



KHAJA BANDANAWAZ  
UNIVERSITY  
EDUCATING HUMANITY

ಖಾಜಾ ಬಂದಾನವಾಝ್ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ

خواجہ بندگانواز ویسوی

# Hospital Infection Control (HIC) Manual











His Holiness

**Janab Syed Muhammad Ali al-Hussaini Sahab**

Sajjada Nashin, Dargah Hazrath Khaja Bandanawaz (Rh)  
Hon'ble President, Khaja Education Society and  
H.E. the Chancellor, Khaja Bandanawaz University, Kalaburagi.





**Janab Dr. Syed Mustafa al-Hussaini Sahab**

Hon'ble Director-Campus,  
Khaja Bandanawaz University, Kalaburagi.







**Prof. Ali Raza Moosvi**

Hon'ble Vice Chancellor  
Khaja Bandanawaz University



## ACKNOWLEDGMENT

This document has been prepared to create awareness among the Clinicians and other Healthcare workers about the Hospital Infection Control and Patient Safety practices in our hospital. I would like to thank His Holiness **Syed Muhammad Ali Al Hussaini** Honorable Chancellor, KBNU and **Dr. Syed Mustafa Al Hussaini** Director, KBNU in giving us a chance to be a part of the team. We are extremely grateful to the honourable Vice Chancellor of this esteemed university, **Prof. Ali Raza Moosvi** sir for his initiative and constant encouragement to compile the Hospital Infection Control manual. We are extremely thankful to the Dean KBNU-FOMS, Kalaburagi, for continuously supporting and always encouraging. We would like to extend gratitude to **Dr. Siddaling Chengty**, Medical Superintendent who has been the main motivating force behind this document. Special thanks to the Department of Microbiology for continuously supporting.

**Department of Microbiology,**

**KBNU-FOMS.**

## MESSAGE

Hello and warm greetings to everyone

It indeed is a privilege and a honour for me to be writing this foreword for the newly compiled hospital infection control manual by the Dept of microbiology, Faculty of medicine, KBNU.

Hospital acquired infections have indeed been a bane and a crippling factor as far as delivery of quality patient care is concerned. With the advent and widespread usage of new gadgets, invasive monitoring and therapeutic techniques, it has taken alarmingly humongous proportions and is stretching healthcare set up's resources and manpower to the limit.

It is in this context that the exhaustively compiled hospital infection control manual comes as a welcome relief and a ray of hope in an otherwise dark cloud. The team has worked overtime behind the scenes in an effort to get all the bases covered. The in dwelling catheters, tubes and surgical site infections, they have all been accounted for and guidelines framed. The routine drills and audits for hand washing techniques, biomedical waste disposal etc have been extensively covered.

Well begun is half done. Not just hope, I have supreme confidence and belief that the manual will go a long way in improving the quality of health care at our hospital and elsewhere too and reduce the 'mortality, morbidity and hospital stay associated with hospital acquired infections. It will serve as a reference manual for all the health care professionals associated with patient care, not just in our hospital .

On that note, I congratulate the honourable Vice Chancellor of this esteemed university, **Prof. Ali Raza Moosvi** for his initiative and constant encouragement. Heartfelt congratulations are also due to our beloved Dean **FOMS**, for his valuable guidance and support. This would be incomplete without a special mention of the infection control team of KBNU-FOMS. Who has been a hardworking foot soldier, putting stellar efforts at the ground level and also in the compilation of this document.

The result of all this combined team effort is a highly refined, well researched and an exhaustively compiled vision document.

**Dr. Siddaling Chengty**  
**Medical Superintendent**  
**KBNTGH, Kalaburagi.**

## MESSAGE

I am truly delighted to forward our own Hospital Infection Control Manual, I am quite sure all the stake holders will find it informative, the salient features of this manual, which contains comprehensive information on guidelines, standard operative procedures and practices done in the Infection Control, including for drug resistant cases, Decontamination and fumigation policy, and naval out break policy, Biomedical Waste Managements, are tangible. All the applause to the Microbiology Department team and their efforts are truly remarkable. I also thank **Dr. Ali Raza Moosvi** Hon'ble Vice- Chancellor, KBN University for his constant support and encouragement for the preparation of this manual.

**Dean, KBNU-FOMS  
Kalaburagi.**

## CONTENT

| TOPIC   | PAGE NO |
|---|---------|
| 1. Hospital Infection Control-introduction  | 6       |
| 2. Organogram   | 7       |
| 3. Infection Control Committee  | 8       |
| 4. Infection Control Team   | 10      |
| 5. Recruitment policy in regard to Infection Control  | 16      |
| 6. Environmental Monitoring   | 17      |
| 7. Standard Precautions   | 19      |
| 8. Recommendations for patients known to harbor Blood borne pathogens   | 25      |
| 9. Hand Hygiene and Gloving   | 26      |
| 10. Gowning Techniques  | 34      |
| 11. Care of Systems and Indwelling devices  | 36      |
| - Peripheral IV sites   |         |
| - Central Intra-vascular catheters  |         |
| 12. Infection Control in Respiratory care   | 38      |
| 13. Infection Control in Urinary catheters and Surgical wounds  | 40      |
| 14. Isolation Policies and Procedures   | 41      |
| 15. Infection Control measures for MRSA, VRE or Multi-drug resistant cases  | 44      |
| 16. Visitors policy   | 50      |
| 17. Engineering policy on Infection Control   | 53      |
| 18. Laundry Services  | 53      |
| 19. House keeping   | 56      |
| 20. Disinfection and Sterilisation  | 59      |
| 21. CSSD  | 63      |
| 22. Fogging / Fumigation Policy   | 69      |
| 23. Procedures for Handling Outbreaks   | 72      |
| 24. Bio-medical waste Management  | 74      |
| 25. Infection Control Policy : Guidelines for Use and decontamination<br>of CPR training mannequins and equipments. | 78      |
| 26. Infection Control Policy on prevention of Nosocomial infections   | 79      |
| 27. Infection control policy on Hand hygiene  | 80      |

|   |     |
|---|-----|
| 28. Devices and their maximum duration  | 82  |
| 29. Air Sampling  | 83  |
| 30. Infection Control policy on Occupational Health                                 | 85  |
| 30. Infection control policy: exposure control plan for Blood borne pathogens       | 93  |
| 31. Job classifications according to Occupational exposure to Blood borne pathogens | 94  |
| 32. Infection control policy: Tuberculosis control programme                        | 99  |
| 33. Infection control policy: Hospital services                                     | 103 |
| 34. Policy on Safe injection ,infusion and medication vial practices                | 104 |
| 35. Policy on Spill Management  | 109 |
| 36. Policy and procedures for Dialysis unit   | 110 |
| 37. Policy on single use and re-use devices   | 114 |
| 38. Training programmes for Staff   | 119 |
| 39. Monitoring of Hospital associated infections                                    | 120 |
| <b>ANNEXURE</b>   |     |
| 1. Infection control checklists   | 122 |
| 2. Infection Control Daily checklist  | 125 |
| 3. Needle stick injury Reporting form   | 127 |
| 4. Example of a Data collection form for SSI Surveillance                           | 128 |
| 5. Health care associated Infection surveillance Data collection form               | 130 |
| 6. Employee exposure form to Blood borne pathogens                                  | 131 |
| 7. Consent for HIV testing  | 132 |

# HOSPITAL INFECTION CONTROL

## INTRODUCTION

Healthcare-associated infection (HCAI) is one of the most common complications of healthcare management and is defined as an infection occurring in a patient in hospital or other healthcare facility in whom the infection was not present or incubating at the time of admission. This includes infection acquired in the hospital but appearing after discharge and also occupational infection among staff of the facility.

Infection Control includes the prevention and management of infection through the application of research-based knowledge to practices that include: standard precautions, decontamination, waste management, surveillance and audit.

This document outlines the broad Principles and Practices of Infection Control that are essential for the prevention and management of these infections. The overall aim of this document is to provide evidence based information in the prevention and control of infection in this hospital. To fulfill this aim the Hospital Infection Control Committee has been formed that will look after the infection control needs of the hospital.

It is relevant to all staff including doctors, nurses, other clinical professionals and managers working at KBNTGH, to help fulfil their legal and professional obligations with regard to both communicable diseases and infection control.

- ❖ The manual identifies the high- risk areas of the hospital.
- ❖ It outlines the methods of surveillance in the identified high-risk areas.
- ❖ It focuses on adherence to standard precautions and Isolation policies & procedures.
  - Disinfection and sterilization practices.
  - Laundry and linen management processes.
  - Kitchen sanitation and food handling issues.
  - Engineering controls to prevent infection.

## PURPOSE

1. To maintain standards in infection control measures and minimize hospital acquired infections in patients and staff.
2. To define policy and procedure regarding nosocomial infections at KBNTGH, Hospitals

## SCOPE

All inpatient and outpatient areas including diagnostic facilities

## RESPONSIBILITIES

Hospital Wide



# ORGANOGRAM

**ADMINISTRATOR (DEAN/MS)**



**HOSPITAL INFECTION CONTROL COMMITTEE [HICC]**

A committee of experts to develop plans and policies for Infection Control and monitor overall activities.



**HOSPITAL INFECTION CONTROL OFFICER [HICO]**

ICO implements ICC policies and supervises day to day infection control activities and take the remedial measures whenever necessary.



**HOSPITAL INFECTION CONTROL NURSE [I C N]**

A full- time senior staff nurse who carry out day to day surveillance activities in infection control and reports to Infection Control Officer on daily basis.



**INFECTION CONTROL LINKED NURSES**

A certified group of hospital staff who are responsible to act on infection control activities in their respective work stations and spread awareness on hospital infection control.

# INFECTION CONTROL COMMITTEE

## PURPOSE

- The Infection Control Committee shall consider all matters pertaining to the review of infection control practices and preventive measures throughout the organization.

## COMPOSITION

The Infection Control Committee shall consist of the following members:

- Hospital administrator ( DEAN)
- Medical superintendent
- Clinical Microbiologist (ICO)
- Intensivist
- Prof and HOD – General Medicine
- Prof and HOD – General Surgery
- Prof and HOD- Dept of OBGY.
- Prof and HOD- Dept of Orthopaedics
- Prof and HOD- Dept of Ophthalmology
- Prof and HOD- Dept of Paediatrics.
- Prof and HOD -Dept of Anaesthesia.
- Prof and HOD- Dept of Dermatology.
- Prof and HOD-Dept of ENT.
- Prof and HOD- Dept of Community Medicine
- Prof and HOD- Dept of Microbiology.
- Prof and HOD- Dept of Nephrology.
- Prof and HOD- Dept of Pathology.
- Nursing superintendent
- O.T In-charge
- ICU In-charge
- Infection Control Nurse
- Pharmacist
- Maintenance
- CSSD manager
- Housekeeping manager.

- i. Formulate and approve the Infection Control Program
- ii. Review the implementation of the program
- iii. Review healthcare related infections, trends in healthcare related infections, and communicable diseases as they are seen throughout the Hospital.

- iv. The infection control practitioners investigate outbreaks of infections and the outbreak are summarized for the committee .
- v. Recommendations are often issued as a result of the discussions.
- vi. This committee approves cleaning products and hand washing products.
- vii. Occupational Health issues are discussed along with occupational exposures to infectious diseases.

## COMMITTEE ACTIVITIES:

1. Review of data of infections both nosocomial and community acquired
  - List of infected cases
  - Type of infections
  - Culture & sensitivity data – Data being collected
  - MDR –Multi drug resistant
2. Review of notifiable diseases
3. Review of Outbreak
4. Review of needle stick injuries and PEP policy
  - No. of needle stick injuries
5. Review of infection control measures. (Dialysis, OT, ER, MICU , SICU, NICU, Linen,)
6. Antibiotic policy
7. Review of budget and resources.
8. Review of measures taken infection prevention by housekeeping, F&B and BMW.
9. Review of CSSD department.
10. Hospital cleaning and disinfection protocol.
11. Review of surveillance, education and training.
  - HAI Surveillance
  - Bacteremia surveillance (positive blood cultures)
  - ICU Bundle compliance checklist (VAP, CR – BSI, CA – UTI)
  - Notifiable diseases
  - Antibiotic resistant organisms (MDR's – MRSA, VRE, MDR Gram negative bacilli)
12. Review of audits:
  - Environmental audit
  - Hand hygiene technique audit
  - Biomedical Waste management audit
13. Review of water testing.
14. Vaccination program for health care workers.
15. AHU maintenance.
16. Environmental protocol
  - ❖ Frequency of Hospital Infection Control Committee (HICC) meetings: HICC committee will conduct its meetings once every 2 months.

## HOSPITAL INFECTION CONTROL COMMITTEE – ROLES AND RESPONSIBILITIES

1. The HICC is a body of experts responsible to develop policies and procedures related to Infection Control at **KBNTGH, Kalaburagi**. It is responsible to the Management Board for assuming authority and resources to implement agreed policies in order to prevent spread of infection to all areas of the hospital.

2. Prepare and review the progress of the annual programme of activities.
3. Review the incidences and prevalence of 'alert' organisms and important infectious diseases.
4. Review the occurrence and nature of any outbreak of Infection Control standards in the hospital.
5. Review planning, services, facilities in the hospital on the issues relevant to Infection Control.
6. To establish policy and monitor and control rational antibiotic prescribing habits among the clinicians.
7. Monitor and advice on certain specific areas of Infection Control like CSSD, OT's, Critical Care areas etc.
8. Monitor programmes for the education of staff about infection control practices and policies.

## INFECTION CONTROL TEAM

### Composition of Infection Control Team:

Medical Microbiologist / Infection Control officer, Infection control nurse, Nursing Manager, OT Nursing manager, CSSD Manager, Facilities manager, Laundry Manager, Housekeeping Manager

### Duties of Infection Control Team

1. Conduct surveillance activities
2. Review effectiveness of control measures and adapt to changing local circumstances.
3. Advise on and monitor policies and procedures.
4. Coordinate with concerned consultants to inform him of known of suspected cases of notifiable diseases on other significant infections.
5. Discuss with consultants any case of proposed action, which may have implications for infection control in the hospital.
6. Update the staff on latest epidemic infections in the community and infection prevention control measures to be taken.
7. To regularly visit and coordinate with hospital departments especially the following.
  - Catering department [food hygiene]
  - Engineering dept [equipment, Water supply, Air conditioning and Environmental hygiene]
  - CSSD
  - Laundry
  - Pharmacy [antibiotics and disinfectant policies]
  - Wards, Clinics, ICU, OT
  - House Keeping [cleaning, waste disposal policies]
  - Laboratory Department [Microbiological hazard waste disposals]
  - Visit areas surrounding hospital premises and ensure action for proper hygiene and sanitation.
8. Initiate appropriate responses to incidence or outbreaks of infection and recommend allocation of resources for investigation and control.
9. Request for an urgent meeting of Infection Control Committee when there is a major incident.
10. Organize the relevant education of health care staff and encourage reflexive practice of infection control measures.

## **ROLE OF HOSPITAL INFECTION CONTROL OFFICER (HICO)**

The Microbiologist shall be the Infection Control Officer.

The Infection Control Officer shall be the member secretary of the committee. The Infection Control Officer shall be responsible for carrying out:

- Epidemiological Survey in special circumstances.
- Formulation and review of antimicrobial policy guidelines in conjunction with various specialties and HICC.
- Monitoring the decisions of the Infection Control Committee.
- To organize Infection Control Training Programme for various categories of staff and students.
- To carry out surveillance activity for assessing Infection indices for Surgical Site Infections (SSI), Catheter Related Blood Stream Infections (BSI), Ventilator Associated Pneumonia (VAP) and Urinary Tract Infections (UTI).

### **ROLE OF THE MICROBIOLOGIST**

The Microbiologist shall be responsible for:

- Investigating staff, for carriage of pathogenic microorganisms, when indicated.
- Carrying out random surveillance when necessary by applying methods of random surveillance for checking sterilization, disinfection and environment.
- Making critical study of the results of antibiotic sensitivity test in order to assess the emergence of resistant microorganisms, antibiogram.
- To carry out the Infection Control activity as per policy-as decided by the Infection Control Team or Committee.
- To carry out education programmes in Infection Control practices in conjunction with other departments and areas of patient care.
- To carry out Anti-microbial surveillance activity in conjunction with Pharmacy for usage of restricted usage antimicrobials and to interact with treating consultant(s) or team for effective control of such usage.

## **Infection Control Nurse [ICN] Job Description**

The ICN will be a member of Infection Control Committee and Infection Control Team and will carry out all policies and protocols of day-to-day infection control and submit reports to Head of the Department of Microbiology.

1. ICN will carry out ongoing day to day activities of surveillance of Infection Control by regular visits to essential hospital departments such as wards, clinics, operating rooms, ICU'S, Laboratory, House Keeping, catering, Engineering, Pharmacy, wash areas, toilets etc.
2. ICN will provide clinical advice and support to nurses and non –clinical personnel on infection control issues.
3. ICN will explain and interpret microbiology reports to relevant nursing staff and advice on isolation techniques generally and in specific clinical situations.
4. Identify potential infection hazards and suggests appropriate remedial measures to relevant personnel.
5. Follow the HICC protocols to identify, investigate and control out breaks of infection.
6. Participate in informal and formal teaching programmes for nurses and other paramedical staff.
7. Keep abreast with recent advances by reading relevant literature and attending appropriate courses and meetings of infection control.
8. Day to day training and implementation of bundle checklists

### **B Education of all housekeeping supervisors on:**

1. Hand hygiene while cleaning the ward / patient care area.
2. Personal Protective Equipment - appropriate PPE and preventing inappropriate use.
3. Preventing needle stick injuries and the protocol for NSI / mucosal exposure.
4. Biomedical waste management
5. Linen management
6. Isolation rooms – to be cleaned at the end & use of PPE.
7. Spill management.

### **C. Observing and checking (includes bedside education and feedback to shift in-charge / manager)**

1. Hand hygiene
2. Care of IV lines (peripheral & central)
3. Urinary catheter care
4. Suctioning method
5. Linen handling
6. Biomedical waste management
7. Cleanliness – patient's bedside, window sills, floor, ceiling, AC grills, drinking water area and toilets.
8. Housekeeping staff – method of cleaning, frequency of cleaning.
9. Ensuring appropriate isolation precautions are followed.

#### D. Documentation

1. Hand hygiene audit
2. Surgical site infection rate
3. CAUTI rate
4. Needle stick injury rate
5. VAP, CLABSI – in ITUs
6. Linen audit
7. Biomedical waste management audit
8. Water chlorine levels in the wards (Dialysis units and ITUs -where appropriate).
9. Surveillance cultures – to send cultures according to surveillance sampling schedule and document the results.
10. Details of patients with positive cultures – to discuss with HIC consultant or Consultant with an interest in Infectious Diseases. Obtain relevant details to determine if patient has a VAP, CLABSI, CAUTI or SSI.

#### E. Presentations: Data to be compiled & presented every quarter in the HICC meeting:

- a. VAP
- b. CLABSI
- c. CAUTI
- d. SSI
- e. Hand hygiene compliance
- f. Needle stick injury

#### F. Occupational exposure to blood / body fluids: The HIC nurses are notified of any occupational exposure immediately. They organize testing of the staff member and the patient and ensure that the protocol for needle stick injury is followed.

- To work along with the Nursing team ensuring good quality teamwork.
- To join Nursing Superintendent / Deputy Nursing Superintendent on rounds in their area
- Night duty – each patient care area to be visited. The area is inspected; practices are observed and discussed with the shift in-charge of each area. Specific infection control issues are identified and discussed with Infection Control Consultant & Nursing Superintendent the next day.

### **HIC Linked nurse posted in the Operation Theatre:**

#### **A. Education of nursing staff on:**

1. Hand hygiene and scrubbing technique.
2. Personal Protective Equipment – appropriate PPE for various situations and preventing inappropriate use.
3. Preventing needle stick injuries, protocol for NSI / mucosal exposure.
4. Biomedical waste management
5. Linen management
6. Spill management

### **B. Education of house-keeping staff on:**

1. Hand hygiene while performing their duties in the OT.
2. Personal Protective Equipment – appropriate PPE and preventing inappropriate use.
3. Preventing needle stick injuries and the protocol for NSI / mucosal exposure.
4. Biomedical waste management
5. Linen management
6. Spill management

### **C. Observing and checking:**

1. Hand scrubbing techniques of doctors and nurses prior to surgery
2. Biomedical waste management
3. Cleanliness of the OT.
4. The fogging process.
5. Housekeeping staff – method and frequency of cleaning.
6. Ensuring appropriate isolation precautions are followed where necessary.
7. Sterile room - Storage of sterile packs, ensuring packs are within the expiry date

### **D. Documentation:**

1. Cleaning records of the OT.
2. Water chlorine levels in the OT where appropriate.
3. Fogging records – to be maintained in the OT.
4. Record of the OT temperature – to be maintained in the OT.
5. Record of the humidity within the OT – to be maintained in the OT.
6. Surveillance cultures – to send cultures according to the surveillance sampling schedule and document the results.



