Noncritical items are those that come in contact with intact skin but not mucous membranes. Intact skin acts as an effective barrier to most microorganisms; therefore, the sterility of items coming in contact with intact skin is "not critical." In this guideline, non-critical items are divided into non-critical patient care items (bedpans, blood pressure cuffs, crutches) and non-critical environmental surfaces. In contrast to critical and some semi-critical items, most noncritical reusable items may be decontaminated where they are used and do not need to be transported to a central processing area.

10.3 DISINFECTION

Disinfection is a process where most microbes are removed from a defined object or surface, except bacterial end spores. Disinfectants can be classified according to their ability to destroy these categories of microorganisms.

- The agent which destroys only vegetative bacteria is termed low-level disinfectant.
- If the agent is capable of rendering mycobacterium non-viable It is termed an intermediate level disinfectant. It is a safe assumption that all the other categories of microbes which are classified more susceptible e.g. fungi, are also destroyed if efficacy against mycobacteria can be demonstrated.
- High level disinfection is in other words sterilization where in all microbial life is destroyed, inclusive of end spores.

High level disinfectants:

- Ethylene oxide
- Gluteraldehyde (more exposure time)

Intermediate level disinfection:

- Alcohols
- Sodium hypochlorite
- Povidone iodine
- Hydrogen peroxide
- Chlorhexidine
- Gluteraldehyde (short exposure time)

Low level disinfection

- Benzalkonium chloride

Disinfectants used in our hospital

1. **Skin disinfectants**
   - Chlorhexidine 0.5%w/v (Hospisept Plus) - hand rub
   - Chlorhexidine 2.5%w/v (AHD 3000) -aseptic procedures
   - Chlorhexidine 4% 100 ML(Lysowash)-pre op body wash
   - Chlorhexidine gluconate 4% (surgical hand wash)
   - Povidone iodine 10%
   - Povidone iodine 7.5%
   - Aseptick solution (Chlorhexidine gluconate)-pre op skin preparation
2. **Surface disinfection**
   - Lysoformin 3000 (1%) -surface cleaning
   - sodium hypochlorite(1%)- surface cleaning
   - Aerodesin-2000
   - Lysoformin special –fogging
3. **Disinfection of equipments**
   - Lysoformin 2% -instrument cleaning before sterilization
   - Cidex(Endoscope)
   - Cidex OPA(Endoscope)
   - Glutihyde 2% (multi used instruments)
   - Cidezyme –Enzymatic Wash
4. **Others**

- Acetone
- Phenol
- Sterinol-C
- H_2O_2 solution IP(20 Vol)
- Acetic acid glacial, L.R
- H_2O_2 solution 30%(100 Vol)

Sl. No	Items	Disinfection/Cleaning	Duration and periodicity
1.	B.P apparatus	Clean with alcohol	Daily
2.	B.P apparatus-cuff	Clean with alcohol	After each use
3.	Thermometer	Clean the bulb with alcohol	Daily and after the use of every patient
4.	Glucometer	Clean with alcohol	Daily
5.	Dressing trolley	Clean with 1%lysoformin	

6.	Steel tray	Disinfect with 2% lysoformin solution for 20 min Wash with soap and water	Daily
7.	Stethoscope, Taps & Torch	Clean properly with alcohol	Daily
8.	Plastic Tray	Wash with soap and water	Daily
9.	Nebulizer (Machine)	Clean properly with alcohol	Daily
10	O2 Flow meter	Wash with soap and water	Weekly &after each use of patient. Change purified water every day
11	Suction apparatus	Empty the bottles after every use or when jar is full 3/4th in continuous usage cases. Disinfect with 1% sodium hypochlorite solution for 20min. Rinse with water and dry.	After each use
12	All electronic equipments& monitors	Switch off the machine .Clean with bacilloid spray.	Daily& after the use of every patient

13	Refrigerator	Defrost and Wash with soap and water	Weekly
14	Laryngoscope blades	Detach the blades, wash with soap and water. Don't remove the bulb. Dip in Cidex OPA solution for 5 minutes or Cidex solution for 20 minutes. Rinse with sterile water and dry. Clean the bulb and handle with alcohol.	Daily& after the use of every patient
15	Weighing machine	Clean with light soap solution	Weekly & Whenever necessary.
16	Electronic Weighing machine	Clean with light soap solution	Daily
17	Steam inhaler	Wash with soap and water	After each use
18	Airway LMA(laryngeal mask airway),naso pharyngeal airway	Use disposable airways for each patient. Clean with soap and water then send for ETO	After each use After each use

19	Ambu bag and mask:-	Detach the parts. Disinfect the ambu bag with 1% sodium hypochlorite for 10 min Rinse with water and make it dry. Assemble the parts and send for ETO.	After each use
20	Otoscope and Ophthalmoscope:	Clean with alcohol	After each use
21	E.C.G. & Transducer cables:-	Clean with light soap solution and keep it dry	After each use
22	Trolleys and wheel chair	Cover the trolley mattress with water proof cover Clean trolley with 1% lysoformin solution	Weekly
23	IV Stand	Clean with 1% lysoformin solution	Daily & After each patient use
24	Tables and cardiac tables	Clean with 1% lysoformin solution	Daily

25	Electric fans	Clean with soap and water monthly	Monthly once
26	Sputum mug, bed pan and urinal	Clean with 1% Sodium hypochlorite solution for 30mts.	After each patient use
27	Curtains	Wash once in 15 days and whenever soiled. In case of infected patients after discharge, transfer out or death.	Once in 15 days.
28	Baby warmer &transport incubator	Clean with freshly prepared 1% lysoformin	daily
37	Mattress and pillows	Clean with freshly prepared 1% lysoformin solution	After each patient use and SOS
38	Cot and side rails	Clean with freshly prepared 1% lysoformin solution after each patient use.	After each patient use and SOS
39	Floor cleaning	Critical care area – 1% Lysoformin solution. Non critical care area – with Lysol solution	Twice a day Once a day

40	Infected cases	Areas and equipments which are cleaned with 1% Lysoformin solution should be primarly washed with 1% Hypochlorite solution.	After each patient use/ Terminal cleaning

10.4 INFECTION CONTROL POLICY IN CENTRAL STERILE SUPPLIES DEPARTMENT (CSSD)

Purpose

The aim of the CSSD is to provide all the departments with possible specified and limited exception, adequate supply of reliably sterilized materials immediately and constantly, available for routine and emergency use, from a central department where bacteriological safe sterilization is conducted under controlled conditions and at minimum possible costs. Thus contributions towards reduction in the incidence of hospital cross infection.

Objectives

1. To provide supplies of sterile instruments, linen packs, basins and other sterile items used in patient care.
2. To maintain record of effectiveness of cleaning, disinfection and sterilization process.
3. To monitor and enforce controls necessary to prevent cross infection according to infection control policy.
4. To maintain an inventory of supplies and equipment.
5. To stay updated regarding developments in the field in the interest of efficiency, economy, accuracy and provision of better patient care.

6. To provide a safe environment for the patients and staff

Steps involved in sterile supply cycle:

Used / soiled

↓

Rinse

↓

Transport

↓

Cleaning / disinfecting

↓

Inspecting / assemble tray packaging

↓

Sterilization

↓

Sterile storage

↓

Transport to the user

i. <u>Usage of sterile goods</u>

Used / soiled; used good is correctly documented and kept ready for the transport.

ii. Transportation

After use from treating area (wards, theatres) the soiled material is transported in a suitable container and trolleys to location wherein the re-processing / sterilization takes place. Lift is available for the transportation of sterile and non sterile packs from OT and Cathlab

iii. Cleaning / disinfection

Dirty materials are thoroughly washed with appropriate chemicals; (Ethylene oxide/ formaldehyde/ cidex/ bacilloid solution and sodium hypochlorite) adequate cleaning is done.

iv. Inspection and assemble tray

Inspection is done to avoid missing the instruments, is ensured before assembling.

v. Sterilization

Sterilization of the equipment takes place, recording and labeling for validity also takes place.

vi. Sterile storage

Sterile goods are usually stored to prevent re-contamination. It acts as microbial barrier. The load is ready for use.

vii. Transportation to the user

Handing over to the end user is important. The in charge / technician carefully handed over the sterile load to ward representatives and record the process.

viii. Use of sterile products:

Safe use on patient by taking aseptic procedures.

Sterile Items Issue to Departments

Upon finishing the sterilization process the corresponding departments to collect their items. For OT's the sterile packs are received by the staff and sign in the issue and collection register.

10.5 STERILIZATION PROCESS

Sterilization can be defined as the process by which all micro-organisms are removed from a surface or object, inclusive of bacterial endospores Sterilization can be through physical and chemical means. Physical means include heat, and radiation. Chemical sterilizing agents are relatively expensive and are used in specific situations Heat can be employed as dry heat (hot air oven, flaming, infra red rays) which oxidizes and denatures proteins and as moist heat (autoclave) which coagulates and denatures proteins. Gamma radiation is in appropriate for a small setup and is used in industry for sterilizing articles in bulk e.g., disposable syringes etc.

Autoclave: - Autoclaves function under the principle of steam under pressure in order to raise the temperature of steam. This is very effective because of the emission of the latent heat of vaporization of steam. Various models are in use ranging from gravity displacement models to completely auto cycled high pressure - vacuum models. Various models may vary in their specifications.

Almost any article which is heat stable can be sterilized using the autoclave. Powders, creams, oils and all glass articles cannot be sterilized using this method.

Chemical Sterilizing Agents: These include 2% Glutaraldehyde and ethylene oxide. They are expensive and are to be used in the sterilization of heat liable substances.

- 2% Glutaraldehyde is an effective sterilizing agent when alkaline (pH 7.4 - 8.9). The articles are to be clean of any bio burden and are to be kept immersed in this solution for at least 6-8 hours for sterilization. For disinfection 15-30 min will be adequate. This is used in disinfecting endoscopes, respiratory tunings etc. Hypersensitivity to Glutaraldehyde (local or systemic) may prove to be a problem for handlers.
- Ethylene oxide is a toxic gas and a very effective sterilizing agent. Precautions include scrupulous cleanliness and dryness of the object - otherwise a toxic layer of ethylene glycol

forms on the surface. Adequate aeration – at least 12 hrs after cycling is necessary to allow dissipation of free toxic gas. It can be used for all heat sensitive articles.

❖ **Requirements for ETO gas sterilization**

Moisture : 20 - 40% relative humidity

Concentration : 540 mg/ltr - 900 mg/ltr

Temperature : $50^{O}C$

Cycling & Aeration time : 16 hours

Rubber items, Polythene and plastic items, electronic items and cables, instruments used for endoscopy and parts of operating microscopes are sterilized using ETO gas.

Monitoring of Sterilization

The sterilization procedure should be monitored routinely by using a combination of mechanical, chemical, and biological indicators to evaluate the sterilizing conditions and indirectly the microbiologic status of the processed items.

Monitoring includes all sterilizer components that track and record time, temperature and pressure during each cycle, Printouts, gauges, round charts, etc.

Documentation of critical cycle parameters permits the earliest detection of equipment malfunctions since they can be evaluated when the cycle is in progress

Physical Monitoring

- Time, temperature and, where applicable, pressure

- Continuous automatic permanent monitoring system:
  - Process recorder
  - Printout
  - Internal and external data logger

- **Chemical Indicators:** Indicator of conditions present: Provide an indication that the load has been exposed to the conditions necessary to achieve sterilization .Helps detect failures in packaging, loading, and sterilizer malfunction. Chemical indicator (HELIX) used in every autoclave and ETO load.

- **External Indicators:** It is placed outside of each pack to be sterilized. Often included on load record cards .Readily visible and color change provides a quick indication that the load has or has not been exposed to the sterilization process .If the process indicators have not changed, the packages should NOT be released. Bowie Dick used in every first load of autoclave.

- **Biological Indicators (BI):** Indicates if sterilizing conditions are adequate to achieve sterilization. Biological indicator is used alternatively in each autoclave machines in Chavara CSSD and on each load in plasma and ETO machines.

Bacillus atrophaeus: Microorganism of choice for monitoring ETO sterilization as it offers the best test challenge since it is most resistant to kill. BI is placed into the center of a full load. Consider placing the test pack into a small metal basket or instrument tray for easy retrieval if it must be removed before a load is transferred to a separate aerator If the BI test is removed before aeration, do it in a well ventilated room, protect yourself from ETO residue on the package by wearing butyl rubber gloves to disassemble

the pack and retrieve the BI for incubation and then aerate the test packaging material before discarding. Worker safety must be given primary consideration.

Incubate an activated but not sterilized biological to verify that the test microorganisms are alive and ready for use in testing. Run Control BI every time a new package of BI's is opened and every day. If there is a BI failure on any load, the whole load must be recalled, repackaged and resterilized.

10.6 PREVENTIVE MAINTENANCE

For the preventive maintenance of all expensive and sophisticated equipment, the following aspects are considered.

1. Autoclave equipment is checked on daily basis by our Bio medical engineering department personals to avoid break down. (Temperature, water, vacuum pump, electricity) are checked.
2. If there are any minor repairs, to auto clave equipment it will be rectified by our bio medical engineering staff.
3. If the equipment requires any spares or major maintenance, our biomedical department will contact the company service engineer. They will immediately respond to the issue.

Engineering validation

- There is a regular Engineering validation of sterilization carried out with the help of **Bowie Dick Test** (diagnostic test of a sterilizer's ability to remove air from the chamber of a prevacuum steam sterilizer. The air-removal or Bowie-Dick test is not a test for sterilization.)
- **Leak rate test:** Daily if no air detector fitted (weekly where there is an air detector).Should be done before the Bowie Dick test**.**

10.7 RECALL POLICY

To ensure that any product suspected of being substandard is identified, quarantined, collected, investigated and the findings recorded. Trays will be recalled in the event of failed quality management tests i.e. Biological Traceability. Traceability can only be achieved if the trays are recorded.

The record of all trays that have been decontaminated will contain details of batch number, date, and washer cycle numbers. When trays are unloaded after processing, a record is kept of the batch number in the relevant washer log. Traceability of batches can therefore be achieved by referral to records.

RECALL: - A recall is authorized by the Senior CSSD Staff .Affected departments will be advised verbally, with confirmation advisory notices in writing, that trays from a particular batch are suspect and should not be used.