## **HOSPITAL INFECTION CONTROL LINKED NURSE JOB DESCRIPTION**

1. To ensure that the Infection Control Activities are fully implemented at their respective working stations and they provide the leadership for the same.
2. To provide hands-on training to 5 nominated nurses each month for next 12 months. The Infection Control team will monitor their training effectiveness by regularly interviewing the nurses they have been training.
3. To give periodic lectures in future Infection Control Training programmes.
4. To attend any Workshop, Seminars held locally on Infection Control Programmes.
5. To regularly update their knowledge on Infection Control and submit to Infection Control Team their views periodically on further improving the Infection Control programmes.

## **ROLE OF THE HOSPITAL PHARMACIST**

The Hospital Pharmacist shall be responsible for:

- (a) Obtaining, storing and distributing medicinal preparations in such a way that infectious agents are not transmitted to the patients;
- (b) Dispensing antimicrobial agents as per hospital policy and holding all the relevant documentation (regarding potency, incompatibility, conditions of deterioration);
- (c) Obtaining and storing vaccines or sera and making them available when necessary.
- (d) Keeping an inventory of antimicrobial agents distributed to the clinical departments;
- (e) Holding the following information on disinfectants, antiseptics and/other anti infectious agents;
  - Active properties in relation to concentration, temperature, length of action antimicrobial spectrum;
  - Toxic properties including any sensitizing or irritant action on the skin and mucosa;
  - Substances that are incompatible with above mentioned items and reduce their potency;
  - Physical conditions which un-favorably affect potency during storage such as temperature, light, humidity;
  - Harmful effects on materials.
- (f) Provision of data about the usage of all antimicrobials in the hospital to Infection Control Officer / Infection Control Committee, as and when required.
- (g) Keep a check of the usage of high-end antimicrobials by the consultants in both Outpatient and Inpatient areas.
- (h) To update the pharmacy with the latest drugs as per the outbreak in the hospital and city.

## RECRUITMENT POLICY IN REGARD TO INFECTION CONTROL

All employees undergo a pre-employment check-up. The baseline tests such as CBC, urine routine and blood grouping, HIV, HCV and HBsAg, Chest x-ray are done. Any employee HBs Ag positive -HBeAg and HBV DNA is done – if negative, employment is given. Others positive for viral markers are counselled and employed in non-patient areas. Records are maintained by HRD.

### RECRUITMENT POLICY FOR FOOD HANDLERS

- ❖ Screening of stool samples- for carriage of pathogens
- ❖ All staff, to be recruited directly on contract basis, as food handler in the F&B department shall be screened for ova/ cyst and carriage of pathogenic bacteria in their stool samples.
- ❖ Stool sample shall be given for screening for ova/ cysts of parasites and one sample for Culture of pathogenic bacteria. Recruitment shall be done only after the results of these tests are negative.
- ❖ In case of positive test results, the tests are to be repeated after the person has had appropriate therapy at his/her own cost.
- ❖ Stool sample shall be submitted for testing for ova/cysts and for bacterial pathogens, three days after stopping of antimicrobial therapy.

### MAINTENANCE OF RECORDS

- ❖ A separate register shall be maintained by the HR Department.

## ANTIMICROBIAL POLICY GUIDELINES

Empirical therapy is based on directing coverage against the most likely pathogens. If patient is moderately or severely ill, empiric therapy is usually initiated intravenously.

Cultures of appropriate clinical specimens (sputum, urine) should be obtained prior to starting empiric therapy to provide bacterial isolates for in- vitro susceptibility testing.

All patients on empirical antibiotic therapy will be reviewed regularly by HICC. Barring a few situations, antibiotic/antimicrobial therapy shall be started after appropriate samples for cultures have been taken, without detrimental effect on the patients. Local wound infections generally need no antimicrobial agent. The antibiotics are either escalated or de escalated as per the Culture and Sensitivity report.

If there is usage of high end microbials, it will be signed by Microbiologist and concerned consultant and is documented, A trend analysis is done and is discussed.

## HIGH RISK AREAS AND HIGH RISK PROCEDURES AT KBNTGH, HOSPITAL

The following areas and procedures at KBNTGHospitals have been identified by Hospital's Infection Control Committee as High Risk areas and High risk procedures.

Infection prevention and surveillance of infections in patients and monitoring of environment is crucial for ensuring patient safety and providing high quality clinical care at KBNTGH Hospital

### **High Risk Areas at KBNTGH**

The following areas have been identified as high risk areas at KBNTGH.: Intensive Care Unit (ICU), Operation Theatre (OT), Post operative / Recovery area, Dialysis Unit, Endoscopy Unit, Blood Bank, CSSD

### **High risk procedures at KBNTGH**

Surgical procedures: Neurosurgery, Cardiothoracic Surgery, Orthopaedic Surgery, GI surgery, Urology, Haemodialysis.

## **ENVIRONMENTAL MONITORING**

### **BACTERIOLOGICAL MONITORING OF O.T./ I.C.U.S AND OTHER HIGH RISK (Critical) AREAS**

KBNTGH has established surveillance systems to monitor occurrence of healthcare associated infections (Surgical site infections, catheter associated urinary tract infections, ventilator associated pneumonia, catheter related blood stream infections etc) and detect any clusters or outbreaks of infections.

The need for environmental monitoring will be determined by Consultant Microbiologist, Infection Control Nurse and Hospital Infection Control Committee when there is need for it or when there is any suspicion of increased incidence of specific healthcare associated infections and the environmental link needs to be excluded or established.

Swab culture of the environmental area is done where and when there is an outbreak of infection.

If there is a suspicion of outbreak of infection in the OT the following actions are taken. Clean carbolize with 1% Sodium Hypochlorite solution, Bacillocid spray as per manufacturer's direction before and after each operation till results become satisfactory.

## **SURVEILLANCE ACTIVITIES**

Surveillance of nosocomial infection is the foundation for organizing and maintaining an infection control programme. Information obtained from surveillance data is a useful tool in identifying areas of priority and allocating resources accordingly.

### **Objectives of Surveillance**

- Establishing endemic infection rates.
- Identifying outbreaks.
- Convincing medical personnel to adopt recommended preventive practices.
- Evaluating control measures.

Targeted surveillance aimed at high risk areas is more effective and manageable . It can be site -specific, unit specific, or outbreak associated surveillance.

## METHOD OF INFECTION SURVEILLANCE PROGRAM FOR HAI

Hospital has recognized certain high risk areas for surveillance

| Area               | Frequency of visit | Surveillance   |
|--------------------|--------------------|--|
| ICU                | Daily              | Ensure monthly bacillocid cleaning<br>Check waste segregation<br>Check compliance to hand washing<br>Check compliance to sterile techniques for procedures<br>Check change of IV cannula and IV set<br>Linen management – infection control practices<br>Survey on HAI – corrective action |
| Dialysis           | Daily              | Ensure weekly bacillocid cleaning<br>Ensure bi monthly surveillance of RO plant water, Check waste segregation<br>Check compliance to hand washing<br>Check compliance to sterile techniques for procedures<br>Linen management – infection control practices                              |
| Operating room     | Bi-monthly         | Ensure monthly bacillocid cleaning<br>Check waste segregation<br>Linen management – infection control practices<br>Check waste segregation   |
| CSSD               | Bi-monthly         | Check expiry dates on sterile sets<br>Check records on biological indicator<br>Ensure bi-monthly bacillocid cleaning   |
| Labour room        | Daily              | Ensure bacillocid cleaning after each delivery<br>Check waste segregation<br>Check compliance to hand washing<br>Check compliance to sterile techniques for procedures<br>Linen management – infection control practices<br>Culture swab bi monthly  |
| Laboratory         | Daily              | Check waste segregation<br>Check PPE and sterile techniques  |
| Emergency          | Daily              | Ensure bi monthly bacillocid cleaning<br>Check waste segregation<br>Check compliance to hand washing<br>Check compliance to sterile techniques for procedures<br>Linen management – infection control practices  |
| Waste storage room | Daily              | Check waste disposal<br>Check records of waste collection<br>Check disposal technique  |

## FREQUENCY OF SWAB, AIR AND WATER CULTURE

| Sl No. | Department/ Area | Frequency                   | Swabbing | Air Sampling | Water Culture |
|--------|------------------|-----------------------------|----------|--------------|---------------|
| 01     | OT               | Every fortnight             | Yes      | Yes          |               |
| 02     | Dialysis Unit    | 2nd Week of every Month     |          |              | Yes           |
| 03     | Kitchen          | 2nd Week of every Month     |          |              | Yes           |
| 04     | MICU             | 3rd Week of every 2nd Month | Yes      | Yes          |               |
| 05     | NICU             | 3rd Week of every 2nd Month | Yes      | Yes          |               |
| 06     | SICU             | 3rd Week of every 2nd Month | Yes      | Yes          |               |
| 07     | ER               | 3rd Week of every 2nd Month | Yes      | Yes          |               |

- i. In case of an outbreak of infection from a particular area in the hospital, Swab culture would be taken as needed.
- ii. CSSD: - Sterility tests from autoclave / E.O. as and when a load is processed. Biological indicators are put & tested for sterility culture at the end of each cycle.

## STANDARD PRECAUTIONS

Under Standard precautions, all patients receiving care in hospitals, irrespective of their diagnoses or presumed infection statuses, should be treated in such a manner as to reduce the risk of transmission of micro-organisms from health care worker to patient, patient to healthcare worker, from patient to patient.

### Cardinal rules of standard precautions

- Consider all Patients potentially infectious
- Assume all Blood and body fluids and tissue covered by standard Precautions are contaminated with a blood borne pathogen.

Assume all non sterile needles and other sharps are similarly contaminated.

### Purpose

To establish individual responsibilities in order to minimize the transmission of infection to, from, and between patients and all other people in facilities. The aim is to reduce the risk of transmission of micro-organisms from both known and unknown sources of infection in the hospital.

### Definition

The measures designed to reduce the risk of transmission of blood borne pathogens and other micro-organisms from both recognized and unrecognized sources of infection.

### Policies

- a. Standard precautions are to be used for all patients, to minimize risk to staff and patients.
- b. Standard precautions are to be used for contact with:
  - i. Blood, body fluids, secretion and excretions regardless of whether or not they contain visible blood.
  - ii. Non-intact skin.

- iii. Mucous membrane.
- c. Body fluids which may contain blood borne viruses (e.g. Hepatitis B, Hepatitis C, and HIV include: Blood, blood-stained body fluids, CSF, semen, tissues, vaginal secretions, pericardial, amniotic, peritoneal and pleural fluids.
- d. Body fluids which may contain other pathogens include;
  - i. Faeces, urine.
  - ii. Vomitus, sputum

## **PROCEDURE FOR STANDARD INFECTION CONTROL PRECAUTIONS**

### **a) Hand Washing**

Hand washing is the single most important measure in infection control. Hand washing should be done:

- i. Before and after patient contact.
- ii. After using gloves
- iii. Before & after any procedure.
- iv. Immediately after contact with blood, body fluids, secretions, excretions, non -intact skin or mucous membranes, and contaminated equipment.
- v. Always wash hands before leaving the ward.
- vi. Before handling food.
- vii. After contact with patient beds, lockers etc.

### **b) Masks**

- i. No need to be routinely worn.
- ii. Any time the healthcare worker anticipates the possibility of being splashed with blood, body fluids, secretions or excretions.
- iii. For barrier protection.

### **c) Protective Eye Wear And/ Or Face Shields**

Any time the health care worker anticipates the possibility of being splashed with blood, body fluids, secretions or excretions.

### **d) Gloves (Clean, Non Sterile)**

- i. Wear for contact with blood, body fluids, secretions, excretions, mucous membranes, non-intact skin or surfaces soiled with visible blood or body fluids and contaminated equipment and articles.
- ii. Gloves should be changed between patients.
- iii. Gloves should be changed if they are torn, punctured & contaminated.

### **e) Plastic Aprons/Gown, Caps, Shoe Covers, Boots**

- i. For contact with infective material. To protect against transmission of highly transmissible organisms e.g. MRSA.
- ii. Any time that clothing is likely to be soiled by splattering of blood, body fluids, secretion and excretions.

#### **f) Handling Needles And Small Sharp**

- i. Do not recap needles
- ii. Dispose of used needles and small sharps in puncture-resistant container, which are located as close as possible to the area of use.
- iii. Needles should not be recapped, bent or broken by hand.
- iv. If a needle has to be removed from a syringe, use forceps or do it with utmost care.
- v. Do not overfill a sharps container. All sharps containers to be discarded when 3/4ths full.
- vi. Sharps should not be passed from one HCW (Health Care Worker) to another. The person using the equipment should discard it. If necessary a tray can be used to transport sharps.

#### **g) Cleaning Spills**

- I. Wear Protective measures PPE- like gown, mask, gloves etc.
- ii. Wet the area with Sodium hypo- chloride and dry carefully using disposable paper towel.
- iii. Clean with detergent & keep the area dry.

#### **h) Patient Placement**

- I. Place a patient who contaminates the environment with highly transmissible organisms or who does not assist in maintaining appropriate hygiene in a single room.
- ii. If a single room is not available, consult Infection Control Team for other alternatives.

## **STANDARD PRECAUTIONS IN CLINICAL LABORATORY TRANSFUSION SERVICES**

#### **A) Principle**

- I. Recommendations by the Centre for Disease Control (CDC) and regulations by the Occupational Safety and Health Administration (OSHA) have been developed for Standard Precautions for prevention of occupational exposure to blood-borne pathogens.
- ii. These requirements apply to blood and body fluids from all patients regardless of diagnosis. No distinction is made between patients who are known to be infected and all others. Standard Precautions constitute a safe approach to prevent infection because employees have a single behavioral standard, and errors in assessing patient status will not endanger employee safety.
- iii. The Standard Precautions do acknowledge a difference between hospital patients and healthy donors, in whom the prevalence of infectious disease markers is significantly lower.

#### **B) General Transfusion Service Guidelines:-**

##### **I. Hand washing**

- Frequent, effective hand washing is the first line of defense in infection control. Blood-borne pathogens of concern generally do not penetrate intact skin, so immediate removal reduces the likelihood of transfer to a mucous membrane or broken skin area or of transmission to others.
- Hands should always be washed:
  - Before & after handling a patient

- Before & after touching the patient unit.
- Before leaving a work area.
- Immediately after coming into contact with blood or other body fluids.
- Immediately after removing rubber gloves.
- After using toilet.

## ii. Gloves

- The use of gloves by all technicians when cleaning up spills or handling waste materials.
  - o Gloves should be worn routinely whenever there is the possibility of exposure to a patient's blood or body fluids (e.g. collecting a therapeutic unit on the wards).
  - o Use gloves for any task where blood or body fluids may be encountered if your hands have any cuts, scratches or abrasions.
  - o By persons who are receiving training in phlebotomy.
  - o When collecting or handling any "open" blood container or specimen.
  - o When cleaning up spills or handling waste materials.

### General guidelines for the safe use of gloves include:

- o Change gloves immediately if they are torn, punctured, or contaminated; after handling high-risk samples; or after performing a physical examination, e.g., on an aphaeresis donor/patient.
- o Remove gloves by keeping outside surfaces in contact only with outside, and by turning the glove inside out while taking it off.
- o Wash hands with soap or other suitable disinfectant after removing gloves.
- o Do not wash or disinfect gloves for re-use.

## iii. Protective Clothing

- o Lab coats should be worn at all the time.
- o Contaminated clothing should be removed promptly.
- o Protective clothing should be removed before leaving the work area and should be placed in a suitable container and laundered as potentially infectious.
- o Masks, Safety Glasses, should be worn to protect the eyes and the mucous membranes.

## iv. Handling Needles

- Dispose of used needles and small sharps in puncture-resistant containers that are located as close as possible to the area of use.
- Sharps containers are to be sealed and discarded weekly or when they are two thirds full.

## v. Cleaning Spills and Decontamination

- Surfaces and equipment that are contaminated with blood require daily cleaning and decontamination with 1% Sodium hypochlorite (1:4 dilution of 5% sodium hypochlorite (bleach) in water).
- When spills occur, the following steps should be taken in the order listed:
  - o Leave the area for 30 minutes if an aerosol has been created and post warnings to keep the area clear. Remove clothing if it is contaminated. If the spill occurs in the centrifuge, turn the power off immediately and leave the cover closed for 30 minutes.



- o Wear appropriate protective clothing and gloves. If sharp objects are involved, gloves must be puncture-resistant, and a broom or other instrument should be used during cleanup to avoid injury.
- o Cover the spill completely with absorbent material. Remove the absorbent layer and any broken glass with brush and pan.
- o Flood the area with disinfectant, such as a freshly made 1:4 dilution of 5% sodium hypochlorite (Clorox) solution, and let it stand for 20 minutes.
- o Wipe up the disinfectant.
- o Dispose of all materials safely in accordance with biohazard guidelines.
- o Biological and/or other infectious waste generated by the Blood storage centre such as outdated or damaged blood products, salvage plasma, contaminated needles, tubing, sharps, etc. are to be disposed of in an appropriate manner:
  - All used test tubes, contaminated applicator sticks, discarded blood samples outdated or otherwise unacceptable blood or blood components are to be disposed of in the appropriate biohazard containers.
  - All trash and/or waste generated by the Donor Centre and Transfusions Services is considered a biohazard and handled as such by the Housekeeping Services Unit.
- 1. Other safety precautions
  - There should be no casual visitors where open blood specimens are handled.
  - Mouth pipetting is not permitted.
  - Eating, drinking, smoking, or the application of cosmetics is prohibited in all working areas of Transfusion Services and blood storage centre.
- 2. Immediately report any needle-stick injury or other contamination incidents to the Nursing supervisor on duty.

### **C) Handling Blood Products/Reagents in Transfusion Services.**

- Every sample of blood and body fluids should be handled as if potentially infectious.
- Care is to be taken when handling and opening all specimens received in the Blood storage centre.
- Use an appropriate barrier (gloves, gauze, etc.) to prevent splashing when opening Any blood sample.
- Hands should be washed immediately after handling patient or donor samples, and/or after removing gloves.
- Protective clothing should be changed if grossly contaminated with any patient or donor specimen.
- Even though all commercial human-based Blood Bank reagents have been tested (cells, antisera, etc.), handle them as if they are potentially infectious.

### **D) Handling Known Infectious Patients**

It may be necessary in special circumstances to collect and process blood from a patient known to be at high risk for an infectious agent (e.g. therapeutic procedures):

- i. Additional precautions are to be taken, i.e. protective gowns, gloves, masks, and eye shields if necessary.

- ii. Complete cleaning and disinfecting of the donor area if the procedure is performed in the Blood Bank.
- iii. Complete cleaning and disinfection of all equipment used is to be performed between donor and / or patients and before being returned to routine use.
- iv. All disposable materials are to be disposed of immediately.

**E) Disinfection of Equipment**

- Re-use instruments, tubing, etc only after decontamination and sterilization.
- Do not touch equipment with soiled gloves or gloves used for patient care. Surfaces of large equipment should be disinfected with a 1% dilution of sodium hypochlorite or an approved disinfectant. Heavy soiled equipment may require additional cleaning with detergent and water. Gloves must be worn while cleaning the equipment.

**F) Waste disposal**

- Non plastic items soiled with blood, bloody drainage or potentially infected material must be placed in the yellow biohazard plastic bags. Items that may tear the bag must not be placed in the plastic bag.
- Infected plastic items should be discarded into Red bag.
- Excreta, blood or body fluids must be emptied down the drain with adequate amount of water.

**G) Linen**

Linen soiled with blood or potentially infectious body fluid must be soaked in 1% sodium hypochlorite for one hour, placed in a leak proof bag and then sent to the laundry.

## RECOMMENDATIONS FOR PATIENTS KNOWN TO HARBOR BLOOD BORNE PATHOGENS

### Instructions for Wards

#### Admission

Patients with HIV disease but presenting with unrelated illnesses may be admitted in any ward. Patients with AIDS requiring isolation on account of secondary infectious disease will be isolated as per the isolation policies and procedures.

#### Preparation of the patients

- It is the responsibility of the attending physician to ensure that pre-test counseling of any patient before HIV testing is done and after that patients are informed about the result they receive post-test counseling. The results of the HIV test must be kept strictly confidential.  
The ward sister must ensure that when a patient with HIV, HBV or HCV infection is admitted, all contaminated reusable items are disinfected with sodium hypo chloride placed in **Yellow bag** with biohazard symbol and sent to CSSD for disinfection & autoclaving. **Sharps are not to be discarded into the red bag.**

#### Specimens

Adequate precautions are to be taken while collecting specimens. The specimens are to be transported in leak-proof containers. Ensure that the cover and the outside of the container are not contaminated.