The following details will be given:

- The name of the sets to be recalled
- The sterilizing date
- Details of the action to be taken
- Reasons for the recommended actions and any likely associated hazards.
- Departments are requested to check their stock held in theatre for any trays from the suspect batch.
- Sterile services staff will attempt to confirm that the check has been carried out. Any decontaminated in the CSSD will be checked by the Sterile Services Staff and any identified suspect batch removed.
- Sterile Services Staff will arrange collection of any identified suspect stock on the Customer's premises.
- Returned trays will be reprocessed as if they had been used and returned for reprocessing. The cause of the recall will be investigated and a report should be made.

- Fill and complete the Complaint/Recall Form (AIMS/FMS/CSSD/06).

Expected Outcome

- A quality management system is in place confirming that all products leaving the CSSD are sterile and safe to use.
- There is well defined recall policy existing in our institution when a break down in the sterilization system is identified.
- Sterilization process is regularly monitored and there is a procedure for withdrawal of sterilized items in the eventuality of a breakdown. We have a batch processing system with dates of sterilization and expiry batch No. and machine number for effective recall.

10.8 REPROCESSING OF SUD (Single Used devices)

Purpose

To have an effective system to handle expired supplies and to develop safe system to reprocess devices which are meant to be for single use.

Definition

Original Device: A new, unused single-use device.

Single-Use Device (SUD): A SUD is a device that is intended for one use or on a single patient during a single procedure.

Reprocessed Single-Use Device (SUD): A reprocessed SUD is an original device that has previously been used on a patient and has been subjected to additional processing and manufacturing for the purpose of an additional single use on a patient

Scope / Applicability / Target audience

All departments, Clinical areas using single use devices including Cathlab, Cardiac OT etc

Policy

- The hospital reuses selected Single Use Devices (SUD) which is very expensive after reprocessing to bring down the cost involved in patient care.
- The Infection Control Team in consultation with the various clinical departments and unit heads and senior consultant identifies and lists all Single Use Devices that may be re-used and same is approved by the infection control officer. This list is reviewed and updated at least once in a year.
- All reprocessed SUD will be labeled with details of the device, date of reprocessing, date of expiry and no of times the device has been reprocessed.
- All adverse events and incidents involving reprocessed SUD will be analyzed in detail
- All Healthcare Associated Infections reported where reprocessed SUDs are used must be identified and tracked.

Procedure

- The ward/unit in –charge officers are advised to send back the items which have short expiry date to the pharmacy department.
- However very expensive single use items need reprocessing to bring down the cost involved in patient care.
- The list of SUD approved for reprocessing should be available at all user departments for reference.
- In case of doubt the staff involved in reprocessing must check the list.
- All reusable single use items should be cleaned immediately according to the guidelines.
- Once cleaned all these items are visually inspected for cleanliness and for any defects.

- If the item is not visibly clean it will be subjected to repeated cleaning process. Those with no defects will undergo ethylene oxide sterilization. The pack will have following details:
  - Date of reprocess
  - No of reprocessing cycle
  - Lot Number given by the CSSD
- All sterilization cycles will be monitored by using chemical and biological indicators.
- Regular auditing will be carried out to detect any deficiencies of the reprocessing procedures. These audits will be conducted by the infection control team at least twice in a year and records maintained.
- These data will be used to validate and evaluate the efficacy of reprocessing procedure and suitable actions will be taken to improve the process and to reduce the risks associated with them.
- Validation data will be available at the reprocessing point.
- Staff education will be carried out at regular intervals.

11. BIO-MEDICAL WASTE MANAGEMENT POLICY

Hospital waste is different from domestic waste in that it may contain biological material, which may possess potentially harmful micro organisms. Therefore, special care should be taken while managing hospital waste to make sure that it does not harm others. This includes collection, transport, treatment and disposal of waste together with monitoring and regulations. The method of disposal should be acceptable to general public in that area. Waste minimization is also important. This can be achieved by strengthening re-use services which includes cleaning and sterilisation.

11.1 INFECTIOUS AND NON-INFECTIOUS WASTE

Infectious Wastes: Include the waste which has been in contact with the body fluids

Non infectious wastes: Health care wastes come mostly from the administrative and housekeeping functions of the hospitals and may also include waste generated during maintenance of health care premises. These wastes are non-risk, similar to that of domestic wastes.

'If infectious wastes are not properly separated at source, all the waste volumes need to be considered as hazardous'.

BIOMEDICAL WASTE – COLOUR CODINGS
YELLOW **HUMAN/ANIMAL TISSUES, ORGANS, BODY PARTS, ITEMS CONTAMINATED WITH BLOOD & BODY FLUIDS, MICROBIOLOGY-BIOTECHNOLOGY & OTHER CLINICAL LABORATORY WASTE. EXPIRED OR DISCARDED MEDICINES, CHEMICALS, PHARMACEUTICAL WASTE LIKE ANITIBIOTICS, CYTOTOXIC DRUGS INCLUDING ALL ITEMS CONTAMINATED WITH CYTOTOXIC DRUGS ALONG WITH GLASS OR PLASTIC AMPOULES, VIALS ETC…**
RED(PLASTIC BAGS AND CONTAINERS) **CONTAMINATED WASTE (RECYCLABLE)-PLASTIC MATERIALS SUCH AS TUBINGS, BOTTLES, INTRAVENOUS TUBES AND SETS, CATHETERS, URINE BAGS, SYRINGES (WITHOUT NEEDLES), VACCUTAINERS AND GLOVES.**

WHITE(PUNCTURE/LEAK/TAMPER PROOF CONTAINERS) **WASTE SHARPS INCLUDING METALS: NEEDLES, SYRINGES WITH FIXED NEEDLES, NEEDLES, SCALPELS, BLADES, OR ANY OTHER COTAMINATED SHARP OBJECT THAT MAY CAUSE PUNCTURE AND CUTS. THIS INCLUDES USED, DISCARDED AND CONTAMINATED METAL SHARPS.**
BLUE(PUNCTURE/LEAK PROOF CONTAINERS) **(A)GLASSWARE: BROKEN OR DISCARDED AND CONTAMINATED GLASS INCLUDING MEDICINE VIALS AND AMPOULES EXCEPT THOSE CONTAMINATED WITH CYTOTOXIC WASTE.** **(B)METALLIC BODY IMPLANTS.**
GREEN **GENERAL WASTE: FOOD WASTE, PAPER WASTE ETC… WITH OUT PLASTIC MATERIALS.**

11.2 STEPS OF HOSPITAL WASTE MANAGEMENT

a. Segregation and collection
b. Transportation
c. Temporary Storage
d. Treatment
e. Final Disposal

a. Segregation and collection

Segregation is defined as "Separation of different types of waste as per treatment and disposal option". Segregation should take place at the source of generation of waste. It is important that segregation takes place at source, as it is the person who generates the waste knows best its nature. The waste generated from different areas of the hospital needs to be segregated as per the colour coding provided in the BMW Rules, 2016 & 2018 (Amendment).

- ICNs monitors the segregation of biomedical wastes in wards and departments and submit the audit record to the Civil and Environmental department in-charge.
- All waste from Hospital is not considered as hazardous. Only 10 to 20 percent of waste generated in a hospital is infectious / hazardous. If infected waste gets mixed with general waste, entire waste becomes infected.

By segregating waste:

- We are reducing quantum of infected waste.
- We are making way for management of general waste separately.
- We are reducing load and cost of infected waste.
- We are improving cleanliness of the surroundings within and outside the Hospital.
- We are keeping ourselves away from contact with infected waste.

Labelling: - All the bags must be labelled according to the rules Biomedical waste management 2016 and 2018(Amendment)

Label for Bio-Medical Waste Containers/Bags

BIOHAZARD SYMBOL **CYTOTOXIC HAZARD SYMBOL**

Bags: - It should be ensured that waste bags are effectively secured and filled up to only three fourth capacities and removed from site of generation regularly and timely.

b. Transportation

- Inside the wards at point of Generation: - The biomedical waste is carried from the point of generation to the nursing stations and discarded into waste bin according to colour code.
- From point of Generation to waste storage centre:-
  - Housekeeping staff collect hospital waste twice a day from the point of generation.
  - Covered wheel barrow/trolley to be used for transporting waste and the bags.
  - The waste from the operation theatre and ICU are collected more often, depending on the number of operations and cases attended in a particular day.
  - Housekeeping staff wear protective clothing while collecting waste and should not manually lift the waste bin to final disposal site.
  - Waste cover should be tied by the housekeeping staff (CMC staff) under the supervision of registered nurse in Operation Theatres, ICUs and Wards
  - In OPDs the tying will be done by OPD staff itself.

- The responsibility of waste segregation will be with the nursing in-charge and not with the supporting staff
- The containers used for collecting food wastes and general wastes are cleaned and disinfected before replacement to the respective departments.
- On each bag particular ward/department name, date, name and signature of in-charge and Housekeeping staff will be written by ward staff for auditing.
- Use a dedicated lift/ramp for transportation of waste.

From waste storage centre to final disposal area: The waste is transported to the area of final disposal in a closed van with a biohazard symbol.

c. Temporary Storage

Separate areas within the hospital premises are allocated for temporary storage of each category of waste.

- The storage area should have an impermeable, hard-standing floor with good drainage; it should be easy to clean and disinfect.
- There should be a water supply for cleaning purposes.
- The storage area should afford easy access for staff in charge of handling the waste.
- It should be possible to lock the store to prevent access by unauthorized persons.
- Easy access for waste-collection vehicle is essential.
- There should be protection from the sun.
- The storage area should be inaccessible for animals, insects and birds.
- There should be good lighting and at least passive ventilation.

d. Treatment

Treatment is a term used for those processes that modify the waste in some way before it is finally disposed off. After such treatments the residues can be handled safely, transported, stored and disposed off.

i. Chemical Treatment: - Chemical disinfection is mainly used for sharps and infected plastic waste. Commonly used option is freshly prepared Sodium Hypochlorite solution.

ii. Thermal Treatment: - These processes use heat to decontaminate or destroy medical wastes. Common technologies used are: Autoclave, Hydroclave, Microwave and Incinerator.

iii. Mechanical Treatment: - This comprises primarily of compaction and shredding. Compaction involves compressing the waste into containers to reduce its volume and shredding includes granulation, grinding, pulping etc.

e. Final Disposal

A simple dictum was followed in the final disposal of hospital waste: "Infectious waste is subjected to treatment with either heat or chemicals and non-infectious waste need not to be treated". The blood stained plastics including syringes were chemically disinfected and collected in bag designated for plastics (red colour) and sent for autoclaving then shredded and recycled.

- Disposal of Human Anatomical Waste, Blood and Body Fluids: The preferred treatment for this category of waste is by incineration. After incineration, the ash is sent for specialized landfills.
- Sharps: The sharp waste needs maximum precaution and care. Used needles are sent for autoclave and disposed into the safe pit for sharps.
- Microbiology and Biotechnological Waste: Disposal is done after treating the waste by local autoclaving and sent for incineration.

- Pharmaceutical and Infectious Solid Waste: This can be done by incineration and the ash can be finally disposed off in specialized landfills.
- Chemical Waste: Non-hazardous chemical wastes can be disposed off by the same method as general wastes, while those which can be recycled, should be packed, labelled properly and stored for recycling (specially heavy metals like mercury). Hazardous chemical waste should be recycled if possible, otherwise chemically treated and discharged in sewers after dilution (for liquid) and incineration (for solid). The ash is then disposed off in specialized landfills.
- Radioactive Waste: According to AERB (Atomic Energy Regulatory Board) guidelines, there are two main principles of disposal:
    1. Concentration and storage used principally for soiled wastes
    2. Dilution and dispersal usually applied to liquid and gaseous radioactive wastes.

Responsibility

- Maintenance engineer (Civil & Environmental) is responsible for coordinating the waste management function in the hospital.
- Infection control nurse is responsible for monitoring the segregation of biomedical waste in wards, departments and submitting the audit record to the in-charge.
- The housekeeping staff is responsible for the collection and transportation of the waste.
- Solid waste treatment plant In-charge and employees are responsible for the disposal of the biomedical waste in the appropriate manner.
- All the staff members are responsible for following the guidelines provided for biomedical waste management.
- Adequate personal protective equipments (glove, mask, apron, gumboots, eye glasses, caps etc.) shall be provided to the employees handling bio-medical waste.

General

Awareness should be provided to all staff members in the hospital regarding collection, segregation, transportation, storage and disposal of different types of hospital waste.

The system and procedures for management of biomedical waste shall be in accordance with the appropriate legal guidelines as laid down by the environment (protection) Act, 1986 and Bio-medical Waste Management Rules, 2016&2018(amendment) and other guidelines as laid down by the government of India and Government of Kerala and its statutory agencies.

11.3 BLOOD SPILLAGE POLICY

All spilled blood should be regarded as potentially infected, and should be treated according to the extent of the spillage.

- If the spill is minor (<30ml) remove the visible material and then decontaminate the area with 1% Sodium Hypochlorite solution in the ratio 9:1(Water: Sodium Hypochlorite).
- If the spill is large (>30ml), follow the procedure given below to clean the blood spill.
  1. Restrict entry by keeping stop board
  2. Activate code Orange
  3. Use spill kit
  4. Wear protective gears
  5. Pour 1% Sodium Hypochlorite solution over the spill.
  6. Spread Blotting paper/News paper over the spill and keep it for 30 minutes.
  7. Remove it along with news paper to the bag assigned to it- (Yellow color)
  8. Clean the floor using a scrubbing cloth with 1% Sodium Hypochlorite solution. This should be done 2 or 3 times until all visible soiling is cleaned.
- Spill kit should include stop board, Mask, Gloves, Apron, Goggles, Sodium Hypochlorite, Scrubbing cloth, Yellow cover, News paper etc.