#### Waste disposal

- A bin lined by a yellow plastic bag is placed in the patient's room for infectious waste. When the bag is 3/4th full it is sent for incineration.
- Non-infectious waste does not require special precautions and is disposed in a manner similar to non-infectious waste generated from any other patient.
- Sharps are discarded into the sharps container.

#### Death of a Patient

- Nursing staff must inform the Nursing supervisor then Medical Administrator before sending the body from hospital.
- Those cleaning and packing the body should use gloves and other protective gear. Before leaving the ward, the body is bagged.

## HAND HYGIENE & GLOVING

### Indications for Hand Washing & Hand Antisepsis

- When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with soap and water.
- If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands.
- Decontaminate hands before having direct contact with patients.
- Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter.
- Decontaminate hands before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure
- Decontaminate hands after contact with a patient's intact skin (e.g., when taking pulse or blood pressure, and lifting a patient.)
- Decontaminate hands after contact with body fluids or excretions, mucous membranes, non-intact skin, and wound dressings if hands are not visibly soiled.
- Decontaminate hands if moving from a contaminated body site to a clean body site during patient care.
- Decontaminate hands after removing gloves.
- Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient.
- Before eating and after using rest room, wash hands with soap and water.
- Wash hands with soap and water if exposure to *Bacillus anthracis* is suspected or proven as alcohols, iodophors, chlorhexidine are not effective against spores.
- Decontaminate hands when moving from one patient to another.

### HAND HYGIENE

- Hand Hygiene Technique When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers until hands are dry.
- When washing hands with soap and water, wet hands first with water, apply soap (liquid) and rub hands together vigorously for at least 15 seconds, covering all surfaces of hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel Use towel to turn off the faucet. Avoid using hot water, as repeated exposure to hot water may increase the risk of dermatitis.
- Soap bars are acceptable when washing hands with non antimicrobial soap and water
- Use soap racks that facilitate drainage and small bars should be used.
- Multiple use cloth hand towels are not recommended for use in hospitals Disposable paper towels can be used for hand drying.

### Other Aspects of Hand Hygiene

- Do not wear artificial fingernails or rings when having direct contact with patients at high risk. Keep natural nail tips less than ¼ inches long & no nail polish.
- Remove watch & jewellery from hands.
- Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and non intact skin could occur.

- Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients.
- Change gloves during patient care if moving from a contaminated body site to a clean body site.

### Surgical Hand Antisepsis

- Remove rings, watches and bracelets before beginning the surgical hand scrub.
- Remove debris from underneath fingernails using a nail cleaner under running water.

**When performing surgical hand antisepsis use 7.5% Povidine iodine scrub, scrub hands and forearms for 2-6 minutes. Long scrub times (e.g. 10 min) are not necessary.**

### Monitoring Of Hand Hygiene Practices

Compliance with proper hand hygiene is monitored regularly.

## SURGICAL HAND WASH TECHNIQUE



## Palm to palm

- a) Right palm over left dorsum & left palm over right
  - i. dorsum,
- b) Palm to palm with finger interlaced,
- c) Back of fingers to opposing palms with fingers interlocked,
- d) Rotational rubbing of thumb,
- e) Rotational rubbing backwards & forwards
- f) With clasped fingers of right hand & left palm
- g) Vice versa,
- h) Rotational rubbing of right wrist & vice versa
- i) Once wrist have been scrubbed, scrub all forearm move from forearm towards elbow,
- j) Scrub under elbow & vice versa,
- k) Wash thoroughly under running water &
- l) Dry with sterile towel only .



## Hand hygiene technique

Proper hand hygiene with a good technique is more important than the agent used. All surfaces of the hands must be covered. The areas most commonly missed are thumbs, backs of hands, between the fingers and finger tips.

### Preparing the hands for hand hygiene

The following must be in place to clean the hands safely and properly:

- Nails must be kept short – majority of organisms are found under or around finger nails
- Use of artificial finger nails or nail varnish is not permitted
- Remove rings with stones and wrist watches during direct clinical care of patients as they can harbor microorganisms
- Use short sleeves during direct clinical care of patients
- Cuts or abrasions to the hands must be covered with a waterproof occlusive dressing which should be replaced when necessary

### Preparing the clinical environment for effective hand hygiene

- Wash hand basins – These must be used only for hand hygiene. They must be kept clean, uncluttered, and accessible and stocked with liquid soap and paper towels.
- Alcohol hand gel dispensers – These must be available at the point of clinical care of patients.

### Washing hands with soap and water:

1. Wet hands with running water and apply the amount of antimicrobial soap necessary to cover all surfaces.
2. Rub vigorously to form lather on all surfaces of the hands and between the fingers for 30 – 45 seconds. Pay special attention to finger tips and base of the thumbs.
3. Hands should then be thoroughly rinsed under running water for 10 – 15 seconds, applying friction over all hand surfaces.
4. Use paper tissue to turn off the tap / faucet to avoid recontamination of hands.
5. Dry the hands with paper tissues.

Please see the illustration 2 below demonstrating the technique of hand washing with soap and water.

## WASHING HANDS WITH ALCOHOL-BASED HAND RUB:

Apply a palmful of alcohol-based hand rub and cover all surfaces of the hands. Rub hands until dry. Please see the illustration 3 below demonstrating the technique of hand washing with alcohol-based hand rub.

### Hand Hygiene Technique with Soap and Water

**⌚ Duration of the entire procedure: 40-60 seconds**



### Hand Hygiene Technique with Alcohol-Based Formulation

**⌚ Duration of the entire procedure: 20-30 seconds**





## TECHNIQUE OF GLOVING

**There are two categories of gloves available in the hospital:**

- **Examination gloves:** These gloves are clean but not sterile. They are used for all procedures that do not require sterile technique.
- **Sterile gloves:** These are used for all procedures where sterile technique is mandatory. Each pair of gloves is supplied in sealed covers.

### **Procedure for wearing gloves**

Pairs of sterile gloves are packed in such a way as to facilitate handling without touching the outside of the gloves with bare hands. A 2'' cuff is folded on each glove

- The packet containing the gloves is first peeled open.
- Pick up the powder packet from the right hand glove and powder both hands away from the sterile field. This is to avoid risk of accidental spilling of powder over sterile gloves.

### **‘Open’ Method:**

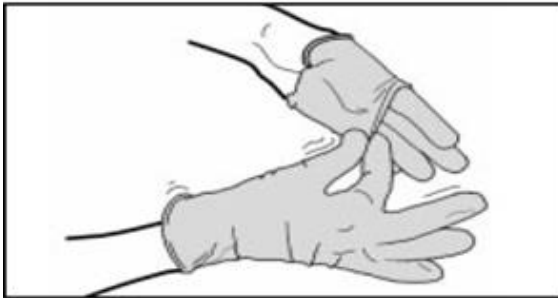
- Pick up the first glove by gripping its cuff with one hand and slip the other hand in.
- With the gloved hand, pick up second glove by slipping hand under the cuff (outside of the glove) and slip the ungloved hand in and release the grip.
- At this stage adjust the fingers of the gloves properly.
- If gowned, the cuff of the second glove is pulled over the stockinet sleeve of the gown.
- The cuff of other glove is then pulled over the stockinet sleeve.

### **‘Closed’ Method:**

- The hands are not pushed beyond the stockinet cuffs of the gown.
- The cuff of the left hand glove is grasped through the stockinet part of the right sleeve.
- The left hand is inserted into the glove and the glove grasped by the right hand is pulled over the left hand.
- After stretching the cuff, the glove is pulled over the sleeve, and the hand is forced through the stockinet's cuff into the glove. The second glove is put on in a similar manner except that the cuff can be grasped with the already gloved hand and the right hand is forced through the stockinet cuff into the glove. Glove powder can cause irritation and induce postoperative adhesions between intestinal loops and the wound. Hence, it should be wiped off with a sterile wet mop.
- There is no strict protocol for wearing unsterile (examination) gloves.
- To prevent outer surface of gloves from contaminating hands, the gloved fingers of one hand grip the outer surface of the cuff and pull off the glove inside out.
- To prevent contamination of the ungloved hand, the inside of the cuff of the opposite glove is held and pulled off the hand.
- Gloves are discarded into the Red bag.

# Removal of Gloves Technique

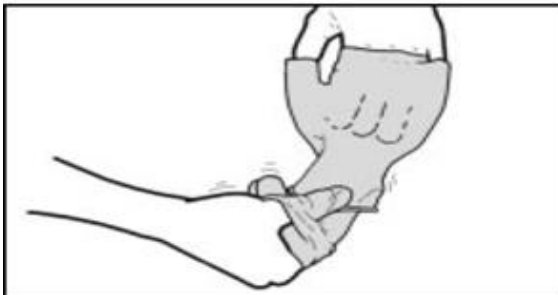
1. Use the following pictures as a guide to help you remove gloves safely
2. Avoid touching the outside of the gloves. Only touch the inside
3. Wash hands after removing and disposing of gloves in a sealable bag



1. Grasp one glove at wrist and pull down to knuckles



2. Grasp other glove at wrist and pull down to knuckles



3. Grasp wrist end of one glove and pull it off completely



4. Remove other glove in a similar way, touching only the inside of gloves



5. Dispose of gloves in a sealable plastic bag



6. Wash hands after removing and disposing of gloves

### Use of Masks

- The traditional masks of four to six layers of muslin offers very limited protection. When first worn it may be reasonably efficient, but soon becomes saturated with moist vapor from the wearer's breath.
- More efficient masks are of high filtration disposable type several brands are available, any may be used. These masks can be molded to facial contours and actually filter the respiration as compared to deflection with paper or cellophane insert masks.
- Such masks achieve 98 percent efficient filtration compared with only 40 percent with muslin mask.

### Procedure for using a mask

- When wearing the mask, care should be taken to see that the nose, mouth and facial hair are well covered.
- Mask should be changed at least every operating session and should never be worn "around the neck".
- Mask 'wiggling' is also a potential source of infection.
- When removing a mask, care should be taken to avoid touching the part which has acted as the filter. The hands can easily become contaminated with bacteria.

### Use of Gowns

#### Procedure for using a mask

- **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 unroll until the sleeves are seen.
- Slide both hands and arms into the sleeves at the same time.
- The floor nurse / assistant slide 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 leaving the gloves on.
- The gown with the inside folded out is placed in the appropriate bin.
- The gloves are then removed by holding the inside of the cuff and placed in appropriate container.

## GOWNING TECHNIQUE



1. DRY HANDS.



2. PICK UP GOWN.



3. LET GOWN UNFOLD.



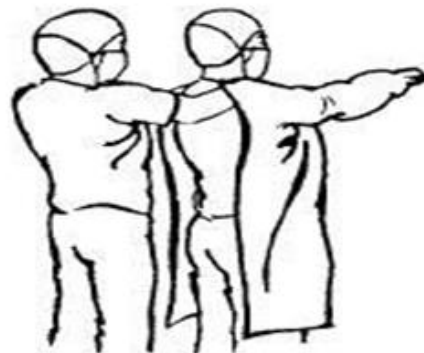
4. OPEN TO LOCATE SLEEVE / ARMHOLE.



5. SLIP ARMS INTO SLEEVES.



6. HOLD ARMS OUT AND SLIGHTLY UP.



7. CIRCULATOR PULLS GOWN ON.

# CARE OF SYSTEMS AND INDWELLING DEVICES

## General Guidelines to Be Followed for All Procedures

- Hand hygiene is mandatory before, after and in-between procedures and patients.
- Each health care worker should be familiar with the personal protection (Standard precautions) required for each procedure. These precautions should be strictly adhered to follow proper waste segregation & disposal after each procedure.

## INFECTION CONTROL IN VASCULAR CARE

### Hand Hygiene

- Wash hands before every attempted intravascular catheter insertion. Antimicrobial hand washing /hand hygiene is desirable, and preferred before attempted insertions of central intravenous catheters, catheters requiring cut downs, and arterial catheters.

### Preparation of Skin

- Povidone-iodine (PVP) or 70% alcohol may be used for cleaning the skin. Insertion sites should be scrubbed with a generous amount of antiseptic. Beginning at the centre of the insertion site, use a circular motion and move outward. Antiseptics should have a contact time of at least 30 seconds prior to catheter insertion. Antiseptics should not be wiped off with alcohol prior to catheter insertion.

### Inspecting catheter insertion sites

- Intravascular catheters should be inspected daily and whenever patients have unexplained fever or complaints of pain, tenderness, or drainage at the site for evidence of catheter related complications. Inspect for signs of infection (redness, swelling, drainage, tenderness) or phlebitis and also palpate gently through intact dressings.

### Manipulation of intravascular catheter systems

Strict aseptic technique should be maintained when manipulating intravascular catheter systems. Examples of such manipulations include the following:

- Placing a heparin lock
- Starting and stopping an infusion
- Changing an intravascular catheter site dressing
- Changing an intravascular administration set

### Flushing IV lines

- Solutions used for flushing IV lines should not contain glucose which can support the growth of microorganisms. Do not reuse syringes used for flushing. One syringe is used for flushing IV line once.

## **PERIPHERAL IV SITES (SHORT TERM CATHETERS):**

### **Dressing Changes**

- Peripheral IV site dressings should not usually require routine changes, since peripheral IV catheters, should be changed within 72 hours.

### **Replacement of Peripheral IV Catheters**

- Peripheral IV catheters should be removed 72 hours after insertion, provided no IV- related complications, requiring catheter removal are encountered earlier. A new peripheral IV catheter, if required, may be inserted at a new site.

## **CENTRAL INTRAVASCULAR CATHETERS (LONG TERM CATHETERS)**

### **Dressing Changes**

- Central IV catheter dressings should be changed every 72 hours.

### **Replacement of central IV catheters**

- Central IV catheters do not require routine removal and reinsertion. The catheter can be kept for a maximum of 3 months, provided there is no sign of catheter related infection or other complications.

### **Catheter related Infection:**

- At the time of catheter removal, the site is examined for the presence of swelling, erythema, lymphangitis, increased tenderness and palpable venous thrombosis. Any antimicrobial ointment or blood present on the skin around the catheter is first removed with alcohol. The catheter is withdrawn with sterile forceps, the externalized portion being kept directed upward and away from the skin surface.
- (If infection is suspected, after removal, the wound is milked in an attempt to express purulence. For 5.7 cm catheters, the entire length, beginning several millimetres inside the former skin surface catheter interface, is aseptically cut and sent for culture. With longer catheter, (20.3 cm and 60.9 cm in length), two 5-7 cm segments are cultured a proximal one beginning several millimetres inside the former skin catheter interface and the tip. Catheter segments are transported to the laboratory in a sterile container.)
- Three way with extension is used only when multiple simultaneous infusates or Central Venous Pressure monitoring are required.

## INFECTION CONTROL IN 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 nosocomial pneumonia in ventilated patients. Frequent chlorhexidine mouthwashes minimize the chances of pneumonia.

### **Ventilator**

- Sterile water is to be used in nebulizers and humidifiers. This should be replaced within 24 hrs & after each patient use.
- Pneumatic circuits (masks, Y connection and tubes) are to be changed every 24-48 hours. 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) is to be changed every 24- 48 hours. It should not be removed from circuit except at the time of changing.
- Oxygen masks, venture devices and nebulizer chambers are cleaned carefully and then sterilized by ETO.
- Humidifier domes are disinfected with 1% sodium hypochlorite solution. AMBU bags are cleaned thoroughly and are then sent for ETO Sterilization.
- Microbiological surveillance of respiratory therapy equipment is practiced in our hospital in case of epidemiological surveillance in an outbreak situation.

### **Tracheostomy Care / Endotracheal Tube**

- 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 5%) every four hours or more frequently, if necessary.
- The tracheostomy tape securing the tube 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 7 days to allow time for the tract to be formed. Subsequent changes should be done weekly or as necessary.
- Clean technique should be used to change the tracheostomy tube unless there is a medical indication for sterile technique.
- The obturator should be at the bedside (preferably taped to the head of the bed) to be used if the tracheostomy tube accidentally is dislodged or is removed for any reason.



### **Suctioning of endotracheal / tracheostomy tube**

- Employees should be instructed and supervised by trained personnel in proper technique before performing this procedure on their own. Assess the patient using auscultation, ECG, (if available) and vital signs prior to suctioning.
1. Wash your hands.
  2. Use a catheter with a blunt tip.
  3. The wall suction should be set no higher than 120 mm Hg for adults and between 60 and 80 mm Hg for children.
  4. Attach the suction catheter to the suction tubing; do not touch the catheter with bare hands (leave it in its protective covering).
  5. Put on sterile gloves. The wearing of a mask is also strongly recommended.
  6. However, if saline does need to be instilled, '1/2 cc of sterile saline is put into the tracheostomy tube on inspiration only.
  7. 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.
  8. Insert the catheter gently through the inner cannula until resistance is met. Do not apply suction during insertion.
  9. Withdraw the catheter approximately 1 cm and institute suctioning.
  10. Carefully withdraw the catheter, rotating it gently between the thumb and forefinger applying intermittent suctioning.
  11. Continuous suctioning for longer than 10 seconds may create an unacceptable level of hypoxia.
  12. 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.
  13. Observe for unfavourable reactions such as increased heart rate, hypoxia, arrhythmia, hypotension, cardiac arrest, etc.
  14. If oral suctioning is necessary, it should be done after the tracheostomy is suctioned.
  15. When suctioning is completed, clear the catheter and tubing of mucous and debris with sterile water or saline.
  16. Discard the catheter, water container, and gloves appropriately.
  17. Wash hands.
  18. The tubing and suction canister should be changed every 24 hours. The canister should be labelled with the date and time when they are changed. 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.

## INFECTION CONTROL IN URINARY CATHETER

### Urethral catheterization

#### Personnel

Only persons who know the correct technique of aseptic insertion and maintenance of catheters should handle catheters.

#### Catheter Use

Urinary catheters should be inserted only when necessary and left in place only as long as medically necessary.

#### Hand Washing

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

#### Catheter Insertion

- Catheters should be inserted using aseptic technique and sterile equipment.
- Use an appropriate antiseptic solution for periurethral cleaning.
- As small a catheter as possible, consistent with good drainage, should be used to minimize urethral trauma.
- Indwelling catheters should be properly secured after insertion to prevent movement and urethral traction.

#### Anchoring the catheter

- Strapping of the catheter is done to lateral side of thigh in male patients. 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 if the patient is on a catheter for a long duration.

## INFECTION CONTROL IN SURGICAL WOUNDS

- Surgical wounds after an elective surgery are inspected on the third post-operative day, or earlier if wound infection is suspected.
- All personnel doing dressings should wash their hands before the procedure. Ideally, a two- member technique is followed. One to open the wound, and one to do the dressing.
- If two health care workers are not available, then, take off the dressing, wash hands again before applying a new dressing.
- A clean, dry wound may be left open without any dressing after inspection. If there is any evidence of wound infection, or purulent discharge, then dressings are done daily, using povidone-iodine to clean the wound and applying dry absorbent dressings.

## ISOLATION POLICIES & PROCEDURES

Isolation practices are meant to prevent transmission of pathogenic micro-organisms within the hospital.

### Aim

- To prevent the transmission of pathogenic micro-organisms within the hospital.
- To recognize the importance of all body fluids, secretions and excretions in the transmission of nosocomial pathogens
- To practice adequate precautions for infections transmitted by airborne droplet & contact.
- Measures for reduction of transmission:

### Patient Isolation

Patients are isolated when

- Suffering from highly transmissible diseases e.g. chicken pox. Pulmonary tuberculosis, cholera. Patient is placed in a single room with hand washing and toilet facilities.
- Infected with epidemiologically important micro-organisms such as MRSA, Imipenem resistant Acinetobacter spp. /Pseudomonas, ESBL positive Gram negative organisms, Vancomycin resistant Enterococci.

### Barrier Nursing

- Barrier nursing: The aim is to erect a barrier to the passage of infectious pathogenic organisms between the contagious patient and other patients and staff in the hospital. Preferably, all contagious patients are isolated in separate rooms, but when such patients must be nursed in a ward with others, screens are placed around the bed or beds they occupy.
- Cohort nursing may be practiced as re-infection with the same organism is unlikely.
- The nurses, attending consultants as also any visitors must wear gowns, masks, and sometimes rubber gloves and they observe strict rules that minimize the risk of passing on infectious agents. Hand hygiene practices are observed after they have been attending the patient.
- Bedding is carefully moved in order to minimize the transmission of airborne particles, such as dust or droplets that could carry contagious material.
- Barrier nursing must be continued until subsequent cultures give a negative report.