11.4 MERCURY SPILLAGE POLICY

Hazards of Mercury: Mercury exists in three forms i.e. elemental, inorganic and organic form. Elemental mercury vapours are colourless and odourless and very toxic when inhaled. Mercury is a potent neurotoxin. It persists in the environment for a long time, and it is extremely toxic in small amounts. Exposure to mercury impacts the central and peripheral nervous system and it can damage the brain, spinal cord, kidneys, eyes and liver. Also, mercury can easily cross the placenta, passing from mother to unborn child, where it can impact neurological development of the foetus. In HCFs, exposure to mercury can occur through inhalation, ingestion, or skin contact and vary according to the metal speciation. Though the release of mercury in the environment can happen in many ways like spillage, burning of medical waste mixed with mercury or disposal of mercury based residual dental amalgams without any pre-treatment. In health facilities, the main cause of release of mercury in the environment is due to spillage which may occur due to breakage of instruments and equipment having mercury like thermometers, sphygmomanometers, oesophageal dilators with mercury weight, feeding tubes, gastro intestinal tubes etc. or through release of mercury from dental amalgam kit Laboratory chemicals like zenker's solution and histological fixatives

The possible areas of mercury exposure in health facilities are:

- Accident & Emergency Department
- Dental Department
- Endoscopy Department
- Instrument Repair Workshop
- Laboratories
- Outpatients Clinics

- Pharmacy
- Wastewater drains and Effluent Treatment.
- Stores and Wards

Tips for handling mercury safely

i. Use mercury in uncarpeted and well ventilated areas. Provide troughs on smooth surfaced tables and benches to collect mercury spills.

ii. Remove all jewellery and watches, especially gold. Employees who handle mercury should wear mercury vapour respirators and protective clothing-gloves, disposable gowns and shoe coverings.

iii. Prohibit smoking and eating in or near mercury exposed areas.

iv. Train employees to understand the dangers and precautions while handling mercury. Staff training is a key element in the proper prevention and management of mercury spills.

v. Clean and calibrate all mercury containing equipment to the specifications of the manufacturer.

vi. Properly document and label all containers containing mercury.

vii. Avoid having chemicals such as chlorine dioxide, nitric acid, nitrates, ethylene oxide, chlorine and methylazide in the same area as mercury, since they react violently with mercury.

viii. Be sure to keep mercury away from biological waste or anything else that will be incinerated since incineration puts mercury vapour into the air.

Method of containment of mercury spill (In case of a mercury spill)

- **Evacuate area:** As far as possible, keep people who are not involved in the clean-up away from spill area to limit exposures and to prevent the spread of

- **Do not touch mercury:** Remove any jewellery/watch. Put on all protective gear. Use a flash light to locate the mercury.
- **Collect the mercury carefully:** If there are any broken pieces of glass or sharp objects pick them up with care. Place all broken objects on a paper towel, fold the paper towel and place in a puncture proof plastic bag or container provided with lid. Secure the plastic bag/container and label it as containing items contaminated with mercury. Use cardboard sheets to push beads of mercury together. Use the syringe to suck the beads of mercury. Carefully place the mercury in a glass bottle with some water. Pick up any remaining beads of mercury with sticky tape and place contaminated tape in a bag/cover along with the syringe, cardboard, gloves, mask and sealed glass bottle. Label the bag/cover as mercury waste and mention the ward/department and date of spill. Place this bag in the second bag/cover, label it as mercury waste and mention the ward/department and date of spill.
- **Never use vacuum cleaner or broom.**
- **Dispose the mercury properly:** The collected mercury is a hazardous waste. So it should be stored safely in a locker and finally hand over to a mercury equipment manufacture.

Mercury spill kit: It includes gloves, face mask, eye shield, a syringe, and two stiff pieces of cardboard, two bags/covers, sticky tape, a flash light, glass bottle and packing tape.

Spill and containment plan:

- Collect the mercury spill as per the rule.
- Report the incident to the maintenance engineer who is In-charge of waste management.
- Fill the Mercury Spillage – Incident reporting form.
- Civil and environmental engineer should keep a register for the incident reporting.

- Send the collected mercury waste to the waste management department and store it safely in the locker at biomedical waste treatment plant.
- Handover to mercury equipment manufacturer.

11.5 CYTOTOXIC SPILL

Any spillage of a cytotoxic chemotherapy agent must be immediately and effectively managed in order to minimize the contamination of the environment and reduce the health risks to personnel. Hence, there should be a spill kit in each area where cytotoxic chemotherapy is stored, prepared or administered.

Suspected areas of spillage:

- On person
- On clothing
- On equipment
- On surface

NEVER LEAVE A CYTOTOXIC SPILL UNATTENDED

- ❖ Restrict the entry by keeping stop board to the spillage area.
- ❖ If the spill was onto a person, treat them first and then clear up the spill

11.5.1. Spillage on person

- ✓ If spill on body part, the area should be rinsed thoroughly with water.
- ✓ For contact with eyes, irrigate with plenty of water or Normal Saline
- ✓ Staff who had exposure must contact Casualty Department for medical aid followed by HIC department
- ✓ Affected Person should be reviewed by the medical team

- ✓ Fill the incident form and submit to HICD

11.5.2 Spillage on clothing

- ✓ Remove the persons contaminated clothing
- ✓ Wear all the PPE to minimize skin exposure.
- ✓ The clothing should be washed separately with hot water.
- ✓ Do not send contaminated clothing to hospital laundry for washing
- ✓ Contaminated bedding should be discarded as cytotoxic waste
- ✓ Inform the Laundry Manager of any discarded bedding.
- ✓ If discarding, Bill Number, Hosp Number, patient name should send to Laundry Manager.
- ✓ Fill the incident form and Inform HICD

11.5.3 Spillage on equipment

- ✓ Remove any visible surface spill following the instructions for the management of surface spills.
- ✓ Separate the equipment in which cytotoxic chemotherapy agent has been spilt. If possible, place this equipment inside two yellow cytotoxic chemotherapy cover.
- ✓ Clearly mark outside the yellow cover that equipment as contaminated with cytotoxic chemotherapy.
- ✓ Seek specialist advice from Bio-medical department about the possible decontamination of the contaminated equipment.
- ✓ Fill the incident form and Inform HICD
  - ➢ Restrict the entry by keeping stop board to the spillage area.
  - ➢ Make the patient moved away from the area of spillage
  - ➢ Minimize the air flow to area by shutting doors and windows
  - ➢ Use cytotoxic spill kit. Wear all the PPE

- Cover the spill with chemosorb granules with the use of spatula (based on the amount of spill)

11.5.4. <u>Spillage on surface</u>

- For small volume spills (less than 5ml or 5g)
  - Cover liquid spill with chemosorb but avoid splashing.
  - Pick up solids with a moistened absorbent towel (wet with water or NS 0.9%).
  - Then cover with chemosorb.
- For large volume spills (more than 5ml or 5g)
  - For liquids, cover the spill with chemosorb.
  - For solids, place an absorbent towel moistened with water or NS 0.9%
  - Then cover with chemosorb.
  - Mix well with using a spatula until completely absorbed
  - Wait for the absorbent to absorb the spilled medicine fully and scoop up well.
  - Ensure the residual granules are removed.
  - Scoop up any sharps using either the plastic scoop or swabs and place in a sharps box.
  - Place all used absorbent in one of the polythene cover.
  - Work from the outside inwards, clean the spill area with soap and water at least three times.
  - Place all contaminated material (including gown, gloves, and mask) in yellow bin.
  - Label with date, time, and department all material as cytotoxic waste.
  - Wash hands
  - Fill in incident form and record spill in departmental records , incident reports will be audited to identify potential areas for the improvement in practice
  - Inform HICN.

12. HOUSE KEEPING

General approach to environmental cleaning

Environmental cleaning and disinfection of the hospital is mainly aimed at eliminating, reducing, controlling, isolating the reservoirs of organisms in the environment. Different areas in the hospital can be broadly categorized into

12.1 CLASSIFICATION OF HOSPITAL AREAS

All healthcare environments should pose minimal risk to patients, staff and visitors. However, different functional areas represent different degrees of risk and, therefore, require different cleaning frequencies, and levels of monitoring and evaluation. A functional area refers to any area in a healthcare facility that requires cleaning. Consequently, all functional areas should be assigned in one of the following three categories:

- ❖ High risk areas
- ❖ Moderate risk areas
- ❖ Low risk areas

❖ High risk areas

- Consistently high cleaning standards must be maintained in these areas. These areas require intensive and frequent cleaning with high-level disinfectant (HLD)

- High risk functional areas typically include OTs, Intensive Care Units (ICUs), High Dependency Units (HDUs), Emergency department, post-operative units, surgical ward, labour room, hemodialysis unit, and other facilities where invasive procedures are performed
- Bathrooms, toilets, staff lounges, offices and other areas adjoining high risk function areas should be treated as having the same risk category and receive the same intensive level of cleaning.

❖ **Moderate risk areas**

- These areas should be maintained by regular and frequent cleaning with 'spot cleaning' in between with high level disinfectant.
- Moderate risk areas may include medical wards, laboratory areas, blood bank, pharmacies, dietary services, laundry services, mortuary, nurses/doctors rest rooms etc.
- Bathrooms, toilets, staff lounges, offices and other areas adjoining moderate risk function areas should be treated as having the same risk category and receive the same level of cleaning.

❖ **Low risk areas**

- In these areas, high standards are required for aesthetic and to a lesser extent, hygiene reasons. These can be maintained by regular and frequent cleaning with ' spot cleaning' in between with moderate to low level disinfectants.
- Low risk functional areas may include administrative areas, office, seminar rooms, stores, staff room, non- sterile supply areas, record room etc
- Additional internal areas like bathroom, staff lounges, offices and other areas adjoining low risk function areas should be treated as having the same risk category and receive the same level of cleaning.

Location	Risk Classification	Routine cleaning frequency	Additional cleaning	Disinfection level required	Reagents to use
All ICUs	High risk	Twice a day at fixed times	Yes	High	Lysoformin
ED	High risk	Twice a day at fixed times	Yes	High	Lysoformin
CSSD	Medium risk	Once a day at fixed times	As required	High	Lysoformin
Echocardiography	Low risk	Once a day at fixed times	As required	Only cleaning/ low level disinfection	Lysoformin
General public areas	Low risk	Once a day at fixed times	As required	Only cleaning/ low level disinfection	Domex
Hemodialysis unit	High risk	Twice a day at fixed times	Yes	High	Lysoformin
Labour room	High risk	Twice a day at fixed times and after each case	Yes	High	Lysoformin
Laboratory	Medium risk	Once a day at fixed times	As required	High	Lysoformin
Offices	Low risk	Once a day at fixed times	As required	Only cleaning/ low level disinfection	Domex
Operation theatre	High risk	- Start of the day - Between cases - end of the list - detailed wash- down	Yes	High	Lysoformin

General ward	Medium risk	Once a day at fixed times	As required	High	Lysoformin
Patient rooms (Patient not on isolation precautions)	Low risk	Once a day at fixed times	As required	Low	Lysoformin
Patient rooms (Patient on isolation precautions)	Medium risk	At least twice a day at fixed times	Yes	High	Lysoformin & Hypochlorite
Pharmacy	Low risk	Once a day at fixed times	As required	Low	Domex
Physiotherapy	Low risk	Once a day at fixed times	As required	Low	Lysoformin
Procedure rooms	High risk	At least twice a day at fixed times	Yes	High	Lysoformin
Radiology	Low risk	Once a day at fixed times	As required	Only cleaning/ low level disinfection	Lysoformin
Reception area	Low risk	At least twice a day at fixed times	As required	Only cleaning/ low level disinfection	Domex
Respiratory therapy room/area	High risk	At least twice a day at fixed times	Yes	High	Lysoformin
Soiled linen collection area	Medium risk	Once a day at fixed times	As required	High	Lysoformin

12.2 GENERAL CLEANING PRACTICES

Before Cleaning

- Check for additional (isolation) precautions signs
- Follow precautions as indicated

During cleaning

- Progress from the least soiled areas to the most soiled areas and from high surfaces to low surfaces
- Do not **'double-dip'** mops (dip the mop only once in the cleaning solution, as dipping it multiple times may re contaminate it)
- Cleaning solution to be changed after cleaning an area of 240 square feet (This does not apply to critical areas like OT and ICU)
- Change more frequently in heavily contaminated areas, when visibly soiled and immediately after
- cleaning blood and body fluid spills

After cleaning

Tools used for cleaning and disinfecting should be cleaned and dried between uses

Dilution of cleaners and disinfectants to prepare working solution

Reagent	Dilution	Application
Lysoformin	Daily use (OT,ICU and other clinical areas): Add 10 ml of the concentrate per 1000 ML of water. *Kindly refer to manufacturer instructions also before use	For high-level disinfection of surfaces

Domex solution	As per manufacturer	Low level disinfection
Sodium hypochlorite solution(1%)	100ml in 900 ML water	For disinfection of soiled linen, disinfection of blood and body fluid spills on non-metallic surfaces. For disinfection and odor minimisation of toilets. For disinfection of selected patient care equipment (non-metallic) such as oxygen humidifier bottles, bedpans, urine pots, Environmental surface cleaning
Any good quality liquid soap	Add enough soap to water to give a soapy feel. Avoid too much foaming or prepare as per manufacturer recommendation.	For general cleaning and removal of dust and organic matter on environmental surfaces and equipment.

Equipment for cleaning

Cleaning trolley/bucket – It is preferable to have three bucket trolleys with a wringing mechanism. The **Three bucket system** should be ideally practiced. The first bucket should contain water with detergent used in the beginning. The mop is then rinsed in the second bucket with plain water and dipped in the third bucket which contain a disinfectant and the mopping done again. Mopping with additional reagents are done for some of the infectious diseases as per instructions from the HICD.

12.3 HOUSE KEEPING IN WARDS

A patient admitted to the hospital can develop infection due to bacteria that survive in the environment. Therefore, it is important to clean the environment thoroughly on a regular basis. This will reduce the bacterial load and make the environment unsuitable for growth of micro-organisms.

- The floor is to be cleaned at least two times in critical areas and once in wards every day. The three bucket system, should be ideally followed.1% Lysoformin (HLD)should be used to disinfect all the patient care areas and Domex solution in general areas.
- Fans and lights are cleaned monthly. This is the responsibility of the house keeping section.
- All work surfaces are to be disinfected by wiping with 1% freshly prepared Lysoformin solution twice daily.
- Curtains are to be changed every 15 days or after discharge of infectious patient in critical care units.
- Patient cot is to be cleaned after discharge of patient. 1% Sodium Hypochlorite is to be used when soiled with blood or body fluids. In the isolation ward, cleaning is done twice daily.
- Store rooms are to be mopped daily and high dusted once a week.
- The floor of bathrooms is to be cleaned with a brush and soap solution daily. For disinfection, 1% Na Hypochlorite can be used.
- Toilets are cleaned with a brush using harpic solution twice a day (in the morning and evening). Disinfection may be performed using1% Na Hypochlorite.
- Regular AC maintenance is required. The maintenance section should draw up a protocol for this.
- Mopping plan to be followed in room side.