## ISOLATION POLICY FOR CERTAIN GROUPS OF ORGANISMS

1. MRSA: When MRSA is isolated in the lab the microbiologist will inform the sister-in-charge/duty doctor/head of unit.

Patient is isolated and barrier nursed. Hand washing is strictly adhered to by all concerned. Linen is changed on a daily basis. Any contamination of linen requires to be decontaminated by autoclaving before sending to the laundry

## STANDARD ISOLATION

### a. Single room

Preferably with own toilet facilities. Keep door closed.

### b. Hand washing

This is the most important measure to prevent the spread of infection. Hands must be washed and dried thoroughly after attending to the patient's care procedure, after removing the plastic apron and before leaving the room. Any abrasions should be covered with waterproof plasters.

### c. Disposable Plastic Aprons

To be used when required.

### d. Disposable Gloves

Non-sterile latex gloves must be worn for direct contact, helping with personal care and handling contaminated materials. After use place directly into clinical waste bag kept in the room. Then wash hands thoroughly before leaving the room.

### e. Linen

It is essential that bed making should be done in such a manner that bacteria are not distributed around the room. Soiled linen must be placed into yellow bags whilst in the room, taking care not to contaminate the outside label then taken directly to the laundry.

### f. Equipment

Once this has been taken into the room it should remain there until the patient has recovered. It may however be necessary to decontaminate a piece of equipment for use elsewhere.

### g. Charts

The patient charts/notes must be kept outside the room.

### h. Laboratory Specimens

They should be placed in "biohazard" bags according to Health Authority procedures.

### I. Faeces/Urine

Where possible allow patients to use their own toilet facilities. Normal daily cleaning is sufficient if the patient is continent. Gloves and aprons must be worn when handling urinals and bedpans. If a commode is used this must be kept for the patients sole use within their rooms. Wear gloves and apron when emptying and cleaning.

**j. Clinical Waste-** All disposable items should be discarded into a waste bag sealed before being taken out of the room to the clinical waste store.

**k. Transfers**

In the event of a transfer to hospital notify the ward in advance and inform the senior infection control nurse in order that suitable facilities can be prepared.

**l. Labels**

Patient's chart and bed is to be labelled –“contact isolation”/color coded at the bedside until the patient is cleared of the infection.

**m. Terminal disinfection of the room**

The room and all surfaces should be cleaned with a disinfectant solution so that the environment is cleared of Staphylococci. Lysol 7% is recommended for the same.

**n. Visiting**

Restrict visitors. Keep staff contact to a minimum.

**Treatment of Carriers**

- a. Colonization may be transient or may persist for weeks, or months.
- b. Antibiotics should not be used, as local treatment includes use of skin preparation (soap or lotion) and shampoo containing chlorhexidine or hexachlorophene, and nasal ointment or spray e.g. a chlorhexidine ointment.
- c. Three consecutive swabs for culture, taken from all previously colonized sites at intervals of no less than 24 hours are necessary before clearance can be given.

**Antibiotics**

- a. The drug of choice for treatment of severe systemic M.R.S.A. infections is intravenous vancomycin.
- b. If an M.R.S.A. colonized patient has to undergo a surgical procedure, then it is recommended that antibiotic prophylaxis peri-operative vancomycin (1–2 doses) should be used.

**Cleaning Guidelines**

- a. Routine cleaning of accommodation is required.
- b. Standard cleaning agents can be used for cleaning tables and floors.
- c. Porous surfaces, benches, floors and walls likely to be contaminated should be cleaned with 0.5% sodium hypochlorite/Bacillocid 0.5% = 25 ml bacillocid in 5 liters of water.
- d. Surfaces contaminated by secretions, or areas that have been grossly soiled should be cleaned with 0.5% sodium hypochlorite.
- e. Bacillocod 0.5% = 25 ml bacillocid in 5 liters of water.
- f. Sodium hypochlorite 0.5%.

**Multi-resistant bacteria** e.g. Imipenem resistant Acinetobacter, multi-resistant Pseudomonas aeruginosa. The aim is to curtail the spread of such bacteria. Hence patient is to be placed on strict barrier nursing precautions irrespective of whether the organism is a coloniser or the cause of infection

**Pulmonary tuberculosis:** Masks should be used during the care of all patients with sputum positive pulmonary tuberculosis. Patient should wear mask during any movement within the hospital.

**Note:** Isolation precautions are to be followed until all previous culture sites are negative.

- g. HIV/HBsAg/ HCV infected patients: Standard precautions. Surfaces contaminated by secretions, or areas that have been grossly soiled should be cleaned with 0.5% sodium hypochlorite
- h. Bacillocod 0.5% = 25 ml bacillocid in 5 liters of water.
- i. Sodium hypochlorite 0.5%.

**Multi-resistant bacteria** e.g. Imipenem resistant Acinetobacter, multi-resistant Pseudomonas aeruginosa. The aim is to curtail the spread of such bacteria. Hence patient is to be placed on strict barrier nursing precautions irrespective of whether the organism is a coloniser or the cause of infection

**Pulmonary tuberculosis:** Masks should be used during the care of all patients with sputum positive pulmonary tuberculosis. Patient should wear mask during any movement within the hospital.

**Note:** Isolation precautions are to be followed until all previous culture sites are negative.

HIV/HBsAg/ HCV infected patients: Standard precautions.

## **INFECTION CONTROL MEASURES FOR MRSA AND VRE OR MULTI DRUG RESISTANT CASES**

- a. Isolate any patients in single room.
- b. Investigate any outbreak:
  - Other patients.
  - Staff.
- c. Educate staff, hand washing, skin lesions, and anti-biotic use.
- d. Screen hospital transfer patients, where the hospital of transfer carries a risk of M.R.S.A. infection

### **Administrative Considerations**

- a. Patients need to be screened:
  - i. Patients transferred from other hospitals or Nursing home. (Duration of stay >48HRS) with any of the following.
  - ii. Patients with open/discharging wounds. Patient with ventilator.
  - iii. Patients with central line / Foleys catheter or infected peripheral line.
  - iv. Patients with multiple i/v antibiotics.
  - v. Patient with TPN/RT feed

## **Staff**

- a. Screening carried out on staff with infective dermatitis or other exfoliate skin conditions.
- b. Nasal swabs – need only be carried out in the event of an outbreak.

## **Procedure for screening patients in the “at risk” group**

- a. Culture swab to be taken from Nose, axilla, and sent to lab.
- b. Culture swab taken from any potentially infected lesion such as a wound, a chronic ulcer or area of diseased skin.

## **Isolation of patients infected with M.R.S.A/ VRE or Multi drug resistant cases.**

- a. All waste to be treated as “contaminated” and placed in red contaminated bag.
- b. Gloves and aprons must be worn for changing the beds of incontinent patients, attending dirty wounds, changing and cleaning suction bottles.
- c. Masks to be worn when doing all the procedures.
- d. Plastic aprons worn when attending patient.

Solid, contaminated infectious linen to be placed directly into the red plastic bag and sealed then put into laundry bag.

## **Drainage Secretion Precautions**

- For patients with infections where organisms are present in wounds or wound drainage, infectious material should be sent for autoclaving after the patient is discharged, mattresses and pillows need to be disinfected by wiping with soap and water, followed by 7% Lysol/Bacillocid, and dried in sun.
- Diseases requiring drainage secretion precautions:
  - Abscess
  - Decubitus ulcer
  - Skin or wound infection
  - Conjunctivitis
- Masks are not indicated, unless splash is likely
- Gowns are indicated if soiling is likely
- Gloves are indicated for touching infected material
- Hands must be washed after touching the patient or potentially contaminated articles and before taking care of another patient
- Articles contaminated with infective material must be discarded or bagged and labelled before being sent for decontamination and reprocessing.

## **REVERSE ISOLATION CATEGORY**

- The purpose of reverse isolation category is to prevent infections in the immuno compromised 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
- Leukaemia and other malignancies

- Organ and tissue transplant patients
- Patients on immunosuppressive therapy

Burns and extensive wounds susceptible

### **CDC Categories of Isolation**

- **Strict Isolation**
- **Respiratory Isolation**
- **Enteric Precautions**
- **Contact Isolation**
- **T. B. Isolation**
- **Drainage/Secretion Precautions**
- **Blood and Body Fluid Precautions**

#### **A. Strict Isolation Category**

- Diseases that are highly contagious and of a severe nature, often fatal, like diphtheria plague, varicella, anthrax are included in this category.
- The patient is placed in a single room with door closed. Gowns, masks, and gloves are to be used. All articles in the room are to be placed in impervious plastic bags.

#### **B. Enteric Category**

##### **It Includes**

1. Infectious diseases, predominantly of the gastrointestinal system and usually transmitted by the feco-oral route .
2. Diarrhoea requiring admission in the isolation section of the ward.
3. Cholera
4. Bacillary dysentery
5. Amoebic dysentery
6. Salmonella and staphylococcal enteritis
7. Hepatitis a and e
8. Poliomyelitis
9. Typhoid and paratyphoid fever
10. Other infectious diarrhoeas.
11. Enteric precautions

#### **C. Respiratory Category**

1. Infectious diseases involving respiratory tract with transmission through the airborne route come in this category. The spread of infection is usually through droplets resulting from cough or sneeze contact with respiratory secretions either by hand or fomites is another important mode of transmission.
2. Diseases requiring respiratory category isolation and admission in the isolation ward.



3. H.influenzae respiratory disease
4. Measles
5. Meningococcal meningitis
6. Mumps
7. Rubella
8. Masks are indicated for those who come close to the patient
9. Gowns are not indicated
10. Gloves are not indicated
11. Hands must be washed after touching the patient or potentially contaminated articles and before taking care of next patient.
12. Articles contaminated with infective material must be discarded or bagged and labelled before being sent for decontamination and reprocessing.

#### **D. Tuberculosis Isolation**

1. Patients with AFB positive sputum or chest x-ray suggesting open pulmonary tuberculosis should be cared for in the isolation ward. Patients should wear masks when being moved within the hospital .
2. Masks are indicated when the patient is coughing and does not reliably cover the mouth.
3. Gowns are indicated only if gross contamination of clothing is likely.
4. Gloves are not indicated.
5. Hands must be washed after touching the patient or potentially contaminated articles
6. Articles, must be discarded, cleaned, or sent for decontamination and reprocessing.

#### **E. Contact Isolation Category**

1. Acute respiratory infections in infants and young children including croup, cold , bronchitis, bronchiolitis caused by respiratory syncytial virus, adenovirus, influenza virus, parainfluenza viruses and rhinovirus. Conjunctivitis (gonococcal and viral), endometritis (gp.a streptococci),furunculosis and other staphylococcal infections, impetigo and herpes zoster. Also, infections with bacteria resistant to multiple antibiotics.
2. Diseases requiring contact isolation
3. Gram negative bacteria resistant to all antibiotics
4. Staphylococci resistant to methicillin/oxacillin
5. Pneumococcus resistant to penicillin
6. H. Influenzae resistant to ampicillin or chloramphenicol
7. Vancomycin resistant enterococci
8. A separate/isolation room is usually necessary .however; patients infected with the same organism may occupy the same room. During outbreaks, infants and young children with the same respiratory clinical syndrome may share the room
9. Masks are indicated for all persons coming close to the patient.
10. Gowns are indicated if soiling is likely

11. Gloves are indicated for touching infected material
12. Hands must be washed or decontaminated after touching the patient or potentially contaminated articles and before taking care of another patient

**Airborne isolation precautions:**

| Conditions requiring Airborne isolation precautions   | Precautions to be taken  |
|---|--|
| 'Open' Pulmonary Tuberculosis   | The patient is to be placed in a separate room and not with other patients.  |
| Chicken pox / Disseminated Herpes Zoster  |  |
| Influenza (eg: H1N1)  |  |
| Pertussis (whooping cough)  | Aprons, gloves, masks and caps to be worn before entering the room. These are to be discarded appropriately as soon as they are used.                    |
| Diphtheria  |  |
| Epiglottitis due to Haemophilus influenzae  |  |
| Measles, Mumps or Rubella   | N95 Respirators to be worn while performing aerosol generating procedures in patients with Influenza.<br><br>Patient is placed in negative pressure room |
| Group A streptococcal pharyngitis (for at least 48 hours after appropriate antibiotic therapy has been administered)        |  |
| Meningococcal meningitis/ Meningococemia (for at least 48 hours after appropriate antibiotic therapy has been administered) |  |

**Contact isolation precautions:**

|   |   |
|---|---|
| Group A streptococcal pharyngitis (for at least 48 hours after appropriate antibiotic therapy has been administered)        | N95 Respirators to be worn while performing aerosol generating procedures in patients with Influenza. |
| Meningococcal meningitis/ Meningococemia (for at least 48 hours after appropriate antibiotic therapy has been administered) | Patient is placed in negative pressure room   |

**Contact isolation precautions:**

| List of organisms that necessitate use of contact isolation precautions | Precautions to be taken  |
|---|--|
| Among gram positive organisms:  | Gloves and aprons to be worn for all contact with the patient or with the patient's surroundings. These are to be discarded appropriately soon after use.                            |
| Methicillin Resistant Staphylococcus aureus (MRSA)                      |  |
| Vancomycin-Resistant Enterococcus (VRE)                                 |  |
| Penicillin resistant Pneumococcus                                       | The patient can be placed in a semi-private room or in corner of a ward, with all contact precautions being followed. These patients do not necessarily have to be in a single room. |
| Among gram negative organisms:  |  |
| Extended Spectrum Beta Lactamases (ESBL)                                |  |
| Carbapenemases  |  |
| Acinetobacter   |  |
| Serratia  |  |

|   |   |
|---|---|
| Multi-drug resistant Pseudomonas (Resistant to any two of the following classes of drugs: Carbapenems, aminoglycosides, ceftazidime, piperacillin-tazobactam) | Hand hygiene to be performed in accordance with the hand hygiene policy.  |
| Burkholderia / Stenotrophomonas   | Mask and goggles or a face-shield are to be used during patient care activities that are likely to generate splashes. |
| Other multi-drug resistant gram negative isolates.  |   |
| Patients with diarrhoea also require contact isolation precautions.   |   |

Precautions to be taken for patients with Protective Isolation (Reverse Barrier Nursing)

1. The patient should be kept in a separate room. These patients should not be kept in a negative pressure room.
2. All items that are used for the management of immuno-compromised patients need to be dedicated to each patient.
3. Dedicated staff should be assigned for the management of the immuno-compromised patients.
4. Thorough cleaning with disinfectant spray need to be done
5. The movement of the immune-compromised patients should be restricted.
6. Visitors should be restricted to the minimum and they should use appropriate PPE.

## VISITORS POLICY

Although instructing and preparing visitors for patients in isolation is time consuming and often frustrating. Their presence is valuable to the emotional well being of the patient.

- 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 for the infection, in detail. The need for isolation and restriction of visitors should be discussed with them.
- Hand washing after all contact with the patient will have to be stressed.
- 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. Visitor's 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 wash their hands well with soap and water before entering and when leaving the room.
- Active immunization of attendants and other follow up steps, where applicable must be advised by the physician in-charge.

### PROPOSED GUIDELINES for GUEST VISITOR'S (Dos & DONTs)

You are entering a tertiary health care set up. For your safety and for the safety of the patients you are to strictly adhere to the following:

- Visitors with respiratory, skin or acute gastrointestinal infections shall not visit or attend the patients.
- Visitors are allowed inside the hospital only during visiting hours
- Visitors entering the ICU's should wear sterile gowns and masks
- Do not touch or let your clothes be in contact with the working surface in any area of the hospital
- Do not touch any machinery- movable or immovable
- Do not touch any patient or any article which the patient shall be using/has used or is being / has been used for patient care
- Do not touch any needles/syringes or any sharp articles in the hospital
- Do not touch any specimens like blood or body fluids or any tissue or any container of such things or any waste disposal container, while in the hospital
- Do not enter the patient care area if you are suffering from any communicable disease(s) e.g. cold/cough/diarrhoea/ Pulmonary Tuberculosis
- If your body immunity is low or your general resistance to infection is low, as is known to you or has been told to you, it is strictly advised that you do not enter patient care area
- Do not eat or drink anything in the patient care area except within such area that has been demarcated for such activity

- Wash your hands before eating
- This is a 'NO SMOKING ZONE'
- Please maintain the dignity and decorum while in the patient care area
- Silence is to be observed strictly
- Please wash your hands thoroughly while leaving the hospital

## **INFECTION CONTROL IN ANCILLARY AND NON HIGH RISK AREAS**

This section deals with the units that do not necessarily come into direct patient contact but have a vital role in infection control in the hospital. Personnel in these areas have varying degrees of risk of acquiring infection. Therefore, infection control measures are to be strictly enforced in these areas.

### **Radiology**

The various interventional procedures carried out in the department of Radio diagnosis are:

- a. Ultrasound guided biopsies / CT guided biopsies.
- b. Drainage procedures.
- c. IVU (Intravenous urogram)
- d. MCU (Micturating cysto urethrogram).

For all these procedures:

1. Use sterile equipment and aseptic technique.
2. Observe standard precautions strictly. All staff should be immunized against hepatitis B. No one with any open sores, cuts or nicks takes part in the procedure.
3. Meticulous housekeeping is very important (Refer to the section 'Housekeeping').

#### **a. Ultrasound guided / CT guided biopsies:**

The person doing the procedure washes up and dons sterile gloves. The part to be biopsied is painted with povidone-iodine and draped with sterile towels.

#### **b. Drainage procedures:**

If any infective material like pus is collected into the tray or bowl, the procedure is treated as infected. The reusable materials are separated. After the procedure, the room is mopped with Lizol solution and the parts of the machine that may have come in contact with the patient are cleaned with disinfectant.

#### **c. IVU (Intravenous urogram):**

A disposable scalp vein set is used for the venipuncture and contrast is given.

#### **d. MCU (Micturating cysto urethrogram):**

The perineum is prepared prior to the procedure. The perineum is painted with Povidone-iodine and draped with a sterile surgical towel. Sterile equipment is used for the catheterization procedure.

**After all procedures, discard the waste generated as per hospital guidelines given in the chapter on Hospital waste management.**

### **Infectious / Isolation Ward Patient**

- If any patient is identified as infectious before hand, cases are adjusted such that the waiting time and transit time of this patient is minimal and spread of infection is minimal. The procedure is done preferably at the end of a session.
- As far as possible only disposable equipment is used, all re-usable things are collected in a red bag and sent to CSSD. Linen is decontaminated by soaking in Sodium Hypo chloride for 1 hour and then sent to the laundry.
- The room is then mopped with Bacillocid solution and machine parts are cleaned with 1% sodium hypochlorite.

Ultrasound intra cavitory probes are washed and put in 2%gluteraldehyde for 30 minutes before using on the next patient.

## ENGINEERING POLICY ON INFECTION CONTROL

- After cleaning of the AHU's and CSU's it is to be sprayed with 5% of disinfectant (Bacillocid) solution and the total unit is to be aerated for 4 hours before the usage.
- If in case of the and air vector borne bacteria is found swabs is to be taken from HVAC ducts and if it is positive and the total Unit is to be fogged.
- No moisture accumulation is allowed in the CSU's and AHU's so the water drains are to be checked regularly.
- All the Tap filter and health faucet filter are to be cleaned every month and it is to be immersed in Sodium hypochlorite solution 1:1000 concentration.
- At all given time the engineering personnel working with any of this should use the personal protective equipments.
- All the HEPA filters to be changed every year in all the areas such as Major operation room, Minor Operation room, and the labour/ delivery room.
- After changing the HEPA filters it is to be validated with the Laser particle count test.
- In case of problem with the suction apparatus the technician to take all the standard precautions like wearing gloves and PPE etc Preferably disinfect with the 1:1000 concentrate solution of the sodium hypochlorite solution prior to doing any active repair work.
- A very high degree of precaution is to be taken by the engineering staff while handling any equipments relating to patients.
- In case if the biological indicator or the bowie dick test fails in the Autoclave is to be immediately intimated to engineering service.

## LAUNDRY SERVICES

Although the risk of infection appears to be low, soiled linen can be a source of large amounts of microbial contamination which may cause infections in hospital patients and personnel. In addition, improperly processed linen can cause chemical reactions or dermatitis in those who come in contact with them. A hospital's linen service should process soiled linen so that the risk of disease to patients who may be unusually susceptible or to employees who may handle linen is avoided.

### Definition

- a. Soiled Linen includes all used and/or contaminated linen.
- b. Clean Linen includes all unused and uncontaminated linen.
- c. Handling is the manner in which HOSPITAL personnel should deal with both clean and soiled linen.

### Purpose

To prevent gross microbial contamination of air and of persons handling linen and protect the staff handling it from potential infection hazards

### Policies

- A. All used linen is considered contaminated and must be bagged before sending to Laundry. It is essential that only used linen is sent to the Laundry and no other items are included in the bags e.g. dentures, instruments, sharp etc.
- B. Clean and soiled linen must be transported separately.