Instructions for mopping plan register

- Keep a note book as **"MOPPING PLAN REGISTER"**

- Categorize the patients according to the following criteria.
- Complete the mopping plan register by night /morning duty staff before the arrival of CMC cleaning staff (House Keeping staff).
- Show the mopping plan register to the CMC cleaning staff and explain the route of mopping by the staff nurse.
- After completion of cleaning, sign the register by both CMC cleaning staff & staff nurse in the concerned department.

Categories for mopping plan

Category 1. Immunocompromised patients (newborns, chemotherapy patients, burns cases ect)

Category 2.Clean surgical cases

Category 3.General /Medical cases

Category 4. Infected cases/Communicable disease

DATE	ROOM NUMBER				SIGNATURE OF CMC CLEANING STAFF	SIGNATURE OF STAFF NURSE
	1	2	3	4		

Patient Linen

- Bed linen is to be changed daily and whenever soiled with blood or body fluid. Soiled linen (with body fluids) is washed primarily by housekeeping staff in the ward and send it to laundry after labeling it as primarily washed.
- Patient's gown is to be changed every day and whenever soiled with blood or body fluids.
- Dirty linen is to be sent to the laundry for regular wash.
- Linen soiled with blood or body fluids of patients diagnosed with HIV, HBV& HCV, is to be send for incineration. For serology positive patients, use disposable mackintosh /sheets available in our pharmacy.

12.4 HOUSE KEEPING IN THE ISOLATION WARD

Before Admission: The admitting physician should inform the sister In charge of Isolation Ward at least one hour prior to admission, mentioning the diagnosis, sex and the general state of the patient.

Pre-requisites for Isolation

- A source of running water should be available at the entrance of each room to facilitate hand washing.
- The mattress and pillows should have an impervious cover so that it can easily be damp dusted.
- Clean gowns should always be available.
- Separate urinals, bedpans and thermometers are to be used for each patient.
- A bin lined with the appropriate color coded plastic cover should be available in each room for disposal of medical waste.
- Rooms should be isolated according to disease conditions and appropriate isolation precaution signage board should be displayed as instructed .

Cleaning procedure for Isolation Room

- Linen should be stripped from the bed with care taken not to shake the linen during this section. Linen sent to the laundry after labeling it as infectious.
- All other articles should be cleaned with 1% Lysoformin. Get instructions from HICN regarding additional reagents to be used for disinfection of a particular infectious disease.
- The bathrooms should be cleaned with detergent and disinfected with 1% Na Hypochlorite.
- Fogging of the isolation room to be done for spore forming infections like Tetanus, Anthrax, Plague and for airborne like H1N1, chickenpox, open TB (sputum positive)

At discharge (terminal disinfection)

- The pillows and mattress are to be cleaned with detergent, disinfected with 1% Lysoformin.
- Bed sheets, curtains, gowns and dusters must be removed soaked in 1% Na Hypochlorite for half hour and then sent to laundry.
- After disinfection, wash the room, wall window, doors, bathroom, sink and furniture with soap solution after doing through high dusting in that cubicle.
- Soak bed pan, urinal, kidney basin in 1% Na Hypochlorite for 30 minutes, wash with detergent.
- Bath basins, multi-bin, bucket, jugs, mugs are washed with soap solution and dried in sunlight.
- Rubber sheets (mackintosh) are to be cleaned with 1% Lysofomin.

12.5 HOUSE KEEPING IN THE OPERATION THEATRE

- Theatre complex should be absolutely clean at all times. Dust should not accumulate at any region in the theatre.

- Lysoformin is recommended for cleaning floors and other surfaces. Operation room (ORs) are cleaned daily and the entire theatre complex is cleaned thoroughly once in a week (Saturday / Sunday in our hospital).

Before the start of the first case: Wipe all equipment, furniture, room lights, suction points, OR table, surgical light reflectors, other light fittings, slabs etc with soap solution. This should be completed at least one hour before the start of surgery.

After each case: Refer to the section on guidelines for surgical procedures in the chapter 'Specific areas of patient care'.

Linen: Gather all soiled linen and towels in the receptacles provided. Take them to the service corridor behind the theatre and place them in trolleys to be taken for sorting. The dirty linen is then sent to the laundry. Use gloves while handling dirty linen.

Instruments: Used instruments are decontaminated in 2% Lysoformin and send to CSSD.

Environment: Wipe used equipment, furniture, OR table etc, with 1% Lysoformin. If there is a blood spill, disinfect with sodium hypochlorite before wiping.

Clean and disinfect suction bottles and tubing .

After the last case: The same procedure as mentioned above is followed and in addition the following are carried out.

- Wipe over head lights, cabinets, waste receptacles, equipment, and furniture with disinfectant.
- Wash floor and wet mop with 1% lysoformin solution

- Clean the storage shelves, scrub & clean sluice room.

Weekly cleaning procedure

- Remove all portable equipment
- Clean doors, hinges, facings, glass inserts and rinse with a cloth moistened with light soap solution
- Wipe down walls with clean cloth mop with 1% lysoformin
- Scrub floor using 1%lysoformin solution.

Wash (clean) and dry all furniture and equipment (OR table, suction holders, foot & sitting stools, Mayo stands, IV poles, basin stands, X-ray view boxes, hamper stands, all tables in the room, hoses to oxygen tank, kick buckets and holder, and wall cupboards.

- Do not remove or disturb delicate equipment.
- While wiping cabinets, see to it that the solution doesn't get inside and contaminate sterile supplies.
- Operating rooms and scrub rooms should never be dry dusted.

Maintenance and Repairs

- Machinery and equipment should be checked, cleaned and repaired routinely on Saturdays.
- Urgent repairs should be carried out at the end of the day's list.
- Air conditioners and suction points should be checked, cleaned and repaired on a weekly basis.
- Preventive maintenance on all theatre equipment to be carried out every Saturday, and major work to be done at least once every year.

13.SUPPORT SERVICES

13.1 ENGINEERING DEPARTMENT

The preventive maintenance of all equipment will ensure efficiency and reduce chances of contamination of air and water. The proper care and maintenance of the entire physical structure will also reduce accumulation of dust and spores in the environment. Thus the engineering department and its personnel are important links in the chain of activities towards hospital infection control.

A. General Guidelines

- Perform an Infection Control Risk Assessment (ICRA) before any renovation, construction or repair project. ICRA tool to be filled and submitted to the HICD by the HOD of the engineering department. **(See annexure)**
- Engineering personnel shall report to the ward sister prior to commencing work in a patient's room or area, and follow her directions with regard to dressing, scrubbing etc. Prior to entering areas

requiring sterile attire such as the OT, they shall wear the prescribed clothing. They shall check out with the ward sister upon completion of work.

- Engineering employees shall maintain a neat, clean appearance at all times. They must be aware of universal precautions.
- Hand washing should be followed before and after leaving the patient care area.

B. Plumbing Job Guidelines

- Hospital water supply systems shall not be connected with any other piping system or fixtures that could allow contamination.
- When using implements to unstop faulty drains, wear rubber gloves.
- After exposure to sewer lines or gross contaminated waste, clean exposed areas of body with soap and water. Change uniform if necessary; do not return to patient care areas before cleaning up.

C. Physical barriers between repair area and patient care facility

- Construct barriers to prevent dust and dangerous pathogens from entering patient care areas and ensure that barriers are impermeable to fungal spores and in compliance with local fire codes. When any construction or repair work is carried out in patient care areas the supervisors must inform the Medical Superintendent, who will inform the heads of the concerned departments so that patients may be shifted, if required.
- When work is carried out in areas with immune-compromised patients or that require a sterile atmosphere, adequate physical barriers must be present .All areas that require a sterile atmosphere must be fogged before use following construction work.

D. Ventilation systems

- Regular cleaning of all window AC filters must be carried out in a systematic manner throughout the hospital. In areas such as the microbiology lab where handling of infected material is carried out, more frequent checks and cleaning of AC filters is required.
- In areas where central air-conditioning is used, the moisture of the air and the ventilator air changes must be carefully monitored.

E. Incinerator

- All personnel working at the incinerator site must strictly follow Universal Precautions. Materials to protect workers are available with the respective supervisors. In case of sharps injury, the incident must be reported immediately by the supervisor to the HICD.
- In case of breakdown or repair of the incinerator, the Medical Superintendent and the HICC must be informed so that the required emergency measures may be taken.

13.2 DIETARY DEPARTMENT

The Dietary department ensures that food prepared and served to patients, visitors and employees is received, stored, assembled and served in a manner that avoids contamination. The aim is to prevent food/water borne infections.

1. Production Kitchen: All food is prepared and served into containers/trays in the main kitchen and then sent to the wards.

a. Food Temperatures

- Cold food items are maintained in refrigeration at a temperature of 2-8^{O}C or below
- Foods prepared to be served cold are cooled from their preparation temperature to 4^{O}C or below. The cooling period shall not exceed 4 hours.

- Hot foods are held at an internal temperature of 63^{o}C.
- The temperatures are checked daily and a log is maintained to document storage temperature.
- Both hot and cold food items will be transported in such a manner that appropriate temperatures will be maintained during the transportation of the food.

b. Special Formula Food - Blended Diet

Formulae prepared by the dietary department are subject to specific preparation and storage policies and procedures that may be found in the Dietary Department Manual. These are microbiologically checked only when epidemics occur.

2. In-patient Food: Trays of patient food are assembled in the kitchen, supervised by professional and trained personnel. They are taken to distribution points and served by dietary personnel. Dietary workers are taught to observe Universal Precautions to protect themselves. The returned trays are heat treated to render the items sanitized (wash temperature 65-70^{o}C, rinse temperature 85-95^{o}C).

3.Dietary Personnel: Dietary personnel are taught to follow the general hygienic and sanitary practices strictly. Personal hygiene checklist and annual health checkup register must be maintained correctly. Any person affected by any illness or disease must report the illness and go for a medical examination. It is the responsibility of the operator to ensure adherence to necessary requirements and provide adequate barriers for the use of dietary personnel. For details regarding health care of the workers, refer to the chapter on employee health policies

- **Hand Washing**: Personnel should wash exposed portions of their arms and hands with soap and water before starting work. Hand washing includes special attention to the fingernails and areas between the fingers.Hand washing should be mandatorily repeated after using toilet, eating or

drinking, arranging or combing the hair, touching the face, nose or eyes, contact with unclean equipment and work surfaces and after handling raw food.

➢ **Personal Habits**

- Keep clothing free from obvious dirt and food spills
- Use hair restraints while on duty.
- Use utensils to handle food or drinks in the food preparation or serving areas.
- Do not consume food and drink in the food preparation or serving areas.
- Do not handle the food and money at the same time.
- Avoid spitting, coughing, sneezing etc. in the food service area.
- Do not use tobacco products in any form while engaged in the preparation or serving of food.

4. Disposal of waste from the dietary department: Food returned to the kitchen is discarded. These and other dietary wastes are kept in foot-operated waste bins lined by plastic bags outside the dietary department which are removed regularly. Environmental cleaning and disinfection is done daily with an appropriate solution.

5. Out breaks: When a food borne illness is suspected, the HICC is notified. The microbiology department will obtain specimens from the symptomatic individuals and from suspected food. The HICC and Community medicine Department will be responsible for obtaining significant histories and conducting the investigation of a suspected food borne illness.

6. Surveillance: Monthly visit and audit to all food outlets is conducted by HICD in collaboration with Food hygiene committee.

13.3 LAUNDRY SERVICES

Management of linen

Linen is the second most powerful reservoir of micro organism in health care settings. All linen should be handled carefully so that there is minimum dispersion of micro organism. Appropriate PPE should be used when handling linen soiled with bodily substances.

A. Categories

1. Used Linen: All used linen is considered as contaminated.
2. Soiled Linen: Linen visibly contaminated with blood, body fluids, secretions and excretions.
3. Infected Linen: Linen is used by an infectious patient.

B. Linen treatment

1. Used Linen (Dirty linen)

↓

Detergent washing

↓

Drying

↓

Folding

↓

Distributing

2.Soiled linen

Pre-wash

↓

Washing

↓

Folding

↓

Distributing

3. Infected (only for serology positive)

↓

Incineration

C. Transportation of used linen

- Used linen should be bagged at location of use and it is transported to laundry.
- Linen that is heavily soiled with blood or other bodily substances should be placed in leak proof yellow bags with securely tied and documented outside (All infected linen).

- Transportation of linen to laundry by using covered trolleys

Note: All the trolleys should be cleaned on a regular basis

D. Return of clean linen to the user

- Transport in a clean dry and covered trolley which is cleaned and disinfected prior loading with clean linen
- Store the clean linen in a clean and dry area

Handling of soiled linen

a. Soiled linen should be handled as little as possible and with a minimum amount of agitation to prevent gross microbial contamination of the air and of persons handling o the linen.

b. All soiled linen should be bagged or put into special carts at the location where used.

c. Linen soiled with blood or body fluids must be soaked in 1 % sodium Hypochlorite solution for at least half hour and then do normal washing.

Sorting soiled linen: In the laundry, hand washing facilities and protective equipment(eg: gowns, gloves, goggles and masks) are available to personnel who are sorting the used linen. In the wards, sorting of laundry should be done only in the sluice rooms and not at the bedside.

Hot-water Washing: Soiled and infected linen is washed at 80-90^{0}C for over 20mts with a detergent in water since this is an effective method for cleaning and killing most vegetative bacteria.

Clean linen

- The clean linen section should be cleaned every day; Cupboards and walls are damp dusted and the floor mopped.
- All clean linen should be stored and transported in carts used exclusively for this purpose. Clean linen is delivered to the user in such a way as to minimize microbial contamination from surface contact or airborne deposition. There is to be a functional separation of clean and soiled linen during storage and transport.

Sterile linen: Only linen used in procedures requiring sterile technique should be sterilized. This process is done in the CSSD.

14. LIST OF FORMS

SL No	FORMS
1.	Hand hygiene observation checklist
2.	PPE use audit tool
3.	Needle stick Injury Analysis
4.	Safe Injection Practices Infection Prevention Audit Tool

5.	Biomedical Waste Management Audit Tool
6.	HAI Surveillance Record
7.	Laundry Inspection Check list
8.	Form of CAUTI Surveillance
9.	Form for Surveillance of surgical site infection
10.	Form for Surveillance of central line associated infection
11.	Form for Surveillance of ventilator associated pneumonia
12.	MRSA decolonisation protocol

15. LIST OF FILES

SL No	Particulars
1.	Pressure ulcer
2.	IV related complications
3.	Hospital infection control committee
4.	Microbiological surveillance register
5.	HIC training register
6.	CNE register
7.	HIC review of literature

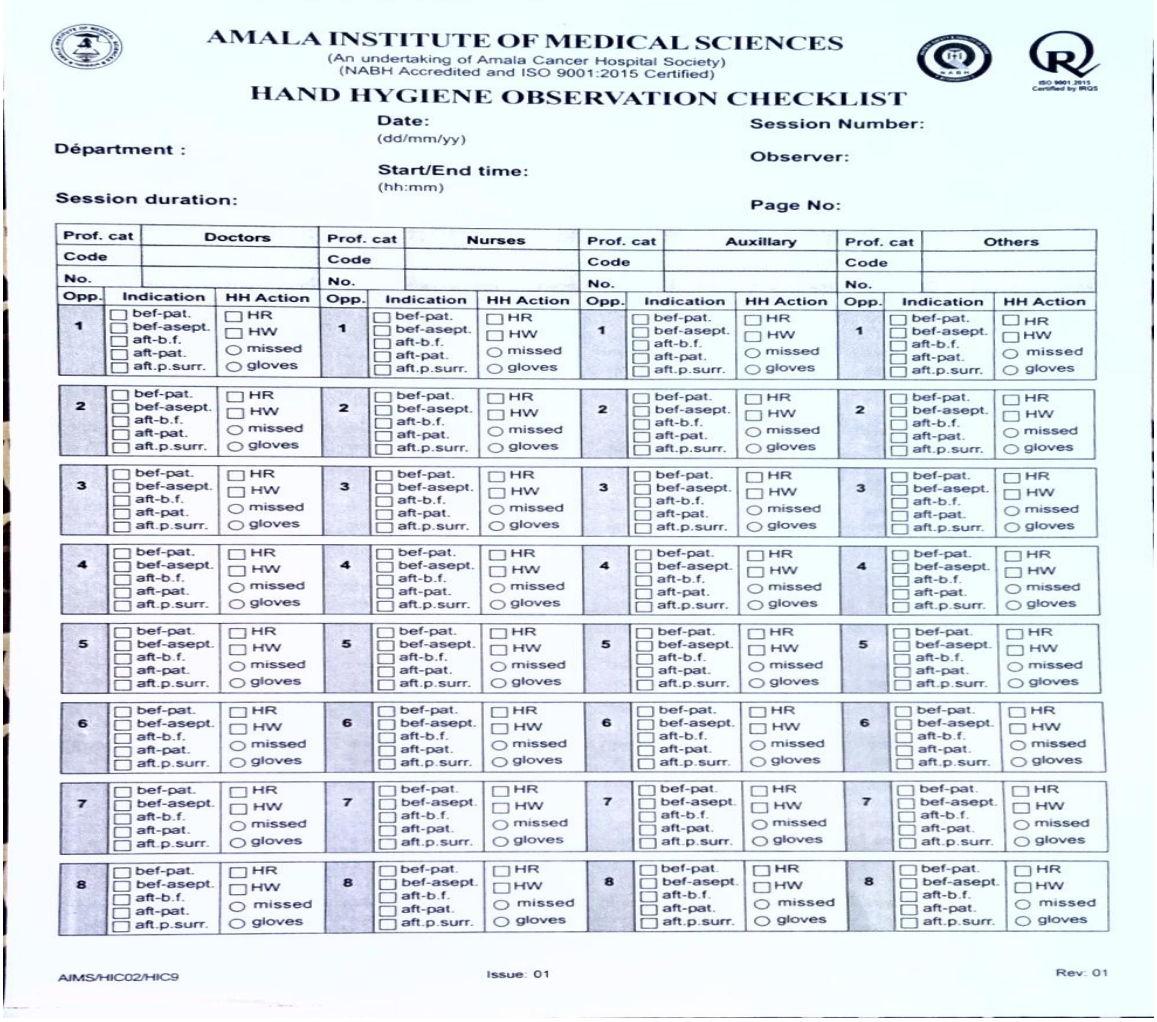
8.	Exploration studies of reported infection
9.	Vaccination file
10.	Surgery List
11.	Needle stick injury
12.	Biomedical waste management
13.	Outbreak
14.	IDSP
15.	HAI surveillance record
16.	SSI
17.	CLABSI
18.	CAUTI
19.	VAP
20.	Infection Control Rounds
21.	Portable water
22.	Vaccination
23.	HIC General
24.	Hand Hygiene
25.	HAI Denominator
26.	Laundry inspection check list
27.	Canteen audit file

16. LIST OF REGISTERS

- HIC indicator register
- Mopping plan register in wards
- Infection control register in wards
- SSI Phone call Register
- Microbiology data register

17. ANNEXURE

1. HAND hygiene observation checklist



AMALA INSTITUTE OF MEDICAL SCIENCES

(An undertaking of Amala Cancer Hospital Society)
(NABH Accredited and ISO 9001:2015 Certified)

HAND HYGIENE OBSERVATION CHECKLIST

Date: (dd/mm/yy)

Session Number:

Department :

Observer:

Start/End time: (hh:mm)

Session duration:

Page No:

Prof. cat	Doctors		Prof. cat	Nurses		Prof. cat	Auxillary		Prof. cat	Others	
Code			Code			Code			Code		
No.			No.			No.			No.		
Opp.	Indication	HH Action	Opp.	Indication	HH Action	Opp.	Indication	HH Action	Opp.	Indication	HH Action
1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
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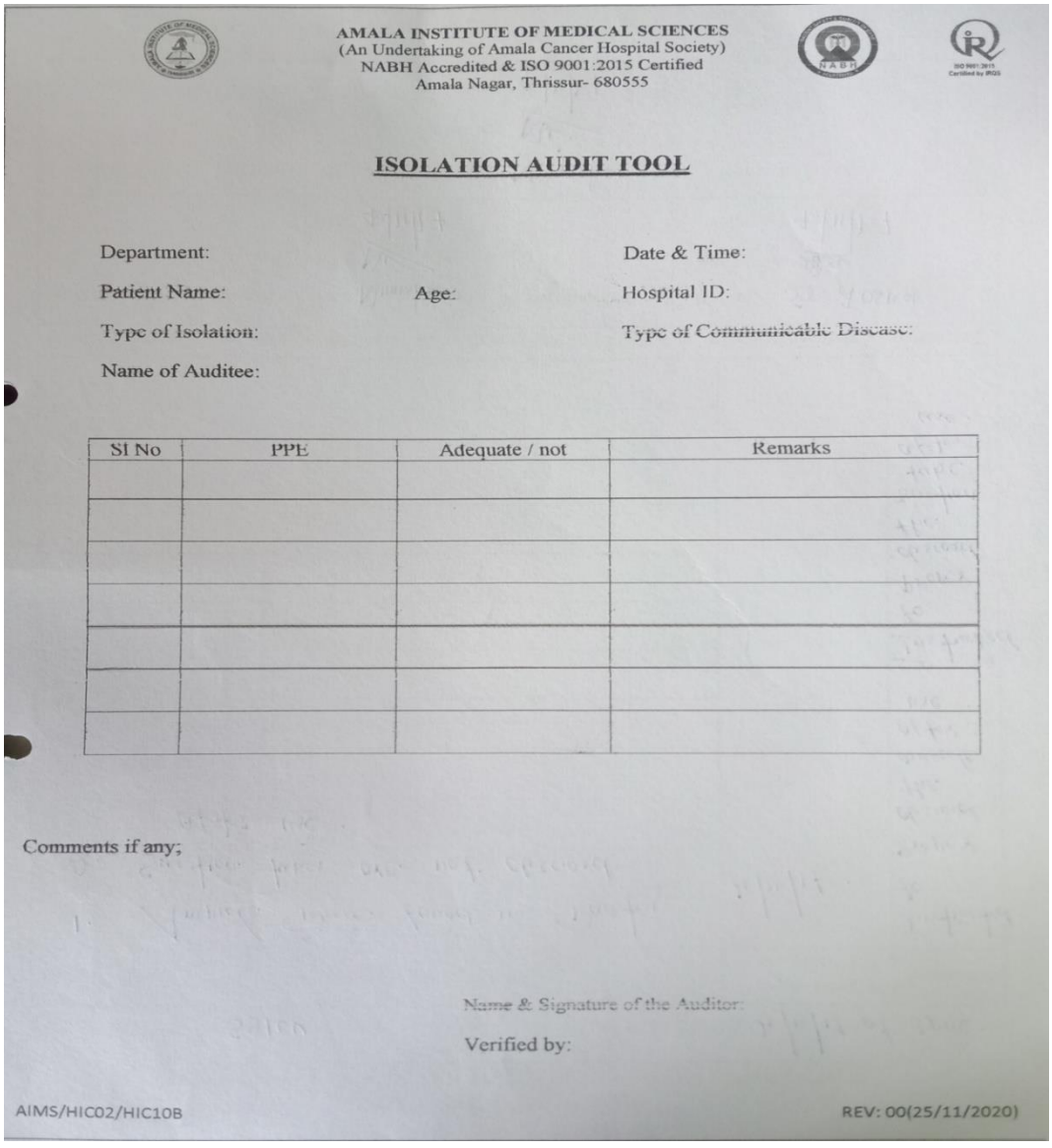
7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves

AIMS/HIC02/HIC9 Issue: 01 Rev: 01

Prepared By	Approved By	Issued By
Dr. Subi Das Infection Control Officer	Fr. Deljo Puthoor CMI Accreditation Co-ordinator	Fr.Julious Arakkal CMI Director

2.PPE AUDIT TOOL



AMALA INSTITUTE OF MEDICAL SCIENCES
(An Undertaking of Amala Cancer Hospital Society)
NABH Accredited & ISO 9001:2015 Certified
Amala Nagar, Thrissur- 680555

ISOLATION AUDIT TOOL

Department: Date & Time:

Patient Name: Age: Hospital ID:

Type of Isolation: Type of Communicable Disease:

Name of Auditee:

Sl No	PPE	Adequate / not	Remarks

Comments if any;

Name & Signature of the Auditor:

Verified by:

AIMS/HIC02/HIC10B REV: 00(25/11/2020)

3.NEEDLESTICK INJURY ANALYSIS

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AMALA NAGAR, THRISSUR

Incident date &time :
Informed date & time :

Name of the staff :

Age/Sex :

Designation :

Location :

Involved body part/ affected area :

Depth of injury :

Type of exposure :

Was the injured person wearing any PPEs :

Hepatitis B Vaccination status :

Source :

Serology status :

Actions taken :

Preventive Action :

Dr.Subi Das

Infection Control Officer, AIMS

4.SAFE INJECTION PRACTICES INFECTION PREVENTION AUDIT TOOL

AMALA INSTITUTE OF MEDICAL SCIENCES

AMALA NAGAR, THRISSUR

INJECTION SAFETY CHECKLIST

Department: Name of Auditee:

Date and Time: Name of Auditor

SL NO	INJECTION SAFETY	YES/NO	INTERVIEW/ OBSERVATION	COMMENTS
1	Perform hand hygiene, prior to preparing and administering medications			
2	Medications and supplies are stored and prepared in a clean area on a clean surface (free from contaminated or contact with blood or body fluid or contaminated equipment)			
3	Needles and syringes are stored in their original packing			
4	Needles and syringes are used for only			

	one patient (Including prefilled syringes, insulin pens)			
5	The rubber septum on medication vial is disinfected with alcohol prior to piercing			
6	Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for same patient			
7	Medications are not prepared in one syringe and transferred to another syringe			
8	Single use medication vials, ampoules and bags or bottles of IV solutions are used only for one patient			
9	Multi-dose vials are dated when first opened and discarded within 28 days unless manufacture specifies a different			
10	Needles are never left inserted in any vial rubber septum for multiple withdrawals			
11	Multi-dose vials are dedicated to individual patients whenever possible			

12	Multi-dose vials used for more than one patient are stored in centralized medication area and do not enter into immediate patient treatment area(OT, patient room)			
13	Administration of spiked IV solutions is initiated within 1 hour of preparation			
14	Dilution of medications into IV solution are labeled with name of medication added, dose date ,time and signature of the staff on the solution bottles			
15	Wipe the area from centre to periphery in a circular motion by using an alcohol swab without going over the same area.			
16	Skin at the injection site is prepared with antiseptic is allowed to dry			
17	The injection site is not touched after skin antisepsis is done			
18	Flushing of peripheral IV catheter with or without extension 1ml for assessing-medication- 2ml for clearing and locking			
19	Sharps and other waste are disposed			

	and segregated appropriately			
20	Perform hand hygiene after injection event			

Name & Signature of HICN:

5.BIOMEDICAL WASTE MANAGEMENT AUDIT TOOL

AMALA INSTITUTE OF MEDICAL SCIENCES

Date:……..Department/ward……

SL. No	Criteria	YES	NO	Action Taken
1	A biomedical waste color code is available.			
2	All clinical areas have foot operated waste bins, which are in working order.			
3	Puncture proof containers are available for use.			
4	Lining cover is present in all waste bins according to the color of the bins.			
5	General waste is placed in green bin.			
6	Clinical waste and general waste is correctly segregated.			
7	Waste bins and Puncture proof containers are less than 3/4 full and securely tied			
8	The biomedical waste policy is known to staff.			
9	Staff is aware of procedure to follow following a sharps injury/significant exposure.			

10	Appropriate protective equipments are available for staff handling clinical waste bins.			
11	Waste filled lining cover is tied and labeled properly before send to waste treatment plant.			

Audi4t Taken By……..