### **Soiled or infected Linen**

- a. Personnel handling and collecting soiled linen should wear heavy-duty gloves and mask. In the laundry, hand washing facilities and protective garb (e.g., gowns, gloves and goggles and masks) are available to personnel who sort laundry.
- b. Linen is washed at 80-90 degrees for 20 minutes with a detergent in water since this is an effective method for cleaning and killing most vegetative bacteria.
- c. Soiled linen should be handled as little as possible with minimal agitation to prevent gross microbial contamination of air and of the person handling the linen.
- d. Only linen used in procedures requiring sterile technique should be sterilized. This process is done in the CSSD.
- e. Soiled linen should be collected and placed in carts designated for soiled linen.
- f. Room Linen should be swept daily and washed down with a detergent/disinfectant weekly and whenever visibly soiled. Cloth liners/bags from inside soiled linen carts shall be washed weekly. The linings of hard-surfaced carts shall be cleaned frequently.
- g. Soiled linen should be handled as little as possible and with minimum agitation to prevent gross microbial contamination of the air and of persons handling the linen.
- h. Handle bags by the neck only.
- i. All soiled and infected linen should be bagged at the location of use, Soiled linen not be sorted or pre-rinsed in patient care areas. So tag should be attached (number, type of linen) on the bag.
- j. Linen used for patients with MRSA, HIV, Hepatitis B, cholera and linen from the isolation ward is decontaminated in the ward by soaking it for one hour in 1% sodium hypochlorite before it is sent to the laundry
- k. Bags used to collect and transport soiled linen shall be of sufficient quality to contain wet or soiled linen and prevent leakage during transport.
- l. Hands shall be washed after gloves are removed. Staff shall be instructed in the principles of personal hygiene, including frequent hand washing.
- m. All linen, which is contaminated with blood, excreta or other body fluids or that is otherwise considered to be infected, should be placed in yellow bag,

### **Clean Linen**

- Hand washing with attention to nails and areas between fingers is mandatory before handling clean linen.
- Clean linen should not be handled more than necessary in order to minimize contamination.
- Any linen that is dropped should be considered contaminated. Clean linen should be stored in a clean, dry area.

### **Storage Awaiting Collection**

- All linen awaiting collection should be stored in appropriate areas of adequate size and separated from other waste.
- They are kept secure from unauthorized persons.



## **Facilities**

- Hand washing facilities need to be available to all employees in the linen area.
- Barriers to protect employees from blood and body fluids are located throughout the linen area. The employee should be informed of the location and use of barriers at the time of orientation to the unit.
- Carts must be cleaned before transporting clean linen.

## **Responsibilities**

- All Hospital Personnel handling soiled and clean linen should adhere to the established policies and procedures.
  - Supervisor assesses and assists in meeting the educational needs of his staff, to ensure they are appropriately trained.
  - Monitor compliance with protective procedures
  - Infection Control Committee
- i. Assist in providing infection control in-services education.
  - ii. Monitor compliance with the policies and procedures established in this Manual.
    - a. Staff immunization against HBV should be documented.

## **Accidental spillage of used linen**

In the event of accidental spillage of used linen, carry out the following procedures:

- a. Wear gloves
- b. Re-bag in appropriate bag
- c. Clean the area with appropriate disinfectant as required.

## HOUSE KEEPING

### 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.

1. The **floor** is to be cleaned at least three times in 24 hours. Detergent and copious amounts of water should be used during one cleaning.
2. The **walls** are to be washed with a brush, using detergent and water once a week
3. **High dusting** is to be done with a wet mop
4. **Fans and lights** are cleaned with soap and water once a month.
5. **All work surfaces** are to be disinfected by wiping with Bacillocid and then cleaned with detergent/disinfectant and water twice a day.
6. **Cupboards, shelves, beds, lockers, IV stands, stools and other fixtures** are to be cleaned with detergent/disinfectant and water once a week.
7. **Curtains** are to be changed once a month or whenever soiled whichever is earlier. These curtains are to be sent for regular laundering. In certain areas, eg. Transplant units and ICUs, more frequent changes are required.
8. **Patient's cot** is to be cleaned every week with detergent and water. 1% hypochlorite to be used when soiled with blood or body fluids. In the isolation ward, cleaning is done daily.
9. **Store rooms** are to be mopped once a day and high dusted once a week.
10. The floor of **bathrooms** is to be cleaned with detergent once a day and then disinfected.
11. **Toilets** are cleaned with a brush using a detergent twice a day (in the morning and evening). Disinfection with 7% lizol is done. Stain removal using Hydrochloric acid may be used.
12. **Wash basins** are to be cleaned with Detergent powder every morning
13. Regular **AC maintenance** is required. The AC section should draw up a protocol for this.

Methods must be appropriate for potential contamination, and the necessary level of asepsis. This may be achieved by classifying areas into one of four hospital zones:

**Zone A:** No patient contact. Normal domestic cleaning is recommended (for example, administration, and library).

**Zone B:** Care of patients who are not infected, and not highly susceptible, should be done by a procedure that does not raise dust. Dry sweeping or vacuum cleaners are not recommended. The use of a detergent solution improves the quality of cleaning. Disinfect any areas with visible contamination with blood or body fluids prior to cleaning.

**Zone C:** Infected patients (isolation wards). Clean with a detergent or disinfectant solution, with separate cleaning equipment for each room.

**Zone D:** Highly susceptible patients (protective isolation) or protected areas such as operating suites, delivery rooms, intensive care units, premature baby units. Clean using a detergent or disinfectant solution and separate cleaning equipment.

### **Patient linen**

- Bed linen is to be changed daily and whenever soiled with blood or body fluids.
- Patient's gown is to be changed every day and whenever soiled with blood or body fluids.
- Linen soiled with blood or body fluids, and all linen used by patients diagnosed to have HIV, HBV, HCV and MRSA, is to be disinfected with 1% sodium hypochlorite before being sent to the laundry.

### **Miscellaneous items**

Kidney basins, basins, bed pans, urinals, etc to be cleaned with detergent and water and disinfected with Lysol specially when used for infected patients.

### **House Keeping In the Operation Theatre**

- Theatre complex should be absolutely clean at all items. Dust should not accumulate at any region in the theatre.
- Soap solution is recommended for cleaning floors and other surfaces. Operating rooms are cleaned daily and the entire theatre complex is cleaned thoroughly once a week.

### **Before the start of the 1st case**

- Theatre complex should be absolutely clean at all items. Dust should not accumulate at any region in the theatre.
- Soap solution is recommended for cleaning floors and other surfaces. Operating rooms are cleaned daily and the entire theatre complex is cleaned thoroughly once a week.
- Wipe all equipment, furniture, room lights, suction points, OT 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: The theatre should be cleaned –OT table, and floor. In case of a spill, treat it according to the protocol.

### **Linen & gloves**

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 cleaned immediately by the scrub nurse and the attenders. Reusable sharps are decontaminated in hypochlorite and then washed in the room adjacent to the respective OR by scrubbing with a brush, liquid soap & vim. They are then sent for sterilization in the CSSD. After septic cases the instruments are sent in the instrument tray for autoclaving. Once disinfected, they are taken back to the same instrument cleaning area for a manual wash described earlier. They are then packed and re-autoclaved before use.

### **Environment**

- Wipe used equipment, furniture, OR table etc., with detergent and water. If there is a blood spill, disinfect with sodium hypochlorite before wiping, as mentioned earlier.
- Empty and clean suction bottles and tubing with disinfectant.

### **After the last case**

The same procedures as mentioned above are followed and in addition the following are carried out.

- Wipe over head lights, cabinets, waste receptacles, equipment, furniture with Lysol.
- Wash floor and wet mop with liquid soap and then remove water and wet mop with Lysol.
- Clean the storage shelves scrub & clean sluice room.

### **Weekly cleaning procedure**

- Remove all portable equipment.
- Damp wipe lights and other fixtures with detergent.
- Clean doors, hinges, facings, glass inserts and rinse with a cloth moistened with detergent.
- Wipe down walls with clean cloth mop with detergent.
- Scrub floor using detergent and water .Use Lysol/bacillocid to mop it finally.
- Stainless steel surfaces – clean with detergent, rinse & clean with warm water.
- Wash (clean) and dry all furniture and equipment (OT table, suction holders, foot & sitting stools, Mayo stands, IV poles, basin stands, X-ray view boxes, hamper stands, all tables in the room, holes to oxygen tank, kick buckets and holder, and wall cupboards).
- After washing floors, allow disinfectant solution to remain on the floor for 5 minutes to ensure destruction of bacteria.

### **Maintenance and Repairs**

- Machinery and equipment should be checked, cleaned and repaired routinely.
- Urgent repairs should be carried out at the end of the days 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 weekly and major work to be done at least once every year.

## **HOUSE KEEPING IN THE ISOLATION ROOMS**

### **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**

- The mattress and pillows should have an impervious cover such as mackintosh 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 colour coded plastic cover should be available in each room for disposal of medical waste.
- Rooms should be isolated according to disease conditions and should be well lit.

### **Cleaning procedure for isolation room:**

1. Linen should be stripped from the bed with care taken not to shake the linen during this action. Linen should be soaked for 1 hour in 1% sodium hypochlorite and then sent to the laundry.
2. All other articles like IV stands and furniture should be cleaned with detergent and disinfected with Lyzol/Bacillocid. Walls should be cleaned with detergent and disinfected with Lyzol.
3. The bathrooms should be cleaned with detergent and disinfected with Lyzol.

### **At discharge (terminal disinfection):**

- The pillows and mattress are to be cleaned with detergent, disinfected with Lyzol and dried in sunlight for 24 hours.
- Bed sheets, curtains, gowns and dusters must be removed, soaked in 1% sodium hypochlorite for one hour and then sent to laundry.
- After disinfection, wash the room, wall, window, doors, bathroom, sink and furniture with soap solution after doing thorough high dusting in that cubicle.
- Soak bed pan, urinal, kidney basin in Lyzol solution for 1 hour, wash with detergent and dry it under sunlight.
- Bath basins, multi-bin, bucket, jugs, mugs are washed with soap solution and dried in sunlight.
- Rubber sheets (mackintosh) are to be cleaned with Lyzol, dried, powdered and replaced.
- Soak the thermometer tray and its contents in Lyzol/Bacillocid after cleaning. Utensils used by the patient are washed, boiled and replaced.

## **DISINFECTION AND STERILIZATION**

1. There will be an itemized list of all patient care practices together with particulars of the disinfectant to be used and the details of the procedure. Routine supervision to ensure that the disinfectants are used according to the instructions. Regular in-use testing is usually required to check the efficiency of disinfection procedures and proper use of disinfectants. The infection control team is responsible for the training of potential users of disinfectants and continuing education of employees and professional staff on the proper use of disinfection.
2. The pharmacy department shall perform its role in offering technical assistance in the choice and effective use of disinfectants in addition to precautions and safety measures to these chemical agents.
3. The Infection Control Committee will update this policy every two years.

### **Definitions**

Any micro-organism, including bacterial spores that come in contact with normally sterile tissue can cause infection. All items that come in contact with normally sterile tissues should be sterilized. Bacteria and viruses can be transmitted to patients on instruments or equipment. These must be decontaminated between patients.

## Definitions

Any micro-organism, including bacterial spores that come in contact with normally sterile tissue can cause infection. All items that come in contact with normally sterile tissues should be sterilized. Bacteria and viruses can be transmitted to patients on instruments or equipment. These must be decontaminated between patients.

## Types of items

**a. Non-critical items** are those that either do not touch the patient or touch only intact skin. Such items include crutches, bed boards, Bedpans, blood pressure cuffs, bed rails, linen, some food utensils, and bed side tables. These items very rarely transmit disease. Intact skin acts as an effective barrier to most organisms and sterility is not critical.

Consequently, depending on the particular piece of equipment or item, washing with a detergent may be sufficient. Depending on the particular item and the nature and degree of contamination during use, simple washing or scrubbing with a detergent and warm water may be sufficient. In some instances, however, the added assurance of chemical disinfection with an intermediate to low-level chemical germicide may be considered appropriate

**b. Semi critical items** are those that come in contact with intact mucous membranes, but they do not ordinarily penetrate body surfaces of the degree of risk of infection. They must be free of all micro-organisms except bacterial spores. Intact mucous membranes are generally resistant to infection by common bacterial spores but are susceptible to tubercle bacilli and viruses.

**c. Critical items** are instruments or objects that are introduced directly into the bloodstream or into other normally sterile areas of the body. Examples are surgical instruments, needles, cardiac catheters, implants, and the blood compartment of hemodialyses. Most of the items in this category are either purchased sterile or are sterilized by autoclaving if possible. Heat- sensitive objects can be treated with ethylene oxide, hydrogen peroxide gas plasma or chemo sterilizers.

- **Cleaning:** It is the removal of contaminant e.g. soil, organic matter, and large number of micro organisms. Cleaning is a useful and essential prerequisite to any sterilization or disinfection procedure.
- **Disinfection:** It is the destruction of most forms of micro-organisms but not usually of bacterial spores thus reducing them to a level that is not harmful to health.
- **Sterilizations:** Sterilization is the total destruction or removal of all living organisms including bacterial spores.
- **Decontamination:** The removal of pathogenic micro-organisms from objects so that they are safe to handle.
- **Germicide:** Anything that destroys micro-organisms, particularly pathogenic organisms (germs). Usually refers to chemicals that will destroy pathogens but not necessarily spores. Germicides apply to compounds used on both living tissue and inanimate objects while disinfectants are applied only to inanimate objects..
- **Antiseptic:** A chemical used externally or on the skin or in and around wounds in order to control surface microbial contamination that could cause infection.

**Levels of Disinfectant Activity:** The proposed levels of activity (high, intermediate and low) are based on the fact that micro-organisms can be categorized into several groups according to their innate resistance levels to a spectrum of physical or chemical germicidal agents:

- High Level Disinfection is the minimum treatment for critical or semi-critical instruments. An essential property of a high level disinfectant is a demonstrated level of activity against bacterial endospores.
- Intermediate Level Disinfection does not necessarily kill bacterial spores, but inactivates *M. tuberculosis*. It is also effective against fungi as well as lipid and non-lipid medium sized and small viruses.
- Low Level Disinfection rapidly kills most vegetative forms of bacteria and most fungi as well as medium sized or lipid-containing viruses.

### **Responsibilities**

- a. The ward in charge, performing sterilization procedures develops sterilization policies and procedures for their area in liaison with the Infection Control Team.
- b. Infection Control Team monitors adherence to the above policy.
- c. Central Sterile Supply Department staffs monitor the sterilization process by using biological and non-biological indicators of steam penetration.

## **RECOMMENDATIONS**

### **Cleaning**

All objects to be disinfected or sterilized should first be thoroughly cleaned to remove all organic matter (blood and tissue) and other residues.

### **Indications for Sterilization and High - Level Disinfection:**

- i. Critical medical devices or patient-care equipment that enter normally sterile tissue or the vascular system or through which blood flows, should be subjected to a sterilization procedure before each use.
- ii. Laparoscopes, Orthoscopes and other scopes that enter normally sterile tissue should be subjected to a sterilization procedure before each use.

### **Methods of Sterilization**

- a. Autoclaving to be done as per the standards, for example, 134°C with 90 minutes cycle.
- b. Whenever Sterilization is indicated, a steam sterilizer should be used unless the object to be sterilized will be damaged by heat, pressure or moisture, or is otherwise inappropriate for steam sterilization. In this case, another acceptable method of sterilization should be used.
- c. Exposure to Ethylene oxide gas.

### **Biological Monitoring of Sterilization:**

- i. Biological indicators to be used once a week for autoclave and with every cycle for ETO sterilization.
- ii. If spores are not killed in routine spore tests, the sterilizer should immediately be checked for proper use and function and the spore test repeated. Objects, other than implantable objects, do not need to be recalled because of a single positive spore test unless the sterilizer or the sterilization procedure is defective.
- iii. If the spore tests remain positive, use of the sterilizer should be discontinued until it is serviced.

### **Chemical Indicators:**

Chemical indicators that will show a package has been through a sterilization cycle should be visible on the outside of each package that is sterilized.

### **Use of Sterile Items:**

An item should not be used if its sterility is questionable, e.g. if its package is punctured, torn or wet. Principal sterilizing agents are steam under pressure, dry heat, ethylene oxide gas, hydrogen peroxide gas plasma and liquid chemicals. Chemicals used to destroy all microbial life, including fungal and bacterial spores, are called chemo sterilizers.

### **Reprocessing Single-Use or Disposable Items:**

- a. Items or devices that cannot be cleaned and sterilized or disinfected without altering their physical integrity and function should not be reprocessed.
- b. Reprocessing procedures that result in residual toxicity or compromise the overall safety or effectiveness of the items or devices should be avoided.

### **General Guidelines for Sterilization and Disinfection**

- a. Disposable items are single use and should not be re-used.
- b. Any item should be scrupulously cleaned before sterilization or disinfection.
- c. Multi-use items which can be sterilized by heat should be cleaned and sent to CSSD for sterilization.
- d. Any item should be assessed individually for the level of disinfection required and the disinfectant used.
- e. All the variables that influence the efficacy of disinfectants should be closely monitored to achieve the level of disinfection required.

### **Factors which Influence the Efficiency of Disinfectants**

- i. The type and level of microbial contamination.
- ii. The amount of organic load on the object and its prior cleaning.
- iii. The anti-microbial activity of the disinfectant and its concentration and pH.
- iv. The exposure time to the disinfectant and temperature.



## CSSD

- Central sterile supply department (CSSD) is a specialized area in support services of a hospital responsible for the collection, decontamination, assembling, packing, sterilization, storing and distribution of a multiplicity of goods and equipments to areas in the hospital that provide patient care. Operation theatre, ICU, Casualty, Wards, Lab, OPD etc. are the important areas concerned with CSSD.
- It is organized on the principle of providing the right item, at the right time, in the right condition and always to render service. CSSD is also mindful of its obligation to create a safe patient and staff environment. Hence, qualified and experienced personnel in this field are involved in maintaining the professional standards of practice.

### Functional Activities

- **Collection** of the soiled materials,
- **Cleaning:** All reusable medical devices are thoroughly cleaned from each ward prior to disinfection or sterilization.
- **Drying:** All articles should be dried appropriately.
- **Inspection and Assembly:** Each item should be inspected for functionality, defects, breakage and then appropriately assembled.
- **Packing:** Articles should preferably be packed in porous material and individual pack should not exceed 25cm X 25cm in size and should not weigh more than 5 kg. Dating of the package is essential.
- **Labeling:** Each pack should be marked with nomenclature of the article, date, autoclave number, cycle number, set serial number for the day and initials of the person who carried out the packing and sterilization.
- **Sterilization:** The operation of sterilizer should be entrusted to a responsible and fully trained person. It should be kept in a state of good maintenance and repair.
- **Storage:** Should be properly managed separately for sterile and unsterile stores. For sterile goods, clean room conditions should be followed.
- **Distribution:** of sterile items to the wards, ICUs and theatre.

### Items supplied by the CSSD:

- Instrument packs for various procedures
- Dressing pad
- Dressing packs, cotton and gauze.

### Sterilization methods:

#### 1. Moist heat sterilization:

- CSSD has two autoclaves. It works both on 121 and 134 degree Celsius.

#### 2. Chemical sterilization:

- Heat sensitive items such as cautery cables, electrodes, rubber and parts of operating microscopes are sterilized using chemicals.
- ETO sterilisation is carried out for items requiring low temperature sterilisation (54 degree Celsius)

## Protocol

- A "one-way" pattern of work-flow is observed in the department. Items proceed in a step-wise manner from the unsterile area to the sterile area.
  - o Step 1 – Items are received from the wards.
  - o Step 2 – Items are disassembled and cleaned, to reduce bio-burden before sterilization.
  - o Step 3 – Assembling items for each pack.
  - o Step 4 – Packing is done using suitable material permeable to steam.
  - o Step 5 – Loading, with a goal to remove air quickly and to permit free passage of steam throughout the load. The packs are placed on edge rather than the flat side up to permit steam to pass from the top of the chamber through multiple folds in the pack towards the bottom.
  - o Step 6 – Sterilization. The time and temperatures are the important parameters of the cycles and are usually either 134 degrees for 4 minutes and 121 degrees for 15 minutes.
  - o Step 7 – Unloading and cooling. To prevent entry of moisture and hence micro-organisms into packs, sterilized items are not be handled unless they are entirely cool.
  - o Step 8 – The sterile load should be kept in wire mesh racks or baskets till it gets cooled.
  - o Step 9 – Storage is done in such a manner as to maintain sterility. Stock rotation on the principle "first in, first out" is maintained.
  - o Step 10 – Distribution to the wards and OT takes place from the issue counter.