Signature of ward In charge: **Signature of BMW In charge:**

Signature of ICN:

6.HAI SURVEILLANCE RECORD

AMALA INSTITUTE OF MEDICAL SCIENCES

S. No	Date	Ward	DOA	Diagnosis	Procedure performed date	Sign of infection	Remarks
						Fever ☐ TC : Oozing ☐ Dysuria ☐ Urine Routine: PEEP: Fio2: SSI ☐ CAUTI ☐ VAP ☐ CLABSI ☐ Phlebiti ☐	

						Fever ☐ TC : Oozing ☐ Dysuria ☐ Urine Routine: PEEP: Fio2: SSI ☐ CAUTI ☐ VAP ☐ CLABSI ☐ Phlebiti ☐	

Done by: **Verified by**

7.LAUNDRY INSPECTION CHECK LIST

AMALA INSTITUTE OF MEDICAL SCIENCE

Date: **Time:**

AREA	SL.NO	CRITERIA	YES	NO
Manpower	1	Contract employees on duty.		
	2	All employees in dress code(especially with shoes)		
Cleaning	1	Store cleaning done.		
	2	Floor is free from cloth and debris across the laundry.		
	3	All the work tables are clean.		
	4	All store racks are clean.		
Equipment	1	All equipments are clean and washed before starting		

		operation.		
	2	Any cloth, chappels, other unnecessary things to be removed from nearby and base of the equipments.		
	3	All the inlet (washing machine) for chemicals are clean and clear.		
	4	Any loose / open wires found across the laundry to be reported.		
	5	Any breakdown of equipment.		
	6	Any loose switch/switch board wiring.		
	7	Checked the balance of washing machine.		
Service	1	White linen collected on time as per standard.		
	2	Any employee complaint with respect to linen.		
Ward	1	Delivery of patient linen on time.		
	2	Any shortage in linen supply.		
	3	At least 2 patient feedback from ward taken.		
Operations	1	Steam supply is sufficient.		
	2	Chemicals are stored appropriately, inventory maintained.		
	3	Inventory of chemicals checked.		
	4	Any steam or water leakage from any linen or equipments.		
	5	Rewash / Condensation details documented accurately.		
Safety	1	All the fire extinguishers for laundry are clean and		

		maintained.		
	2	Empty plastic chemical containers container are kept away from the steam linens.(near the emergency exit of the laundry)		

Signature of HIC Nurse

8. SURGICAL SITE INFECTION

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(An undertaking of Amala Cancer Hospital Society)
Amala Nagar,Thrissur-680555, Kerala

Surgical Site Infection –Report Form

Name: **Ward:** **Age:** **Gender:**
Hospital No:
Date of admission: **Department:**
Name of surgery: **Unit:**
Surgeon: **Date of surgery:**
Operation theatre: **Temperature:** **Humidity:**
Time: **Duration in hours:**
SSI diagnosis: **Sample No:**
Sample sent date:
Date of discharge: **Report Date:**
SSI grade: **Organism:**

Root cause analysis:
Co- morbidities:
Indicator strip:
Blood values:
Pyrexia:
SSI bundle:

Risk category:
i. **Clean:** **Superficial:**

9.CLABSI

CLABSI – Report Form

Month:	**Report Date:**			**Year:**
Name:	**Age:**	**Sex:**	**Unit:**	**Ward:**
Hosp No:	**Treating Doctor:**			
Date of admission:	**Diagnosis:**			
Date of insertion:	**Insertion done by:**			
Place of insertion:	**Removal date:**			
Duration of central line:	**Method of Diagnosis CLABSI:**			
Sample No: **Sample sent date:** **Sample report date:**	**Organism if any Isolated:**			
Root Cause Analysis: **Co- morbidities:** **Any break in Aseptic Technique:**	**Remarks if any:**			
Corrective Action:	**Preventive Action:**			

10.CAUTI

CA –UTI Repot Form

Month: **Report date:** **Year:**

Name: **Age:** **Sex:** **Unit:** **Ward:**

Hosp No: **Treating Doctor:**

Date of admission: **Diagnosis:**
Date of catheterization: **Catheterization done by:**
Place of catheterization: **Cather removal by:**
Duration of catheterization: **Method of diagnosis CA-UTI:**

Sample No: **Organism if any Isolated:**
Sample Sent Date:
Sample Report Date:

Root Cause Analysis: **Remarks if any:**
Co- morbidities:
Any break in Aseptic Technique:
Corrective Action: **Preventive Action:**

11.VAE

VAE – Report Form

Month:	**Report date:**			**Year:**
Name:	**Age:**	**Sex:**	**Unit:**	**Ward:**
Hosp No:	**Treating Doctor:**			
Date of admission:	**Diagnosis:**			
Date of Intubation:	**Intubation done by:**			
Place of intubation:	**Removal Date:**			
Duration of Intubation:	**Method of Diagnosis VAE:**			
Sample No:	**Organism if any Isolated:**			
Sample sent Date:				
Sample Report Date:				
Root Cause Analysis:	**Remarks if any: Attach VAE CDC calculator form**			

AIMS/HIC04/HIC03 Rev01(11/11/2019)

12.CANTEEN AUDIT TOOL

AMALA INSTITUTE OF MEDICAL SCIENCES

Date: **Time:**

IP CANTEEN AUDIT CHECK LIST

Auditors- Date –

Name of the Auditor: Name of the auditee :

` ***CLEANLINESS AND UPKEEP OF PREMISES***

`	Yes/No	Remarks
1. Food preparation area is clean and free from pests		
2. Floors, walls and food contact surfaces are clean and dry		
3. Drains and gullies are clean and appropriately covered		
Refreshment Area		
4. Tables and chairs are kept clean		
5. Fans and light fittings are clean and free of dirt and cobwebs		
6. Refreshment area is free from unwanted articles		
Toilets and Wash Basin		
7. Toilets are clean and dry		
8. Basic amenities such as soap solution, toilet paper, hand dryer / hand towel and litter bins are readily available		
Waste Disposal Area		
9. Appropriate foot-operated refuse bins are used		
10. Refuse bins are kept covered at all times when not in use		
11. Food handlers do not prepare food if they are suffering from food poisoning symptoms e.g. Diarrhea, vomiting		
12. Clean aprons and caps are worn where handling food		
13. Fingernails are short, no wounds, unpolished and clean		
14. Hands are washed thoroughly with soap and water frequently and at appropriate times		
Dry Goods Storage Unit		
15. Dry goods, drink cans and other food items are stored neatly on shelves at least 30 cm above ground		

16. Insecticides, detergents and other chemicals are stored away from food products		
Refrigerator / Chiller / Freezer		
17. Refrigerated food storage units are in good working order and maintained at correct temperatures		
18. Refrigerated food storage units are kept clean labeled and well-organized		
19. A temperature form is maintained to document storage temperatures		
Cooking Equipment		
20. Dirty / soiled utensils and equipment are washed immediately after use		
21. Chopping boards and knives are thoroughly cleaned between tasks		
Food Preparation and Holding		
22. Food supplies are obtained from licensed or approved sources		
23. Ingredients used are fresh, washed and not expired		
24. Food is not prepared on floor, near toilet or drain		
25. Food is not prepared and kept at room temperature for prolonged periods before sale or consumption		
Food Handling and Serving Practices		
26. Disposal gloves are used in correct manner, and are changed regularly and when necessary		
27. Food handlers observe good hygiene practices while handling food.		
28. For packed food, food is packed in clean package or wrapper made of materials that do not contaminate the food.		
Food Transport Vehicle/Trolley		

29. Trolley is clean and well-maintained		
30. Trolley is free from pests and vermin.		
Food Transport Process		
31. Food containers with tight fitting covers are used for storage and transportation of cooked food.		
32. Loading and unloading of food is done in proper manner		
Comments if any:		

Signature of Auditior : Signature of Auditee :

OP CANTEEN AUDIT CHECK LIST

Auditors- Date-

` *CLEANLINESS AND UPKEEP OF PREMISES*		
`	**Yes/No**	**Remarks**
• Food preparation area is clean and free from pests		

• Floors, walls and food contact surfaces are clean and dry		
• Drains and gullies are clean and appropriately covered		
Refreshment Area		
• Tables and chairs are kept clean		
• Fans and light fittings are clean and free of dirt and cobwebs		
• Refreshment area is free from unwanted articles		
Toilets and Wash Basin		
• Toilets are clean and dry		
• Basic amenities such as soap solution, toilet paper, hand dryer / hand towel and litter bins are readily available		
Waste Disposal Area		
• Appropriate foot-operated refuse bins are used		
• Refuse bins are kept covered at all times when not in use		
• Food handlers do not prepare food if they are suffering from food poisoning symptoms e.g. Diarrhea, vomiting		
• Clean aprons and caps are worn where handling food		
• Fingernails are short, no wounds, unpolished and clean		

• Hands are washed thoroughly with soap and water frequently and at appropriate times		
Dry Goods Storage Unit		
• Dry goods, drink cans and other food items are stored neatly on shelves at least 30 cm above ground		
• Insecticides, detergents and other chemicals are stored away from food products		
Refrigerator / Chiller / Freezer		
• Refrigerated food storage units are in good working order and maintained at correct temperatures		
• Refrigerated food storage units are kept clean labeled and well-organized		
• A temperature form is maintained to document storage temperatures		
Cooking Equipment		
• Dirty / soiled utensils and equipment are washed immediately after use		
• Chopping boards and knives are thoroughly cleaned between tasks		
Food Preparation and Holding		
• Food supplies are obtained from licensed or approved sources		

• Ingredients used are fresh, washed and not expired		
• Food is not prepared on floor, near toilet or drain		
• Food is not prepared and kept at room temperature for prolonged periods before sale or consumption		
Food Handling and Serving Practices		
• Disposal gloves are used in correct manner, and are changed regularly and when necessary		
• Food handlers observe good hygiene practices while handling food.		
• For packed food, food is packed in clean package or wrapper made of materials that do not contaminate the food.		
Food Transport Vehicle/Trolley		
• Trolley is clean and well-maintained		
• Trolley is free from pests and vermin.		
Food Transport Process		
• Food containers with tight fitting covers are used for storage and transportation of cooked food.		
• Loading and unloading of food is done in proper manner		

Comments if any:

Signature of Auditior :

Signature of Auditee :

13.MORTUARY AUDIT TOOL

AMALA INSTITUTE OF MEDICAL SCIENCES

SL.No	OBSERVATION	YES	NO	Remarks/ Action Taken

Prepared By	Approved By	Issued By
Dr. Subi Das Infection Control Officer	Fr. Deljo Puthoor CMI Accreditation Co-ordinator	Fr.Julious Arakkal CMI Director

○	Bodies should be stored in cold chambers maintained at approx. 2- 8°C and monitored every second hourly.			
○	There is an adequate facility for hand washing and related accessories.			
○	Always wash hands and any exposed skin when leaving the mortuary.			
○	All personnel who are in contact with the body must use personal protective equipment (PPE) of an adequate standard.			
○	Cleaning and Disinfection procedures should be compatible with hospital infection control policy (cleaning checklist)			
○	Surfaces and instruments should be made of materials which could be easily disinfected and maintained.			
○	Storage compartments should be easily accessible for both regular cleaning and maintenance.			
○	Staff need sufficient knowledge regarding the policy and protocols related to Mortuary			

○	Smoking, drinking and eating is forbidden in body storage areas.			
○	Porters transferring the body to the mortuary should only be informed of the infection risk and any precautions they need take – but not the actual diagnosis.			
○	Waste segregation is done according to hospital policy			

14.MRSA DECOLONIZATION PROTOCOL

AMALA INSTITUTE OF MEDICAL SCIENCES

Name: **Age /Sex:** **Date of admission:**

Prepared By	Approved By	Issued By
Dr. Subi Das Infection Control Officer	Fr. Deljo Puthoor CMI Accreditation Co-ordinator	Fr.Julious Arakkal CMI Director

Date	Days	Time	Chlorhexidine body wash OD for 5 days	Intranasal Mupirocin (T-Bact)ointment TDS for 5 days	Signature of the staff	Signature of the in charge	Cross checked by ICN
	Day-1	8.00 am 2.00pm 8.00 pm					
	Day-2	8.00 am 2.00pm 8.00 pm					
	Day-3	8.00 am 2.00pm 8.00 pm					
	Day-4	8.00 am 2.00pm 8.00 pm					
	Day-5	8.00 am 2.00pm 8.00 pm					
	Day-6	NO TREATMENT					
	Day-7	NO TREATMENT					

	Day-8	RESWABING FROM AXILLA & NOSTRILS

Note: Decolonization should start immediately after the swab result came as positive and Repeat the decolonization regimen if re-swabbing is positive.

Hospital No: **Consultant:** **Diagnosis:**

15.CIDEX /CIDEX OPA SOLUTION LOG SHEET

AMALA INSTITUTE OF MEDICAL SCIENCES

Date of Test Strip Bottle First Opened: **Do Not Use After (Date):**

Bottle Lot #: **Location/Dept:**

Date of Solution Prepared	Date of Solution Expires	Date - Solution tested	Time –Solution tested	Solution MEC test Results (circle one)	Name & Signature of the staff tested	Remarks
			Time in Time out	Pass Fail		
			Time in Time out	Pass Fail		

			Time in Time out	Pass Fail		
			Time in Time out	Pass Fail		
			Time in Time out	Pass Fail		

16. CSSD RECALL FORM

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Amala Nagar, Thrissur- 680555

CSSD RECALL FORM

Date of Recall initiated: ..... **Time:** ..... **Complaint reported department** .....

Narration of the event:

Method of sterilization: ☐ **Autoclave** ☐ **ETO** ☐ **Sterrad**

Batch Number/ Lot Number: .....

Complaint reported by (Name & Sign of S/N): .....

(Only For CSSD)

Reason for CSSD Recall:

☐ Failure of biological indicators ☐ Failure of chemical indicators

☐ Expiry of shelf life of sterilized items ☐ Seal wrap/ torn

☐ If any blood debris found on instruments on opening the wrap

Date & Time of the Load Placed: .....**Load Placed by:** .....

CSSD: ☐ **SS CSSD** ☐ **Chavara CSSD** ☐ **St. Mary's CSSD**

RCA:

CAPA:

Details of items sterilized in the above mentioned batch number

Name & Signature CSSD In charge: .....

Sl. No	Items	Recollected Quantity	Dept	Status (Recollected/ Already used for patient)	If recollected mention date & time of recollection at CSSD
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					

Name& Signature of HICN: .....