## Collection and distribution of items:

- All items are distributed as per the case in OT and by replacement in other wards.
- Unsterile items are brought to the CSSD and the sterile items issued.
- Items which have crossed the expiry date should be returned and new ones obtained.

## Monitoring of sterilization:

- All sterile items should come in packs, which are secured firmly with tapes. All packs should have the chemical indicator tape showing adequate sterilization. Users should verify this and report if there is any breach.
- The autoclave has thermocouples that indicate the temperature inside the autoclave. Pressure gauges measure the pressure of the autoclave chamber.
- In addition to chemical indicators, microbiological surveillance is done using Biological indicators (B. stearothermophilus spore paper) every week for autoclave and in every cycle for ETO sterilization.
- Chemical integrator strips are used to check each cycle per day of each autoclave. However, it is put in every instrument pack used for Transplant, implant and cardiovascular surgery specially.
- Bowie Dick The air removal indicator test is done with first cycle every day.

## Storing, Handling and Monitoring of Sterile Supplies

Sterile supplies must be stored in a manner to protect them from contamination and monitored to assure that expired or contaminated items are not used.

### **Storing sterile supplies:**

- Store at least eight inches from the floor, two inches from outside walls and a minimum of 16 inches from the ceiling.
- Warehouse boxes will not be stored in a sterile storage area.
- Rotate supplies so that the oldest stock is used first-principle of First in and first out.
- For autoclave
  - o crape paper -1 month
  - o Linen- 72 hours.
- All ETO sterilized items can be stored up to 1 year
- When implant is used -24 hours

### **When using the sterile supplies, check for-**

- Package integrity, holes, tears, open ends.
- Check outside tape for proper colour change (black for steam and green for gas.)
- Packages that are dropped on the floor or become torn or wet must be considered contaminated .Return to the CSSD for reprocessing.

## **RECALL POLICY**

- In case of any breakdown in the sterilization procedure, based on the monitoring (Chemical / biological) indicators, go for withdrawal of items from the areas of usage.
- The packs are tracked and called back for re-autoclaving.

### **RECALL PROCEDURE**

As soon as CSSD staff receive the result from the microbiologist about biological indicators not being satisfactory, the CSSD In-charge or Staff nurse should take the following action:

- a. Inform to the Nursing Superintendent and Hospital Infection Control Committee.
- b. Check the autoclave number, batch number, and expiry date.
- c. Trace out the department which issued the items and the specific date.
- d. Inform the ward in-charge regarding the biological indicator growth
- e. Take back all the items to CSSD.
- f. Rewash all the articles and repack for re-autoclave.
- g. Clean the autoclave thoroughly with clean water.
- h. Sterilize the items with Bowie-Dick and biological indicator.
- i. Wait for the report; only then issue the items to the wards.
- j. Update the register.

## DECONTAMINATION OF SUCTION EQUIPMENT

When emptying non-disposable suction jar the following precautions should be taken.

1. A plastic apron and household gloves should be worn. A mask should be worn to prevent against any splash/in case of patients with pulmonary tuberculosis.
2. The jar must be disconnected from the vacuum system, carried carefully to the dirty utility room and poured gently into sink. The contents should be flushed with copious amounts of running water.
3. The jar should be rinsed and washed with neutral pH detergent and hot water solution. It should be rinsed again in fresh water and dried.
4. A weak solution of sodium bicarbonate (mucolytic agent) may be used to help remove mucous material.
5. The bottle should be emptied when full and cleaned daily irrespective of the amount of fluid aspirate. Fresh tubing should be attached just prior to use.
6. The routine use of disinfectant is not necessary for cleaning suction jars as organic matter in the contents readily inactivates disinfectants. The only exception to this is when patient has pulmonary tuberculosis. In such cases, send the jar to CSSD for decontamination.

**Humidifier:** Clean and disinfect the device between patients with 1% sodium hypochlorite and fill with sterile water which must be changed every 24 hours, or sooner if necessary. In infected cases like pulmonary TB, ETO sterilization can be carried out.

## DECONTAMINATION OF ENDOSCOPES

### Purpose

Decontamination of endoscopic equipment in order to prevent transfer of micro-organisms presents on the endoscope or associated equipment to patient undergoing endoscopy.

### Responsibilities

- a. Gastroenterologist : The Gastroenterologist should be familiar with types of endoscope prior to performing the procedure.
- b. Nurse: Prior to the commencement of the endoscopy list, the nurse will check all equipment required; also, after each list, the equipment should be inspected for any damage and should be reported to biomedical dept.
- c. The manufacturer's cleaning and maintenance instructions supplied with the equipment should be read for full understanding of the cleaning/ disinfection/ sterilization procedures required.
- d. Biomedical staff is responsible for orientation of the staff for new equipment for first time maintenance, and for contacting the relevant companies when repairs required.

## **Procedure**

All organic matters or debris should be removed prior to disinfection of endoscopes. The disinfection policy is usually formulated in conjunction with the hospital Infection Control Team.

- a. All endoscopic equipment should be thoroughly cleaned with HOSPITAL approved detergent followed by disinfection with 0.55%OPA.

All probe types (except those inserted into normally sterile sites) after washing and cleaning, can be disinfected by immersion in 0.55% OPA for 15 minutes.

Several factors need to be considered in the cleaning and disinfection of endoscopy equipment.

- b. The ability to allow total immersion, thorough mechanical cleaning and flushing of all internal channels.
- c. The ability to withstand either disinfection or sterilization procedures.
- d. Disinfection should be as follows:
  - i. Before the endoscopy list begins.
  - ii. Between each patient examined.
  - iii. At the end of each list.

### **Procedure for cleaning the endoscopes:**

#### **i. Before The Endoscopy List Begins:**

- a. From the cupboard, put the scope in the disinfection / washing trolley. Remove the air/ water valve, suction valve and the biopsy cap.
- b. Soak the scope for 5 -10 minutes so as to make all the remaining organic matter or debris smooth to remove.
- c. Brush smoothly the distal end part of the scope. Brush also all the accessories and immersible parts of the endoscope.
- d. Remove the cleaning valve. Insert the cleaning brush into the suction channel, then to the biopsy channel. Reattach the cleaning valve.
- e. Pump for 10 seconds.
- f. Rinse for 6 - 8 times with water. Pump for 10 - 20 sec. before draining out the water. Use fresh portion of water for each rinse. Discard the water following each rinse. Use of tap water is associated with the increased risk of decontamination of the equipment with environmental organisms, such as a typical mycobacteria and Pseudomonas, often present in the potable water supplies. Although these organisms are not pathogenic in patients with normal immune systems, there is a high risk of infection in immune compromised patients.

### **Sterile Water Rinse:**

Sterile water rinse is recommended for medical devices when:

- The device is intended for use in normally sterile areas of the body or in known immune compromised patients.
- Bronchoscope, if feasible, as there is a risk of contamination with atypical mycobacteria present in the potable water.
- Soak with OPA.
- Drain OPA into the container.
- Rinse twice with water.
- Dry the scope. Alcohol may be used to facilitate drying and eliminate any environmental organism from the lumens of instruments rinsed with tap water.
- Potable water needs to be monitored regularly to assure its microbiology quality control.

### **Scope drying**

- Put scope on a flat surface with blue pads (or the likes). Dry scope (external) with gauze.
- Connect the suction valve, biopsy cap, and A/W channel cleaning adapter (MB -107 for Olympus scopes only).
- Connect the scope to the light source and put on.
- Press the A / W channel cleaning adapter for 30 seconds and at the same time close the water inlet with one of your finger.
- Remove the A / W channel cleaning adapter and put the A / W valve.
- Put the scope on the trolley, ready for use

### **ii) After each patient and each list**

- i. Immediately after removal of the endoscope from the patient, wipe the insertion tube with gauze
- ii. Disassemble all parts of the endoscope to the smallest unit before cleaning.
- iii. All channels must have contact with the cleaning solution by flushing or suctioning through the channel.
- iv. Turn off the air pump and remove air/water valve by slowly pulling it out.
- v. Insert the air/water channel cleaning adapter (blue collar) and turn on the air pump.
- vi. Alternately feed water and air for 10 seconds each. Place the distal tip in the water and suction for 10 seconds, then alternate and suction for 10 seconds. Turn off the light source and then turn off the suction device.
- vii. Remove the air/water channel cleaning adapter and replace original air/water valve
- viii. Clean all accessories and all immersible parts of endoscope and rinse with tap water.
- ix. ON OPA
  - Check scope for leakage/damage prior to washing / disinfection. Never start the cleaning /disinfection procedure if there are any signs of leakage, as this will further damage the scope.
  - On completion of the cycle, remove scope from the washing / disinfection trolley. Suction alcohol through all channels to facilitate drying. Check air and water channels. Clean exterior of scope with alcohol soaked gauze. Hang scope to dry in well-ventilated cabinet.

## FOGGING OR FUMIGATION POLICY

### Indications for Fogging

- In cases of **Anthrax, gas gangrene, open case of TB, tetanus** in any theatre, Fogging is mandatory after the procedure,
- In any **new construction or reconstruction of any theatre**, Fogging is mandatory before functioning of the same.
- Before any **transplant surgery-renal, bone marrow; before any prosthetic implant surgery.**

### Fogging of Theatre / ICU Using Bacillocid

The room is first well sealed by covering cracks, ventilators with a brown paper and adhesive tape. An operator protected by a double mask or if available efficient anti gas respirator does the job.

- 1 liter of 5% of bacillocid solution for 1000 cu. ft. of air space.
- Seal the OT for one hour

### Terminal cleaning to be done using either 5% of bacillocid/1% sodium hypochlorite or solution before fogging

The common disinfectants used

1. **Sodium hypochlorite**-available as 5% concentrate-working dilution-1%,made fresh before use for blood and body fluid spill, in the laboratory for discarding slides, for infected linen in the wards.
2. **TASKIR2 / LYSOL**
3. **Cidex**. Used for high level disinfection of scopes, delicate instruments, some reusable devices as catheters, balloons. This is changed after 14 days according to manufacturer's instructions.
4. **Chlorhexidine gluconate with cetrime and isopropyl alcohol** (Aceptik -hospital concentrate)-used as 1% working dilution for cheatele forceps and thermometers. This needs to be changed every day.
5. **Chlorhexidine /alcohol skin antiseptic (hard rub/hard gel)**-used for hand hygiene.
6. **Chlorhexidine /alcohol hand wash or Povidone Iodine surgical hand wash 7.5%**.used for hand disinfection for special procedures and surgical scrub.

### Recommended colony count in ultraclean OT's (Hospital infection control society U.K)

1. Air leaving final diffuser filter—colony count of  $\leq 0.5$  cfu/cum of air
2. Air sampled close to wound site (within 300 mm) during operation- colony count of  $< 10$  cfu/cum of air
3. Air sampled from perimeter of clean zone during surgery  $\leq 20$  cfu/cum of air.

## DECONTAMINATION OF EQUIPMENT CHART

| ARTICLE                        | MODE OF DISINFECTION   |
|--------------------------------|--|
| Arterial catheters             | Arterial catheters Sterile and single use only- Discard after single use   |
| Catheters                      | Use pre-sterilized disposable. Discard used catheters after mutilating them  |
| Endoscopes                     | Autoclave (if heat stable)<br>2% Cidex for 3 hours (non- sporicidal); 10 hours (sporicidal)  |
| Respirators & Ventilators      | Wash detachable parts in detergent & water Autoclave indicated parts<br>Disinfect with 2% glutaraldehyde for 3 hours or sterilize with ethylene oxide at CSSD  |
| Any body fluid                 | Add 1% sodium hypochlorite. Discard in sink  |
| Blood spillage (small)         | Remove with cotton pad in a double layer tissue paper with gloved hands<br>Wipe with 1% Sodium hypochlorite<br>Discard cotton and tissue paper in a yellow bag for incineration  |
| Blood spill (large)            | Cover the area with paper towel<br>Flood the area with 1% sodium hypochlorite for 30 mins<br>Remove with gloved hands using forceps & clean with any detergent.  |
| Humidifiers                    | Autoclave at low temperature or clean with sterile water and add 1% hypochlorite twice weekly  |
| Incubators                     | Wipe interior with sterile water and detergent & switch on to dry Wipe exterior with 70% alcohol.  |
| Contaminated dressings         | Discard in yellow plastic bags and send for incineration   |
| Soiled linen                   | Soak in hot water or in household bleach (1%) for at least half an hour & send to laundry.   |
| Mattress, pillows              | If contaminated with blood or body fluids, follow blood spill guidelines<br>Should not be used if cover is damaged Contaminated pillows must be discarded<br>Torn mattress covers must be replaced before the mattress is reused |
| Suction bottles                | Disposable: Discard when 75% full and place in blue bags Re usable: change in between each patient<br>Clean with sodium hypochlorite and dry<br>Store dry when not in use  |
| Surgical bowls                 | Autoclave  |
| Breast pumps                   | Wash with detergent and water, immerse in freshly made 1% sodium hypochlorite.   |
| Feeding bottles and teats      | Reusable: Wash with hot water & detergent and rinse thoroughly under tap water or autoclave.<br>Ideal- Disposable-single use   |
| Drainage bags and bottles      | Use disposable, single use. Break glass bottles into pieces and discard. Reusable should be returned to CSSD and reused.   |
| Ambubag                        | Should be cleaned with detergent and water and dried   |
| Applimators (Tonometer prisms) | Immersion in 1 % hypochlorite (500 ppm available chlorine) for 10 mins then immersion in sterile distill water.  |
| Denture pots                   | To be cleaned by patients themselves with detergent and water<br>Disposable with lid- single use.  |



|   |  |
|---|--|
| Razors  | Single use- disposable<br>Electric- patients own. Should not be shared. Detach head and clean with 70% isopropyl alcohol swab  |
| Shaving brush   | Should not be used unless supplied by patients for their own use   |
| Vomit bowls   | Empty contents into drain and wash with hot water and detergent  |
| Urine measuring jugs  | To be washed after use in hot water and detergent  |
| Thermometers  | Wipe with tissue paper/ cotton after using Wipe with 70% alcohol<br>Keep it dry. (for each patient single thermometer)   |
| OPD instruments:<br>Vaginal/ rectal/ ENT/<br>Dental instruments | Use separate instruments for each patient Autoclave after use  |
| Drip stands   | Clean with 1% sodium hypochlorite and dry  |
| Stethoscopes  | Wipe with 70% alcohol  |
| Baby weighing scales  | Use a fresh linen for each baby<br>Clean tray as and when necessary with soap and detergent<br>If contaminated, wipe with 1% sodium hypochlorite after washing                         |
| Macintosh sheet   | Wash with detergent and water. Air dry, powder, reuse or store. If contaminated, disinfect with 1% hypochlorite as above   |
| Bed pans and urinals  | Should be cleaned and disinfected with 1% sodium hypochlorite or hot water.<br>Then wash in bedpan washer twice a week.<br>Ensure the item is dry before reuse                         |
| Foot wears  | Wash daily with detergent and water. Dry   |
| Wheel chairs  | Patient's own- Should be cleaned with detergent and water as necessary<br>Hospital's chairs to be cleaned/ wiped between patients with 70% alcohol                                     |
| Floors  | Mop twice a day with detergent and water Disinfect floor with bacillocid/<br>Lysol/Phenol /R-2 Fort blood spillages follow blood spill policy  |
| Mops  | Use detachable, washable cotton mops<br>Wash with detergent and water after each use<br>Soak in hot water for 20 mins to disinfect Squeeze out excess water and let it dry in sunlight |
| Toys  | Clean with detergent and water and dry   |
| Beds and couches  | Clean with detergent and water between patients as and when required In isolation rooms, wipe with disinfectant after cleaning   |
| Furniture   | Do damp dusting with detergent and water   |
| Carpets   | Vacuum daily   |
| Ward doors, windows   | Wipe with detergent & water once a week  |
| Walls and ceiling   | Keep them clean & dry<br>Clean with a clean damp cloth once a week   |
| Telephones  | To be wiped with 70% alcohol   |
| Wash basin/ toilet seats  | Clean at least twice daily with detergents   |

## PROCEDURE FOR HANDLING OUTBREAK

### DEFINITION

Two or more associated cases of infection with identical organisms that are linked in time and place. A greater than expected rate of illness compared with the unusual background rate for the population at the place and time where the outbreak has occurred.

### MANAGING AN OUTBREAK

#### Recognition of an outbreak

- a. Preliminary Investigation:
    - i. Develop a case definition, which includes site, pathogen and affected population.
  - b. Verify diagnosis:
    - i. By reviewing each case with the definition.
  - c. Determine the magnitude of the problem:
    - i. Number of cases and the severity.
  - d. Confirm that an outbreak exists:
    - i. By comparing the present rate with endemic rate.
  - e. Take immediate relevant control measures:
    - i. Study the available information to identify relevant control measures.
    - ii. Review and strengthen the relevant infection control practices e.g. hand washing, isolation, environmental cleaning, aseptic procedures, disinfection and sterilization.
    - iii. Restrict visitors.
7. Notification of Outbreak

Notify the Infection Control Committee, hospital administration, relevant departments and epidemiological unit. Educate the staff, patients and visitors.

- a. Outbreak Control Committee:
  - i. ICT may consider forming an Outbreak Control Committee depending on the nature and magnitude of the outbreak.
  - ii. This committee should
    - Meet regularly until the outbreak is under control. Major decisions such as ward closure should be taken by this committee.
    - Designate a person to work with media if necessary.

#### Active case Finding

Search for the additional cases by using clinical and microbiological records.

- a. Microbiological Investigations:
  - i. Microbiological investigations should be done depending upon the suspected epidemiology of the causative organism. Consult the microbiologist or obtain off-site microbiologist's opinion to decide on appropriate specimens.
- b. Epidemiological Typing:
  - i. Typing of the etiological agent could be done depending on the facilities available.

- c. Line listing:
  - i. Prepare a data collection tool, e.g. Questionnaire.
  - ii. Record all the cases noting patient details, date and time of onset of symptoms in each case, date of admission, place infection details etc.
- d. Data Analysis:
  - i. Analyse the data to identify common features of the cases. E.g. age, exposure to risk factors.
- e. Formulating and testing hypotheses:
  - a. Formulate a hypothesis about suspected causes for the outbreak based on literature survey and common features of cases.
  - b. Hypothesis is tested by a case control study, or microbiological study to delineate the problem and identify the source.
  - c. Case control study – a group of uninfected patients (control group) is compared with infected patients (case group).
  - d. Microbiological study – planned according to the known epidemiology of infection problem. This identifies possible sources and routes of transmission.

### **Control Measures**

- a. Strengthen specific control measures as soon as the cause of outbreak is identified.
- b. These may include,
  - i. Identification and elimination of the contaminated product.
  - ii. Modification of nursing procedures.
  - iii. Identification and treatment of carriers.
  - iv. Correction of lapses in technique or procedure.

- **Monitor:**

Continue follow up of cases after the outbreak clinically as well as microbiologically.

- **Evaluate:**

Evaluate for the effectiveness of control measures. Cases should cease to occur or return to the endemic level.

- **Document the Outbreak:**

Prepare a report on the investigation and management of the outbreak and present to the infection control committee, departments involved and the administration

## BIOMEDICAL WASTE MANAGEMENT

Hospital waste is a potential reservoir of pathogenic microorganisms and requires appropriate, safe and reliable handling. The main risk associated with infection is sharps contaminated with blood.

There should be a person or persons responsible for the organization and management of waste collection, handling, storage and disposal. Waste management should be conducted in coordination with the infection control team.

Steps in the management of hospital waste include:

- Generation
- Segregation/separation
- Collection
- Transportation, storage
- Treatment
- Final disposal

Waste management practices must meet national and local requirements; the following principles are recommended as a general guide:

### Principles of Waste Management

- ❖ Develop a waste management plan that is based on an assessment of the current situation and which minimizes the amount of waste generated.
- ❖ Segregate clinical (infectious) waste from nonclinical waste in dedicated containers.
- ❖ Transport waste in dedicated trolleys.
- ❖ Store waste in specified areas with restricted access.
- ❖ Collect and store sharps in sharps containers. Sharps containers should be made of plastic or metal and have a lid that can be closed. Mark the storage areas with a biohazard symbol.
- ❖ Ensure that the carts or trolleys used for the transport of segregated waste collection are not used for any other purpose – they should be cleaned regularly.
- ❖ Identify a storage area for waste prior to treatment or being taken to final disposal area.

### Treatment of hazardous and clinical/infectious waste

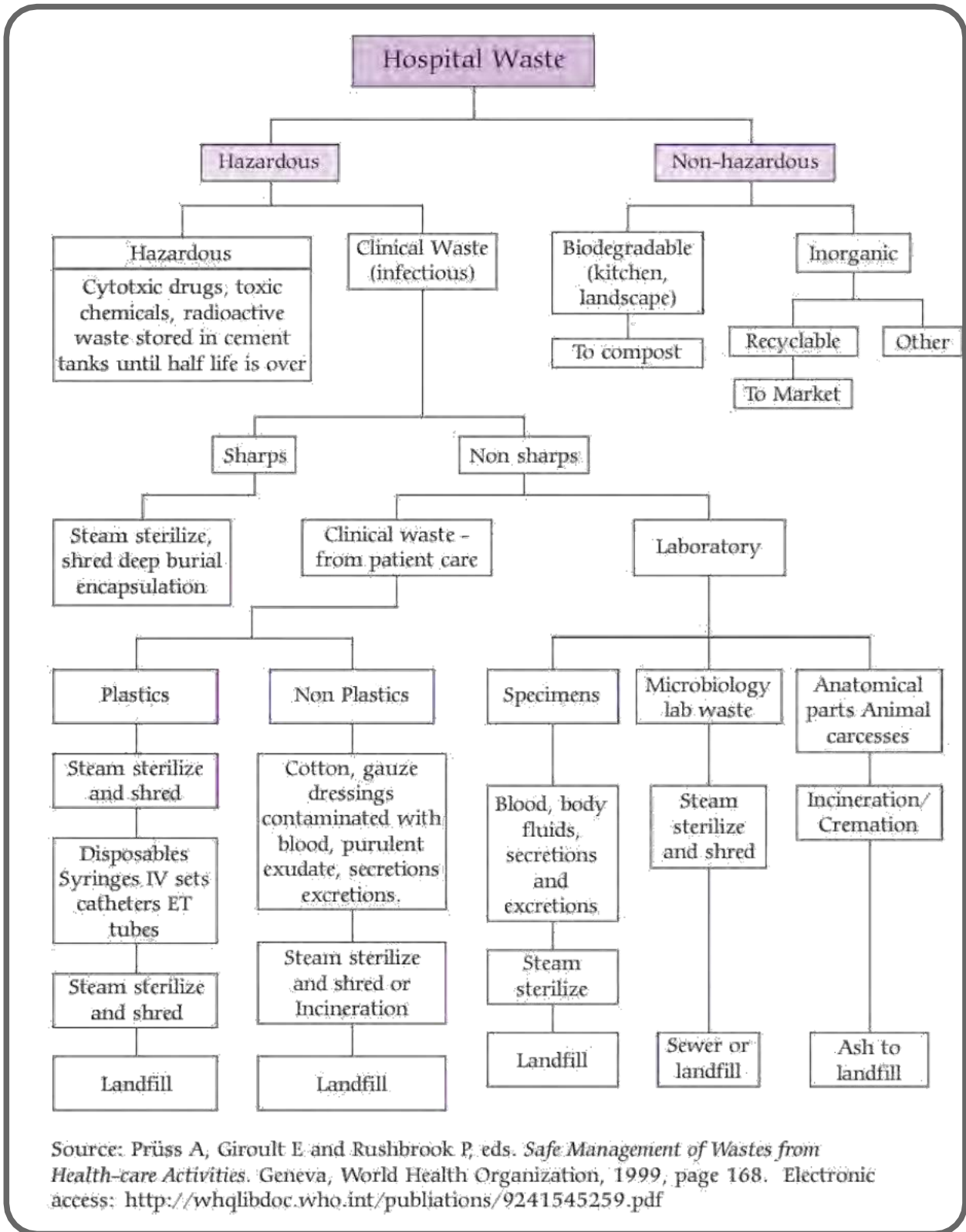
Each healthcare facility should identify a method for the treatment of clinical/infectious waste. This may consist of transportation of infectious waste to a centralized waste treatment facility or on-site treatment of waste.

- a. The biomedical waste of a hospital should be outsourced to an authorized contractor for the management and handling of biomedical waste as designated by the State Pollution Control Board.
- b. Biomedical waste refers to any waste which is generated during the diagnosis, treatment or immunization of human beings or animals, or in research activities pertaining to or producing or testing of biological components including categories mentioned in Biomedical Waste Management Rules 1998 or 2011.
- c. Proper segregation and collection of biomedical waste from all patient care areas of the hospital should be implemented and monitored. The Biomedical Waste Treatment Facility should be outsourced to an Authorized Contractor.







- d. Use appropriate PPE when segregating, packing, transporting, and storing biomedical waste.
- e. Biomedical waste should be transported in a closed container.

**HIC PROTOCOL for biomedical waste disposal should be followed as defined in the State Guidelines. Different categories of waste are disposed of in different color coded bags as defined by the Pollution Control Board.**





Note: Disinfectants (used / expired) like Glutaraldehyde e.g. Cidex, hypochlorite etc. shall be put down the drain

| Color Code                          |   | Waste   |
|-------------------------------------|---|---|
| Yellow                              |    | Anatomical parts and Lab Waste<br>Biotechnology, microbiology waste, bandages, extremely soiled linen |
| Red                                 |    | Plastics<br>Used plastic materials, tubings catheters, IV sets, Syringes without needles              |
| White                               |    | Glass Bottles and vials   |
| Sharp container<br>(Puncture proof) |   | Needles and Sharps, Needles, Scalpels and surgical Instruments  |
| Green / Black                       |  | General Waste<br>Stationery, Food Waste, Plastic Wrappers, Expired Medicine                           |
| Blue                                |  | Used injection vials  |

# **INFECTION CONTROL POLICY GUIDELINES FOR USE AND DECONTAMINATION OF CARDIOPULMONARY RESUSCITATION TRAINING MANNEQUINS AND EQUIPMENT**

- A. Individuals who have sores or lesions in, on or around the mouth or have a current upper respiratory infection will reschedule their CPR training for a time when they are well.
- B. Individuals who are known to be infected with or carry Hepatitis B or have a positive antibody to HIV will notify the instructor of the need for accommodations for training.
- C. Mannequins will be routinely inspected for physical deterioration, such as cracks or tears that may compromise cleaning.
- D. If mannequins with removable face pieces are used, each student and instructor should be given a face piece and disposable lung for use during the class. No cleaning of mannequins between uses is needed.
- E. If mannequins without removable face pieces are used, each participant should be provided a disposable face shield or micro shield for use during class. Cleaning is required between participants.
- F. If using a mannequin that does not have a removable face piece, vigorously wipe the face and inside the mouth of the mannequin with clean absorbent material wet with an approved cleaning agent or alcohol between each user. The surfaces must remain wet for at least thirty (30) seconds before being wiped dry with a clean cloth.
- G. Upon completion of mannequin use, disposable lungs and face shields should be discarded. Face pieces, micro shields, and pocket masks should be placed in a container for cleaning.
- H. At the end of each class, the CPR mannequin and equipment will be cleaned using the following procedure:
  - 1. Don gloves gown and goggles.
  - 2. Completely disassemble mannequin
  - 3. Thoroughly wash/scrub all external and internal surfaces with warm soapy water.
  - 4. Rinse all surfaces with fresh water.
  - 5. Soak all surfaces in an approved cleaning agent.
  - 6. Rinse with fresh water.
  - 7. Let air dry for 24 hours. If needed before 24 hours, dry manually with a hand-held hair dryer.
  - 8. Follow the manufacturer's instructions for cleaning non-disposable face pieces, etc. If the manufacturer's instructions are not available follow the procedure above.



## INFECTION CONTROL POLICY ON PREVENTION OF NOSOCOMIAL INFECTIONS

Prevention of nosocomial infection shall be an integrated, monitored programme and includes.

- Limiting transmission of organism between patients
- Controlling the environmental risks for patients
- Protecting the patients with appropriate use of prophylactic antimicrobials; nutrition and vaccination
- Limiting the risk of endogenous infection by minimizing the invasive procedures and optimizing the antimicrobial usage.
- Surveillance of infection and controlling the out breaks
- Prevention of infection in staff member
- Continuing staff education.

**Table: Differential nosocomial infection risk by patient and intervention**

| Risk of Infection | Type of patients   | Type of procedures<br>Non – invasive |
|-------------------|--|--------------------------------------|
| <b>Medium</b>     | Non-immuno-compromised . No significant underlying disease                     | No exposure to biological fluids     |
| <b>Minimal</b>    | Infected patients or patients with same risk factors                           | Exposure to biological fluids        |
| <b>High</b>       | Severely immuno-compromised, multiple injuries, severe burns, organ transplant | High – risk invasive procedures      |

**Aseptic procedures appropriate for different levels of risk of infection:**

| Risk of Infection | Asepsis          | Antiseptics                                 | Hands  | Clothes                        | Devices  |
|-------------------|------------------|---|--|--------------------------------|--|
| Minimal           | Clean            | NONE  | Simple hand washing or Alcohol rub           | Street Clothes                 | Cleanor disinfected at intermediate or low-level |
| Medium            | Asepsis          | Standard Antiseptic-Product (e.g.sterilium) | Hygienic Hand washing alcohol rub            | Protection against body fluids | Disinfection at high level sterilization         |
| High              | Surgical asepsis | Specific Major products                     | Surgical hand washingor surgical alcohol rub | Surgical wear                  | Sterilization or high level disinfection         |

All devices entering sterile body cavities shall be sterile.

## INFECTION CONTROL POLICY ON HAND HYGIENE:

### Wash Your Hands:

1. Before taking food or any beverage (**SOAP AND WATER**)
2. Before and after attending the patient for checking the temperature, Blood pressure pulse etc, (**SOAP AND WATER**).
3. Before and after giving a sponge bath to the patient (**SOAP AND WATER**)
4. Before and after bed make (**SOAP AND WATER**).
5. Before and after starting and intra venous or central line or inserting a vasofix (**70% ISOPROPYL ALCOHOL**).
6. Before and after giving I.V., I.M. injections, or drawing blood specimens use **70% ISOPROPYL ALCOHOL** for skin disinfection
7. Before and after dressing a surgical wound or any oozing wounds. (**70% ISOPROPYLALCOHOL**).
8. Before and after emergency resuscitation such as cardiac arrest, Shock etc (**70% ISOPROPYL ALCOHOL**).
9. No need for the washing hands if you don't touch the patient or any of the articles surrounding the patient but simply talk to him to find his / her requirements or enquiring about his / her health status or greeting him / her.
10. Before and after suction of nasogastric aspirations or tracheal aspirations (**70% ISOPROPYL ALCOHOL**).
11. Before and after suction of nasogastric aspirations or tracheal aspirations (**70% ISOPROPYL ALCOHOL**).
12. After coming into contact with any of the secretions such as saliva, vomiting or blood and other body fluids (first clean thoroughly with **SOAP AND AFTER FOLLOWED BY WASHING WITH 70 % ISOPROPYLALCOHOL**)
13. Before and after removal of sutures or staples or indwelling catheters (**70% ISOPROPYLALCOHOL**).
14. Before and after clinical examination of the patient (**SOAP AND WATER**).
15. Before and after attending an injured person in a road traffic accident (**70 % ISOPROPYL ALCOHOL**).
16. In case of accidental needle pricks, cuts due to sharps or glass pieces, first wash the affected part with **SOAP AND WATER** using running water and then apply either betadine cream or liquid. Determine the status of the patient (That is whether he is HIV or HBsAg positive).
17. After disposing of the infected cotton gauge, used I.V Bottles, Cannulas, I.V. Catheters (that are to be cut before putting them in to the appropriate waste Bin) wash with **SOAP AND WATER**.
18. After using the toilet (**SOAP AND WATER**)
19. The amount of Isopropyl Alcohol required for hands washing is 3 ml/wash. If the hands are dirty first wash with **SOAP AND WATER BEFORE WASHING WITH 70 % ISOPROPYLALCOHOL**.
20. Handwashing before any surgical procedure
  - Surgical Scrub – minimum of 5 minutes with technique described

### **Personal Hygiene:**

1. All staff shall maintain good personal Hygiene. Nails and Hair are periodically trimmed and kept clean
2. Clothing Staff wear a personal uniform or street clothes covered with white coat.
3. In special area like burn units intensive care unit, uniform trousers and short sleeved gowns are used. In other unit women can wear short sleeved dress.
4. The clothing material shall be easily washable and decontaminatable type.
5. The clothing shall be changed if it set exposed to blood or body fluid or if it becomes wet due to sweating or other body fluid exposure.

### **Shoes:**

1. In restricted areas or in aseptic units or in units, where number of immunocompromised patients are kept, staff shall wear dedicated shoes which are easy to clean.
2. If necessary shoes and slippers are sterilized by ethylene oxide gas.

### **Caps and Masks:**

1. These are used in aseptic unit, operating rooms or while performing of a selective invasive procedure.
2. Caps shall completely cover the hair. Masks of cotton wool gauze or paper are ineffective.
3. Paper masks with synthetic material for filtration are effective barrier for microorganism.
4. Masks are used in operating rooms, to care immunocompromised patients and to puncture body cavities.
5. Staff shall wear masks while caring patients with airborne infection or while performing bronchoscopies or similar examinations. A high efficiency masks are recommended.
6. Patients with infection which may be transmitted by the air borne route must wear surgical masks when they are outside their isolation rooms.

### **Gloves:**

1. Sterile gloves are used for surgery to care immunocompromised patients, or during invasive procedures involving entry in to the body cavities.
2. Non sterile gloves are used for all patient contact where hands are likely to come in to contact with wounds or mucus membranes.
3. Staff wear non-sterile gloves to care for patients with communicable diseases transmitted by contact, to perform bronchoscopies or similar such procedures.
4. Hands are washed after removing the gloves.

### **Safe injection Practices:**

1. Required to prevent transmission of infections between patients with injection.
2. Unnecessary injections are eliminated.
3. Sterile disposable needle and syringes are used.
4. After use the needle is cut with needle cutter as the tip of the syringe is also cut.
5. Used needles are placed in the thick puncture proof screw capped white container having 1% sodium hypochlorite solution.
6. Contamination of medications are prevented especially the eye drops, ear drops, lotions and creams
7. The ampoules are via are decontaminator with 10% isopropyl alcohol before breaking or operating the injection ampoule or vial.

## DEVICES AND THEIR MAXIMUM DURATION

| SI No | Name of Device                    | Hands   |
|-------|-----------------------------------|---|
| 1     | IV Cannula                        | 72 HOURS (changed if any redness, swelling or no proper flow) |
| 2     | Ryle's tube                       | 2 WEEKS   |
| 3     | Endotracheal tube                 | ONLY IF BLOCKED OR SOILED                                     |
| 4     | Tracheostomy tube (Inner cannula) | 14 DAYS   |
| 5     | Thermo vent (HME Filter)          | 2 DAYS (48 Hours)   |
| 6     | Central line                      | 14 DAYS   |
| 7     | Feeding bag                       | 4 DAYS  |
| 8     | Foley's catheter                  | 2 WEEKS (14 Days)   |
| 9     | Silicon catheter                  | 28 DAYS   |
| 10    | Uro bag                           | 5 DAYS  |
| 11    | Ventilator tubing                 | ONLY IF SOILED, CUT OR ANY LEAKS                              |
| 12    | IV set / AMINO ACIDS              | 12 HOURS  |
| 13    | IV set / TPN                      | 1 DAY (24 Hours)  |
| 14    | IV set                            | 48 HOURS IF CONTINUED (or if any mechanical issues)           |
| 15    | Blood transfusion set             | EVERY TRANSFUSION EPISODE                                     |
| 16    | TPN Bag                           | 1 DAY   |
| 17    | IV bags/bottles                   | 1 DAY (24 Hours)  |
| 18    | Freka tube                        | 3 WEEKS   |
| 19    | Suction Tube                      | 72 HOURS  |
| 20    | Catheter Mount                    | 48 HOURS  |

## AIR SAMPLING

Air sampling can be useful part of an infection control risk management program but only in certain circumstances. Cumulative data is used to establish indoors and out door back ground levels of fungus and bacteria for particular site.

Air sampling is a controversial issue with many experts not convinced of its efficacy. The centre for Disease Control (CDC) does not recommend routine air sampling due to the following reasons

- a) Lack of standards linking the aerial spore levels with the infection rates (what is the safe level of exposure?)
- b) Lack of standard protocols for testing (what sampling intervals, number / location of samples)
- c) Need for substantial laboratory support
- d) Unknown incubation period for fungal infection.
- e) Variability of samples reading
- f) Volume of air sampled
- g) Lack of details about the sampling circumstances such as reoccupied rooms versus ongoing activities.
- h) Lack of correlation between environmental strains of fungi and clinical specimens.
- i) Expected fungal /bacterial concentration and rate of outdoor air penetration.
- j) Confounding variables with high-risk patients such as visitors, time spent outside of the protective environment without protective respiratory equipment (Masks).
- k) Need for determination of ideal temperature for incubation of cultures (35° C is preferred for fungal cultures).
- l) Need for a slit or sieve impactor samples capable of collecting large volumes of air in short periods of time to detect law number of fungal spores in highly filtered areas.

### When to sample?

- 1) Air sampling should only be done for commissioning and re-commissioning of operating rooms and clean room.
- 2) It may also be done during building work that may affect the immunocompromised patients.
- 3) It may be done during the investigation of a cluster of out break.
- 4) Air sampling will only measure indoor air quality at simple point of time. Sampling results are affected by several factors like indoor traffic, visit or coming in to the area, temperature, time of the day or year, relative humidity, relative concentration of organism and the performance of handling system.
- 5) All results need to be compared to results from other defined area with similar condition.

### What are the acceptable results?

Sampling reacts are highly variable and depend on many factor mentioned above. Depending upon the season out door spore levels can commonly exceed 1000CFU/m<sup>3</sup> but it can be as high as 100,000CFU/m<sup>3</sup> total spore count. Indoor spore levels below 100/m<sup>3</sup> are considered to be in consequential in areas not housing an at risk population. Infection due to *Aspergillus spp* may occur among high risk patients when the fungal spore concentration in protective ambient air ranged as low as 0.9 -2.2 CFU/m<sup>3</sup> of air. In HEPA filtered areas with at least 12 air charges / hour there has been no reported correlation of there values with incidence of health –care associated fungal infection rates. Total indoor spore counts in ultra – clean areas such as bone –marrow transplantation and laminar flow suites should not exceed 15CFU/m<sup>3</sup> .

**Sampling methods:** Two methods are available.

**Passive method of** sampling is the collections of air borne particles on settle plates due to gravity.

**Active method of** sampling pumps air on to agar plates mechanically. The advantages are rapid, widely accepted method can measure all air borne counts and measures droplet nuclei. Disadvantages are equipments are expensive, results are difficult to reproduce, devices difficult to sterilize and results require statistical correction and during sampling the surrounding air is disturbed.

Passive sampling comprises placing of solid nutrient open plates in the open air to allow airborne particles to settle on to the medium due to gravity. The plates are left open for a pre- determined period of time and then incubated. The results are read as total CFU. The result of settle plate technique is neither quantitative nor qualitative. The advantages are the technique is cheap, easily available, multiple simultaneous sampling is possible, surface sample result are meaningful, reproduces real condition, sterile, room air flow is not disturbed and the results are comparable. The disadvantages are the passive sampling is not quantitative, not qualitative, selectively collects layer particles only, result are not widely accepted and not suitable for commissioning the new room or operation theaters.

It has been shown that bacterial counts obtained from wound washes closely correlate with those of settle plates. This suggests that a settle plate exhibits similar characters of an exposed wound. On this basis settle plates should be considered as an adjunct to infection control investigation especially for Operation Theater. Settle plates are placed 1meter off the floor and 1meter from the walls or any obstacle and left open for one hour.

# INFECTION CONTROL POLICY ON OCCUPATIONAL HEALTH

## A. Health Maintenance

1. Employment Physical screening Includes:
  - a. Physical screening assessment (including review of immunization status)
  - b. Tuberculin Skin Test (unless known positive reactor)
  - c. Chest x-Ray, if indicated.
2. Annual Physical Screening – completed by the Office of Occupational Health:
  - a. Physical Screening Assessment
  - b. Tuberculin Skin Test (unless known positive reactor). (Required for All “Volunteers” and “Sisters” as well as other regular full-time and part-time employees).
  - c. A screening assessment is completed on known TST reactors.
  - d. Assessment/ documentation immunizations
    - i. Review of adult required immunizations
    - ii. Referral to appropriate health care provider as indicated

## B. HEALTH EDUCATION

1. Information on infection control and health issues is provided to new employees during orientation. The employee is informed of his/her job classification category, the exposure control plan and the hepatitis vaccine program. An introduction to the Infection Control Manual is given.
2. Individual counseling is provided to employees by the Occupational Health and Injury Services as indicated (i.e., exposure to blood/body fluids or health related issues).