AIMS/HIC07/CSSD- 140 Rev: 2(28/02/2020)

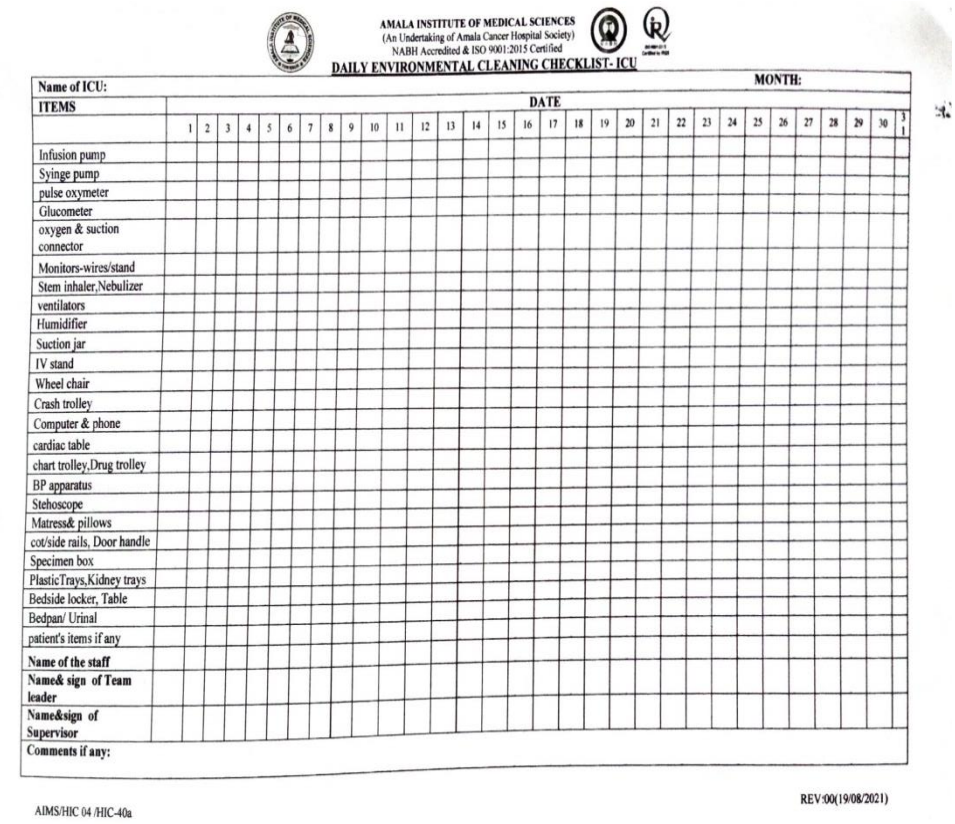
17.ITEM AND FREQUENCY OF CHANGE

Sl.No	ITEM	FREQUENCY OF CHANGE
1	Central line Central line dressing	14 days / if needed 2 days for gauze dressing } with AHD 3000 7 days for transparent dressing
2	Peripheral line	96 hours/ As per VIP score.
3	Tracheostomy dressing	Daily/SOS (with 10% Povidone Iodine Solution)
4	IV Set for IV solution Safe auto-infusion set	24 hours 96 hours
5	IV Set for blood	Single use
6	3 way connector	96 hours
7	Opened IV infusion & other fluids	24 hrs. Label with Date and Time of opening
8	Syringe on syringe pump	24 hours with Date and Time of opening
9	Foleys catheter/ urobag	Fixed intervals is not recommended, according to clinical indication
10	Ryles Tube	One month
11	Multi-dose vials (eg. Inj.Insulin, Inj.Heparin) & Ointments	28 days. Label with Date and Time of opening Store at the manufactures recommended temperature
13	Disinfectant solutions witou alcohol content eg:Povidone iodine. Alcohol contained Disinfectant solution	1 month Label with Date and Time of opening Till the manufactures expiry

14	Ventilator -Masks, Y connection and tubes Heat and moisture exchanging filter (HMEF)	Pneumatic circuits (masks, Y connection and tubes) are to be changed when visibly soiled. 24hrs

18.ENVIRONMENTAL CLEANING CHECKLIST

A.CLENING CHECKLIST-ICU



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DAILY ENVIRONMENTAL CLEANING CHECKLIST- ICU

Name of ICU: MONTH:

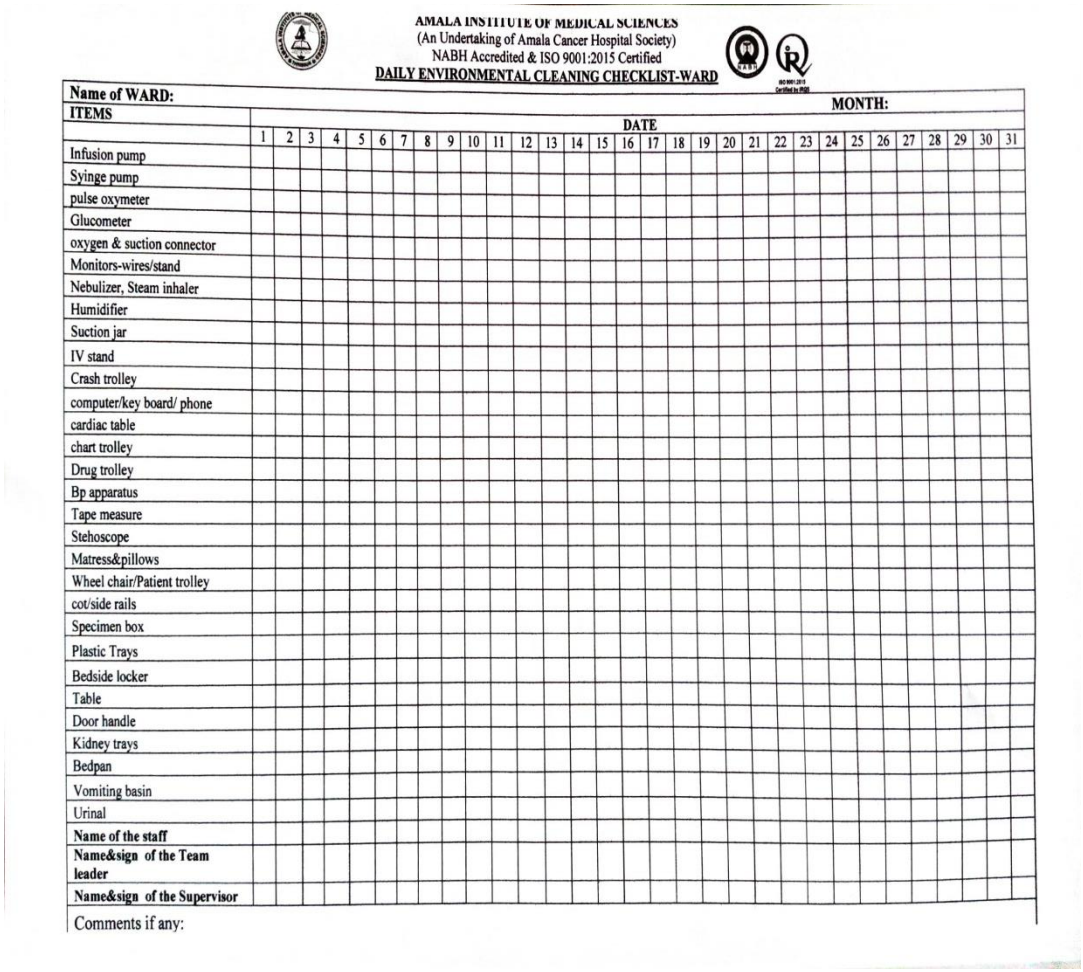
ITEMS	DATE																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Infusion pump																															
Syinge pump																															
pulse oxymeter																															
Glucometer																															
oxygen & suction connector																															
Monitors-wires/stand																															
Stem inhaler,Nebulizer																															
ventilators																															
Humidifier																															
Suction jar																															
IV stand																															
Wheel chair																															
Crash trolley																															
Computer & phone																															
cardiac table																															
chart trolley,Drug trolley																															
BP apparatus																															
Stehoscope																															
Matress& pillows																															
cot/side rails, Door handle																															
Specimen box																															
PlasticTrays,Kidney trays																															
Bedside locker, Table																															
Bedpan/ Urinal																															
patient's items if any																															
Name of the staff																															
Name& sign of Team leader																															
Name&sign of Supervisor																															
Comments if any:																															

AIMS/HIC 04 /HIC-40a

REV:00(19/08/2021)

B. CLEANING CHECKLIST-WARD

Prepared By	Approved By	Issued By
Dr. Subi Das Infection Control Officer	Fr. Deljo Puthoor CMI Accreditation Co-ordinator	Fr.Julious Arakkal CMI Director



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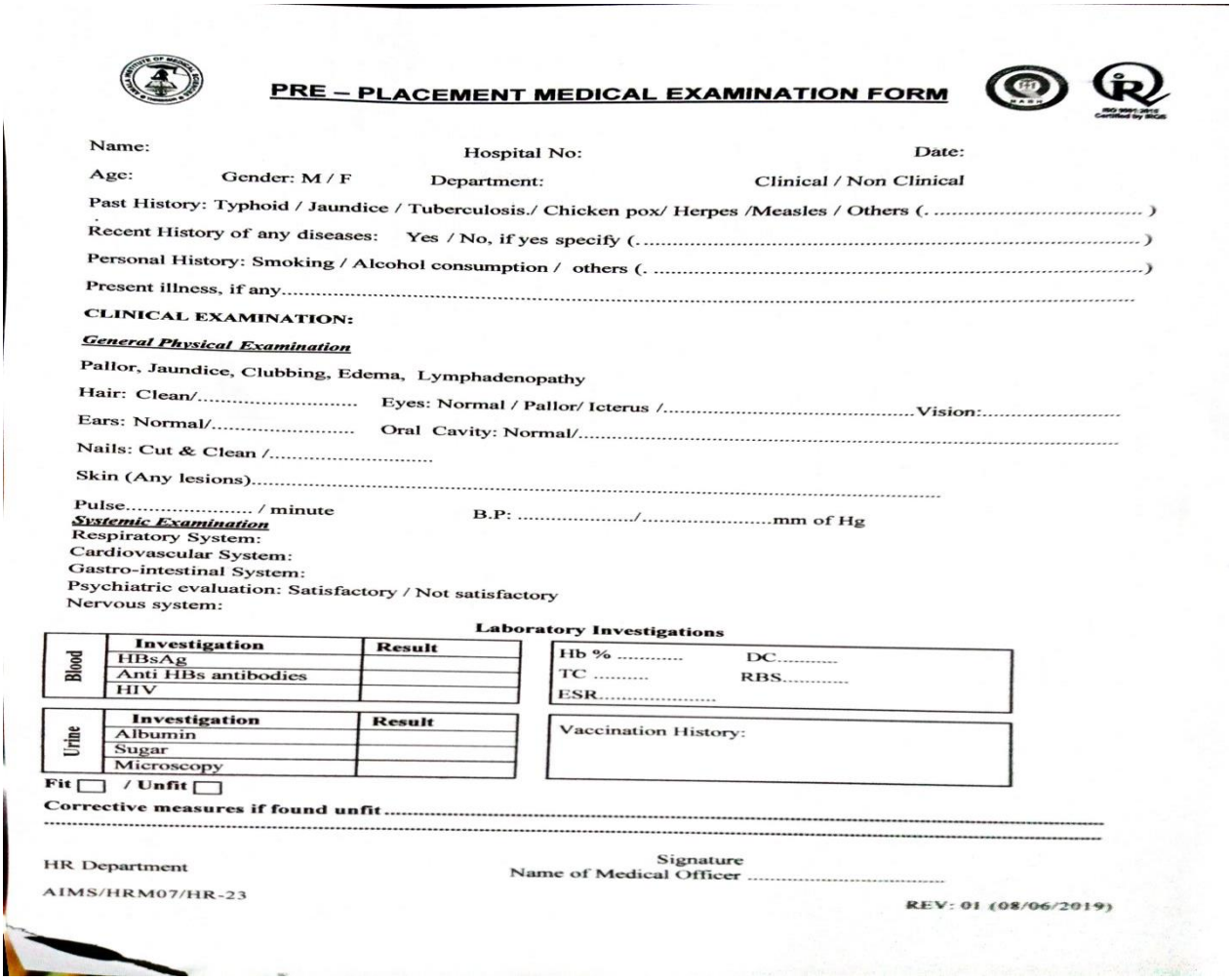
DAILY ENVIRONMENTAL CLEANING CHECKLIST-WARD

Name of WARD:	MONTH:																													
ITEMS	DATE																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Infusion pump																														
Syinge pump																														
pulse oxymeter																														
Glucometer																														
oxygen & suction connector																														
Monitors-wires/stand																														
Nebulizer, Steam inhaler																														
Humidifier																														
Suction jar																														
IV stand																														
Crash trolley																														
computer/key board/ phone																														
cardiac table																														
chart trolley																														
Drug trolley																														
Bp apparatus																														
Tape measure																														
Stehoscope																														
Matress&pillows																														
Wheel chair/Patient trolley																														
cot/side rails																														
Specimen box																														
Plastic Trays																														
Bedside locker																														
Table																														
Door handle																														
Kidney trays																														
Bedpan																														
Vomiting basin																														
Urinal																														
Name of the staff																														
Name&sign of the Team leader																														
Name&sign of the Supervisor																														
Comments if any:																														

19.PRE-PLACEMENT MEDICAL EXAMINATION



PRE – PLACEMENT MEDICAL EXAMINATION FORM

Name: Hospital No: Date:

Age: Gender: M / F Department: Clinical / Non Clinical

Past History: Typhoid / Jaundice / Tuberculosis./ Chicken pox/ Herpes /Measles / Others (. .....)

Recent History of any diseases: Yes / No, if yes specify (. .....)

Personal History: Smoking / Alcohol consumption / others (. .....)

Present illness, if any.....

CLINICAL EXAMINATION:

General Physical Examination

Pallor, Jaundice, Clubbing, Edema, Lymphadenopathy

Hair: Clean/..... Eyes: Normal / Pallor/ Icterus /.....Vision:.....

Ears: Normal/..... Oral Cavity: Normal/.....

Nails: Cut & Clean /.....

Skin (Any lesions).....

Pulse..... / minute B.P: ...../.....mm of Hg

Systemic Examination

Respiratory System:

Cardiovascular System:

Gastro-intestinal System:

Psychiatric evaluation: Satisfactory / Not satisfactory

Nervous system:

Laboratory Investigations

	Investigation	Result
Blood	HBsAg	
	Anti HBs antibodies	
	HIV	

Hb % ..... DC.....
TC ..... RBS.....
ESR.....

	Investigation	Result
Urine	Albumin	
	Sugar	
	Microscopy	

Vaccination History:

Fit ☐ / Unfit ☐

Corrective measures if found unfit .....

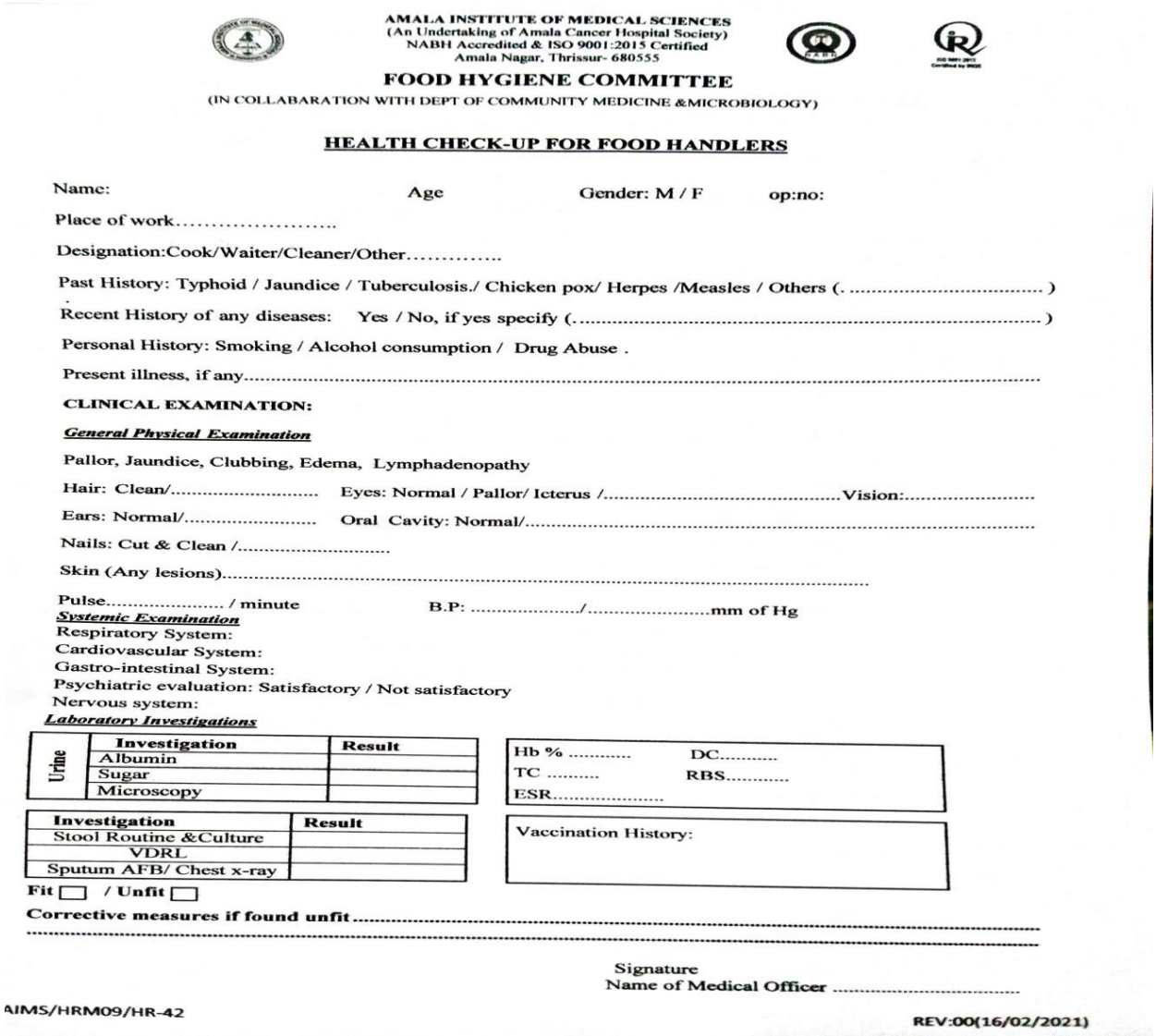
HR Department

Signature
Name of Medical Officer .....

AIMS/HRM07/HR-23

REV: 01 (08/06/2019)

20.FOOD HANDLERS- HEALTH CHECKUP



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FOOD HYGIENE COMMITTEE

(IN COLLABARATION WITH DEPT OF COMMUNITY MEDICINE &MICROBIOLOGY)

HEALTH CHECK-UP FOR FOOD HANDLERS

Name: Age Gender: M / F op:no:

Place of work……..

Designation:Cook/Waiter/Cleaner/Other……..

Past History: Typhoid / Jaundice / Tuberculosis./ Chicken pox/ Herpes /Measles / Others (. …….)

Recent History of any diseases: Yes / No, if yes specify (.…….)

Personal History: Smoking / Alcohol consumption / Drug Abuse .

Present illness, if any……

CLINICAL EXAMINATION:

General Physical Examination

Pallor, Jaundice, Clubbing, Edema, Lymphadenopathy

Hair: Clean/…… Eyes: Normal / Pallor/ Icterus /……Vision:……

Ears: Normal/…… Oral Cavity: Normal/……

Nails: Cut & Clean /……

Skin (Any lesions)……

Pulse…… / minute B.P: ……/……mm of Hg

Systemic Examination

Respiratory System:
Cardiovascular System:
Gastro-intestinal System:
Psychiatric evaluation: Satisfactory / Not satisfactory
Nervous system:

Laboratory Investigations

	Investigation	Result
Urine	Albumin	
	Sugar	
	Microscopy	

Hb % ….. DC…..
TC ….. RBS…..
ESR……

Investigation	Result
Stool Routine &Culture	
VDRL	
Sputum AFB/ Chest x-ray	

Vaccination History:

Fit ☐ / Unfit ☐

Corrective measures if found unfit ……

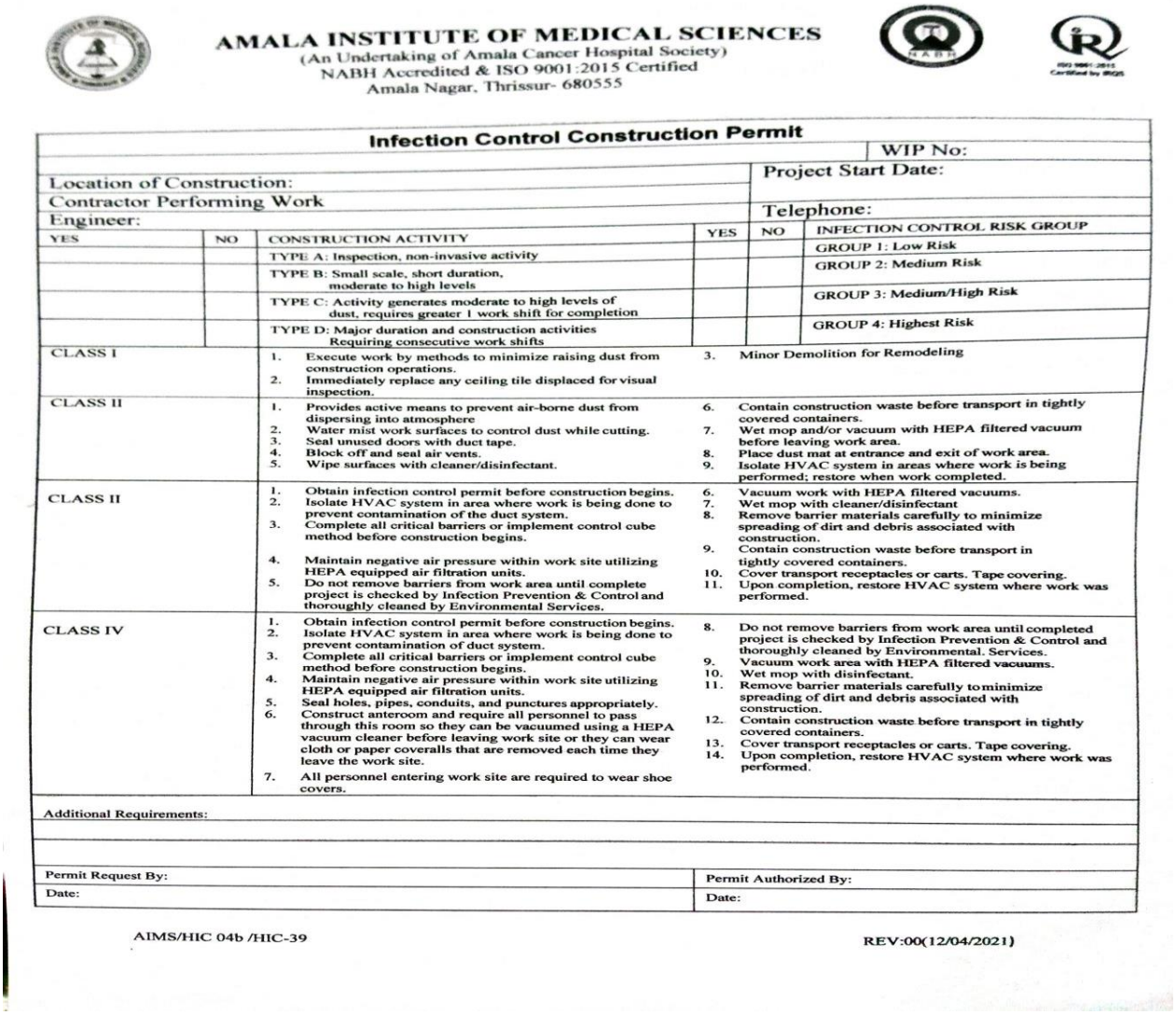
……

Signature
Name of Medical Officer ……

AIMS/HRM09/HR-42

REV:00(16/02/2021)

21.ICRA TOOL



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Amala Nagar, Thrissur- 680555

Infection Control Construction Permit

WIP No:

Location of Construction: | Project Start Date:

Contractor Performing Work | Telephone:

Engineer:

YES	NO	CONSTRUCTION ACTIVITY	YES	NO	INFECTION CONTROL RISK GROUP
		TYPE A: Inspection, non-invasive activity			GROUP 1: Low Risk
		TYPE B: Small scale, short duration, moderate to high levels			GROUP 2: Medium Risk
		TYPE C: Activity generates moderate to high levels of dust, requires greater 1 work shift for completion			GROUP 3: Medium/High Risk
		TYPE D: Major duration and construction activities Requiring consecutive work shifts			GROUP 4: Highest Risk

CLASS I	1. Execute work by methods to minimize raising dust from construction operations. 2. Immediately replace any ceiling tile displaced for visual inspection.	3. Minor Demolition for Remodeling
CLASS II	1. Provides active means to prevent air-borne dust from dispersing into atmosphere 2. Water mist work surfaces to control dust while cutting. 3. Seal unused doors with duct tape. 4. Block off and seal air vents. 5. Wipe surfaces with cleaner/disinfectant.	6. Contain construction waste before transport in tightly covered containers. 7. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area. 8. Place dust mat at entrance and exit of work area. 9. Isolate HVAC system in areas where work is being performed; restore when work completed.
CLASS II	1. Obtain infection control permit before construction begins. 2. Isolate HVAC system in area where work is being done to prevent contamination of the duct system. 3. Complete all critical barriers or implement control cube method before construction begins. 4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 5. Do not remove barriers from work area until complete project is checked by Infection Prevention & Control and thoroughly cleaned by Environmental Services.	6. Vacuum work with HEPA filtered vacuums. 7. Wet mop with cleaner/disinfectant 8. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 9. Contain construction waste before transport in tightly covered containers. 10. Cover transport receptacles or carts. Tape covering. 11. Upon completion, restore HVAC system where work was performed.
CLASS IV	1. Obtain infection control permit before construction begins. 2. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 3. Complete all critical barriers or implement control cube method before construction begins. 4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 5. Seal holes, pipes, conduits, and punctures appropriately. 6. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site. 7. All personnel entering work site are required to wear shoe covers.	8. Do not remove barriers from work area until completed project is checked by Infection Prevention & Control and thoroughly cleaned by Environmental. Services. 9. Vacuum work area with HEPA filtered vacuums. 10. Wet mop with disinfectant. 11. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 12. Contain construction waste before transport in tightly covered containers. 13. Cover transport receptacles or carts. Tape covering. 14. Upon completion, restore HVAC system where work was performed.

Additional Requirements:

Permit Request By: | Permit Authorized By:

Date: | Date:

AIMS/HIC 04b /HIC-39 REV:00(12/04/2021)

22.SURVEILLANCE ROUTE

HICN 1

Sl. No	Day	Areas
1	Monday	MICU, RICU,CICU, Dialysis
2	Tuesday	Ward - 32,33,34,35
3	Wednesday	Ward- 36, 38, 39, 40
4	Thursday	MICU, RICU,CICU, Dialysis
5	Friday	Ward 60, Ortho OP, Medicine OP, Pathology, central lab
6	Saturday	Cardiology OP, Nephrology OP, Radiodiagnosis

HICN 2

Sl.No	Day	Areas
1	Monday	W -1, W-1A, W-2, W-3
2	Tuesday	NSICU, PSICU
3	Wednesday	PICU
4	Thursday	W-9, W-9A , W -11, Ward 12

5	Friday	Vaccination room, PICU, NICU
6	Saturday	OP and procedure room visit

HICN 3

Sl.No	Day	Areas
1	Monday	W-4 , W- 5, W-6
2	Tuesday	W- 7, W-93, W-94
3	Wednesday	SSICU, ONICU
4	Thursday	Chemo procedure and chemotherapy unit
5	Friday	Dermatology Minor OT, SSICU, ONICU
6	Saturday	OP and procedure room visit

HICN 4

Sl.No	Day	Areas
1	Monday	W-14, W-15, W-16
2	Tuesday	SICU, W-18
3	Wednesday	W-22, W-23, W-24
4	Thursday	Chavara OT, Chavara CSSD

5	Friday	SSOT OT, SH CSSD
6	Saturday	LR, Cardiac CSSD