## C. IMMUNIZATIONS

### 1. Hepatitis B Vaccine

- a. New employees are offered the Hepatitis B vaccine in orientation. They are requested to sign a consent / refusal form that is forwarded to the office of Occupational Health. Employees will report to the Occupational Health to schedule / receive the vaccine.
- b. Current employees may request the vaccine and receive it at a scheduled date and time.
- c. The vaccine is also offered following a true exposure to blood / body fluids, if the employees have not previously been vaccinated.

### 2. Influenza Vaccine

- a. The influenza vaccine is offered annually. Employees are notified of the dates and times that the vaccine will be administered.

### 3. Tetanus Vaccine

- a. Employees are advised to maintain their tetanus immunization status, with boosters every ten years and as indicated by injury.

### 4. Measles Vaccine

- a. Employees born in or after 1957 are advised to verify measles immunization or evidence of measles immunity.
- b. Employees who can not verify immunity will be referred to their private physician or the public health department for evaluation / immunization.

### 5. Chickenpox Vaccine

- a. Employees who cannot verify immunity will be referred to their private physician or public health department when appropriate.

## **D. PROCEDURE FOR COMPLETING HEPATITIS IMMUNIZATION**

1. All consent / refusal forms for Hepatitis B vaccine received in Occupational Health will be entered into the computer database. New employees are instructed, during orientation, to report to the Occupational Health office to schedule an appointment to begin the vaccination series. Current employees are notified of the routine dates and times of vaccine administration at the time of their annual physical screen and upon inquiry.
2. New employees documenting that they have received the Hepatitis B vaccine will be offered screening for an Anti-HBs (antibody screening). If the individual is negative for the antibodies, the vaccine will be offered and administered as requested.
3. Employees will receive a series of three Hepatitis B vaccines, the initial dose followed by a second dose one month later and a third dose five months after the second dose.
4. Employees are scheduled for Anti-HBs (antibody screening) two months after the third dose of Hepatitis B vaccine.
5. If the antibody screening is negative (no antibodies formed) a second series of 3 immunizations will be offered.
6. In the event of a true exposure, employees who have a negative Anti-HBs may receive the Hepatitis B vaccine series again.

## **E. EMERGENCY CARE**

### **1. Exposure to blood / body fluids**

- a. Each hospital must designate a process for providing post-exposure prophylaxis or HIV to employees within 2 hours of exposure. This procedure must be published and known to the staff.
- b. Assessment for the need for post-exposure prophylaxis for Hepatitis is available to all staff through the office of Occupational Health. Staff is to report to Occupational Health for evaluation and referral on the first regular working day following exposure.

### **2. Illness from Communicable Disease**

- a. Employees with known or suspected communicable diseases / conditions shall notify their supervisors and the office of Occupational Health.
- b. Employees who have acute infections with communicable diseases must seek treatment by their private physician or the local emergency room / urgent care centre.
- c. The employees are prohibited from direct client care until the communicable disease/condition is resolved.
- d. A written certification that the employee is no longer a danger to clients or other employees is required prior to return to work.
- e. All documentation of medical information regarding the communicable illness must be sent to the office of Occupational Health to be placed in the employee's record.

### **3. Needle stick injuries:**

- a. Needle stick injury - will be dealt in the relevant section.



## ACCIDENTAL INOCULATION INJURY POLICY

### INTRODUCTION:

This policy should be read in conjunction with protection against blood borne infections policy (Standard Precautions) of the hospital.

Accidental Inoculation Injury (ALL) includes:

1. Percutaneous Injury: Needle pricks, injury with any contaminated sharp object.
  2. Contamination with non intact skin, conjunctiva or mucous membrane with blood, any body fluids containing blood or other body fluids (E.g. CSF, Peritoneal, Pleural, Pericardial, Synovial and Amniotic fluids, vaginal secretions, unfixed tissues, organs and parts of bodies etc)
- ❖ Percutaneous injury is of higher risk than mucocutaneous injury, and exposure to blood is more serious than exposure to other fluids. Accidents with blood contaminated needles in health care institutions are probably the commonest mode of occupational transmission of blood borne agents.
  - ❖ While there is an active (potent vaccine) and specific passive (Hepatitis B immunoglobulin, HBIG) immunization available for HBV infection, such immunization is not available for HIV, HCV infections. Therefore 'High standard of handling' should be applied in all contact with blood, body fluids and tissues. Although HBV immunization generally provides effective protection, it should never be regarded as a substitute for good infection control practices, as not all those given the vaccine will necessarily respond. Overall, about 80- 90% of individuals mounts a satisfactory response to the vaccine. Immunization may take up to six months to confer adequate protection and antibody titers should be checked two to four months after completion. Non responders should be considered for a booster dose of vaccine or, possible, for a repeat course.
  - ❖ Individuals who continue to be at high risk should, if result of an anti- HBs titer indicates, receive booster dose five years after the primary course. While all staff is urged to take precautions to avoid accidental inoculation injury to themselves and to others, however, reporting of the same is mandatory and is the responsibility of the victim to do so. Early reporting Alls is advantageous. It will facilitate follow up; moreover, a booster dose of vaccine or HBIG may be indicated. Please do not neglect reporting. This policy is a guide for necessary steps to be followed in the event of an All as defined above.
  - ❖ Safety procedures should take priority and, in general are to be followed regardless of workload (apart from rare exceptions identified by infection Control Committee) and are enforceable by disciplinary action:
    - Gloves should be worn when drawing blood or coming in contact with blood or other body fluids
    - Abrasions on skin should be covered with waterproof plaster.
    - Before drawing or giving injections, all necessary materials should be assembled (E.g. Kidney dish, sharps containers etc)
    - Used needles should be discarded in puncture proof container without re sheathing, bending or breaking them.
    - Used needles should not be kept on beds, lockers, desks etc. Discard them immediately into sharps container.

- Sharps container should be securely closed and sent for incineration when ¾th full.
- Sharp items should never be disposed off in polythene bags. HBV vaccine is offered to the following staff:
  - Medical and Dental Staff
  - Nurses and phelobotomists
  - Laboratory technologists
  - CSSD staff
  - Medical orderlies
  - OT's/anaesthesia technicians
- ❖ Immune status of the above mentioned staff should be checked after 3 months of completion of the last does or after an All.
- ❖ A level of 100 mIU /ml and above is considered to reflect an adequate response to the vaccine and to confer protective immunity. Levels of anti- HBs between 10- 100 ml /ml may indicate a response to the vaccine but one that may not necessarily confer immunity and may require boosting.
- ❖ A non responder to HBV vaccine is a person whose anti- HBs level after 6 months post vaccination is < 10 mIU /ml.

**Dosages:**

HBIG 5-9 years 300 IU  
 10 years and more 500IU  
 HB vaccine 1.0 ml IM (0, 1, 6 months usual course)

(0, 1, 2 months accelerated course)

**Action after an All:**

In the event of an All, the following action should be taken without delay:

**Table 49: Summary of do's and don't**

| Do  | Do Not   |
|---|--|
| Remove gloves, if appropriate   | <b>Do not</b> panic  |
| Wash the exposed site thoroughly with running water   | <b>Do not</b> put the picked finger in mouth   |
| Irrigate with water or saline if eyes or mouth have been exposed  | <b>Do not</b> squeeze the wound to bleed it  |
| Wash the skin with soap and water   | <b>Do not</b> use bleach, chlorine, alcohol, betadine, iodine or other antiseptics/detergents on the wound |
| ** Do - Consult the designated physician immediately as per institutional guidelines for management of the occupational exposure ** |  |

1. Accidents have to be reported to the Infection Control Nurse and the Nursing Superintendent on duty. An incident report to be raised and sent to the quality department
2. Outside normal working hours the Nursing Supervisor/RMO on duty may be contacted.
3. Fill in employee inoculation injury form.
4. Proceed to staff health clinic (SHC) or Accident and Emergency (A&E) for further action.
5. All incident report form to be sent to the Quality dept.
6. Blood is collected from victim for –
  - HIV antibodies
  - HCV antibodies
  - HbsAg antibodies
7. Blood is collected from the patient for –
  - HIV antibodies
  - HCV antibodies
  - HbsAg antibodies

**Note:** The incident report is kept confidential by the Infection Control Nurse in coordination with the Infection Control Team.

If results are positive, the victim should be referred to the appropriate clinic

- Decision about the need for HBIG is illustrated in Appendix 1
- Further follow up of serological testing of the victim should be done according to All reporting form (see Appendix)

The following patients must be considered ‘High Risk’ patients until their status for HIV, HBV, and HCV is established:

- Patients known to have blood borne infections
- Suspected clinical cases
- Patients who had multiple blood transfusions
- Homosexuals
- Heterosexuals with multiple partners
- Patients with sexually transmitted diseases
- Prisoners
- Drug Addicts
- Patients coming from countries where HIV is highly prevalent
- Undiagnosed jaundice patients
- Children of HbsAg, HCV or HIV positive mother.

### HBV PROPHYLAXIS FOR REPORTED NEEDLE STICKS INJURY

| Sl No | SOURCE   | VICTIM   |  |          |                   |
|-------|--|--|--|----------|-------------------|
|       |  | Anti-Hbs level   |  |          |                   |
|       | HbsAg POSITIVE<br><br>OR<br><br>HbsAg negative but<br><br>Anti- HBc (Total)<br>POSITIVE and<br>Anti- Hbe POSITIVE<br>and<br>Anti- HBs negative<br>or<br>high risk' | 1. Give HBIG*<br>(0.06ml/Kgbody weight)<br>2. Accelerated course of HB vaccination (Given concurrently at different sites) | 1. Booster dose<br><br>2. Check Anti-Hbs After 1 month if still < 100, GIVE Accelerated HB vaccination** | Reassure | Refer to SHC/ A&E |
|       | HbsAg NEGATIVE and Anti-HBs positive   | HB vaccination   | 1. Booster<br>2. Check Anti-Hbs after 1 month if still < 100<br>Revaccinate against HBV                  | Reassure | Refer to SHC/ A&E |
|       | UNKNOWN HB status  | As for 1 above   |  |          |                   |

- HBIG ideally should be given within 24- 48 hours and may be up to a maximum of 7 days of injury. There is no good evidence that administration HBIG after 7 days as beneficial.

\*\* An accelerated course of HB vaccination consists of doses spaced at 0.1 and 2 months. Note: If source or the victim is HIV or HCV or VDRL positive or if the victim is HbsAg Positive, then send the victim to staff health clinic/ A&E to get referred to the appropriate clinic .

## POST EXPOSURE PROPHYLAXIS FOR HCV (PEP)

### PEP for HCV

If source patient is HCV antibody positive (anti HCV), the following shall be done in the exposed person :

- Base line anti HCV & ALT activity to be done
- Follow up retest after 3 months with anti HCV/ALT (At 4 - 6 weeks - HCV RNA can be looked for) then after 6 months and at one year.
- All anti HCV reported positive shall be confirmed by RIBA/HCV-RNA)/ HCV Antigen.
- No immunization or Antiviral agents are currently recommended as PEP for HCV. If HCV infection is identified early, the exposed person shall be managed by a physician specialist in that area (preferably a Senior Consultant in Gastro- enterology)

### HIV Post Exposure Prophylaxis PEP recommendation (NACO Guidelines)

| EC | HIV SC  | PEP recommendation  |
|----|---------|---|
| 1  | 1       | PEP shall not be warranted. Exposure type does not pose a known risk for HIV transmission. Whether the-risk for drug toxicity outweighs the benefit of PEP shall be decided by the exposed staff member ( HCW: Health Care Worker) and treating clinician   |
| 1  | 2       | Consider basic regimen. Exposure type poses a negligible risk for HIV transmission.<br>A high HIV type in the source shall justify consideration of PEP.<br><i>Whether the risk for drug toxicity outweighs the benefit of PEP shall be decided by the exposed staff member (HCW: Health Care Worker) and treating clinician.</i> |
| 2  | 1       | Recommend basic regimen. Most HIV exposures are in this category: no increased risk for HIV transmission has been observed but use of PEP is appropriate.   |
| 2  | 2       | Recommend expanded regimen. Exposure type represents an increased HIV transmission risk.  |
| 3  | 1 or 2  | Recommend expanded regimen. Exposure type represents an increased HIV transmission risk.  |
|    | UNKNOWN | If the source, (in the case of an unknown source), the setting where the exposure occurred suggests a possible risk for HIV exposure and the EC is 2 or 3, consider PEP basic regimen   |

**Basic regimen:** four weeks of Zidovudine, 600 mg per day in two or three divided doses, and Lamivudine, 150 mg twice daily.

**Expanded regimen:** above plus either Indinavir, 800 mg every 8 hours, or Nelfinavir, 750 mg three times a day.

#### **F. EMPLOYEES WHO REPORT THAT THEY ARE HIV POSITIVE**

St. Theresa's hospitals shall comply with CDC guidelines relating to invasive procedures and the HIV status of employees. In the event that a health care worker reports to his or her supervisor that he or she is HIV positive, that individual's duties will be reviewed by a team comprised of the employee, his or her supervisor, the clinical director, and any other person indicated and agreed upon by the people listed here. This team will determine if any limitations must be placed on that individual's assigned duties based on the infectious process involved.

#### **G. VOLUNTEER SERVICES**

1. All volunteers will have a TST
2. All volunteers will adhere to infection control policy
3. Volunteer training will include infection control principles.

#### **H. INDIVIDUALS IN TRAINING**

1. Verification of the results of the TST that was administered within the past year must be provided, or the TST must be given again.

#### **I. MAINTENANCE OF HEALTH RECORDS**

1. Medical information is maintained in a confidential record in the Human Resources Department. Information regarding immunizations, blood and body fluid exposures and reports of communicable disease is maintained in the office of the occupational Health. Information can only be released with the written consent of the employee as required by law.

## INFECTION CONTROL POLICY EXPOSURE CONTROL PLAN FOR BLOOD-BORNE PATHOGENS

**PURPOSE:** To outline the general principles required to minimize the risk of exposure to blood borne pathogens and the procedures needed to provide appropriate treatment and counseling following exposure, should it occur.

### DEFINITIONS

- ❖ Blood – Human blood, blood products or components.
- ❖ Blood-borne pathogens – Disease causing microorganisms in the blood.
- ❖ Contaminated - The presence of or reasonable anticipation of the presence of blood other potentially infectious materials.
- ❖ Contaminated laundry – Laundry that is soiled with blood and /or infectious materials or which may contain sharps.
- ❖ Contaminated sharps – Objects which can penetrate the skin such as needles. Scalpels, broken glass, dental wires, etc., and which are soiled with blood and/or infectious materials.
- ❖ Decontamination – Use of physical or chemical means to remove, inactivate, or destroy blood-borne pathogens to the point where an object no longer is capable of transmitting infectious particles and is safe for use, handling or disposal
- ❖ Engineering/work practice, controls – Methods or systems that isolate or remove the blood-borne pathogens hazard from the workplace.
- ❖ Hand washing facilities – Adequate supply of running water, soap and single use towels.
- ❖ HAV – Hepatitis A Virus
- ❖ HBV – Hepatitis B Virus
- ❖ HCV – Hepatitis C Virus
- ❖ HIV - Human immunodeficiency virus (the virus that causes AIDS)
- ❖ Occupational exposure – skin, eye, mucous membrane or parental contact with blood or other potentially infectious material that may result from the performance of an employee’s duties. Exposure to urine or fecal materials is not Considered a “true exposure unless the material has visible blood.
- ❖ Other potentially infectious material - All body fluids such as semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva, and other body fluid, peritoneal fluid, amniotic fluid, saliva and other body fluid visibly contaminated with blood, human tissue, tissue cultures or solutions containing blood-borne pathogens.
- ❖ Parenteral – Mucous membranes or the skin made non-intact by needles, human bites, cuts, and/or abrasions.
- ❖ Personal protective Equipment: Specialized clothing or equipment worn by an employee the purpose of which is protection against a hazard.
- ❖ Regulated waste – Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

- ❖ Source individual – Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.
- ❖ Sterilize – The use of physical or chemical procedures to destroy all microbes including endospores.
- ❖ Standard precautions – An approach to infection control that considers all human blood and body fluids as if infectious with blood-borne pathogens.
- ❖ True exposure – Contact of blood/body fluids or other potentially infectious materials with the eye, mouth, mucous membranes, or non-intact skin.
- ❖ Work Practice Controls - Controls that reduce the likelihood of exposure by altering the manner in which a task is performed (such as prohibiting the recapping of needles).

## **JOB CLASSIFICATIONS ACCORDING TO OCCUPATIONAL EXPOSURE TO BLOOD-BORNE PATHOGENS**

1. Category I: Employees whose duties include routine or reasonably anticipated exposure to blood or body fluids or other potentially infectious materials. These staff include, but are not limited to :
  - a) Physicians, Advanced Practice Nurses, Physicians Assistants
  - b) Nursing staff (R.N., L.P.N., C.N.A)
  - c) Dentists
  - d) Dental Hygienists, Dental assistants
  - e) Direct care staff
  - f) Clinical Laboratory personnel
  - g) Phlebotomists
  - h) Radiology technologist /Technicians
  
2. Category II - Employees whose duties include infrequently anticipated exposure to blood or body fluids or other potentially infectious materials. These staff include, but are not limited to :
  - a) Laundry personnel
  - b) Environmental service personnel
  - c) EEG/EKG Technicians
  - d) PT/OT/RT personnel
  - e) Teachers / Instructors
  - f) Behavior specialists
  - g) Psychologists
  - h) Police
  - I) Volunteers
  - j) Foster Grandparents



3. Category III: Employees whose duties do not include routine or reasonably anticipated exposure to blood or body fluids or other potentially infectious materials. These staff include, but are not limited to :
- Clerical staff
  - Medical records personnel
  - Plant operations personnel
  - Plant operations personnel
  - Warehouse personnel
  - Dietary staff
  - Business / Administrative personnel
  - Non – Nursing departments heads
  - Pharmacy staff
  - Human resources personnel

## TASKS POSING RISK OF CONTACT WITH BLOOD AND BODY FLUIDS AND RECOMMENDED PROTECTIVE MEASURES

X = Routinely Only for identified potential contact of non-intact skin with blood/body fluids S = ONLY if soiling by blood/body fluids is likely

\*\* = ONLY if splash, splatter or aerosolization of blood, body fluids is likely

| TASK  | RECOMMENDED PROTECTIVE MEASURE |            |         |      |
|---|--------------------------------|------------|---------|------|
|   | GLOVES                         | GOWN/APRON | EYEWEAR | MASK |
| PO Medication administration  | X                              |            |         |      |
| Oral examination  | X                              |            |         |      |
| Genitourinary Examination   | X                              |            |         |      |
| Rectal examination  | X                              |            |         |      |
| Enteral feeding   | X                              |            |         |      |
| Assisting client bathing  | X                              |            |         |      |
| Assisting client toileting  | X                              |            |         |      |
| Assisting client eating   | X                              |            |         |      |
| Assisting client  | X                              |            |         |      |
| Assisting client brushing teeth                                     | X                              |            |         |      |
| Handling contaminated linen, clothing, equipment, instruments etc., | X                              | S          |         |      |
| Cleaning contaminated items, Floors, work surfaces.                 | X                              | S          | **      | **   |

Staff must assess the risk of exposure to blood or body fluids for each situation and determine what PPE is needed. If a staff member is unsure what PPE to use, that staff member must consult his or her supervisor before proceeding.

## **METHODS OF MINIMIZING THE RISK OF TRANSMISSION OF INFECTION**

- ❖ Hand washing facilities or the approved waterless antiseptic hand cleanser will be Accessible at all times.
- ❖ Supervisors will ensure that employees wash their hands and other skin surfaces
  - o Immediately if contaminated with blood or other body fluids, and
  - o Immediately or as soon as feasible after removing gloves and other PPE
  - o Engineering and work practice controls minimize the opportunities for exposure to blood borne pathogens.
  - o Personal protective equipment will be used in situations in which occupational exposure remains after engineering and work practice controls are instituted. Supervisors will ensure that appropriate PPE is used.
  - o Safety needles and sharps will be used unless an exception is made by the Facility Infection Control Committee with approval by the Facility Medical Executive Committee.
- ❖ Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is a likelihood of occupational exposure to blood or other potentially infectious materials.
- ❖ Food and drink will not be stored in any area where blood or other potentially infectious materials are present.
- ❖ Procedures involving blood or other potentially infectious materials shall be performed in such a manner as to prevent or minimize splash / spray / spatter and the generation of droplets of said substances.
- ❖ All specimens of blood and body fluids will be put into a leak-proof container during collection, handling, processing, storing, transporting, or shipping.
- ❖ When specimens of blood and / or other body fluids are transported away from the facility, they will be labeled as potentially infectious and transported according to Department of Transportation policy and procedure.
- ❖ Only the chemical germicides that have been approved for use as hospital disinfectants will be used to decontaminate spills of blood and visible bloody body fluids and for cleaning those areas.
- ❖ Warning labels will be prominently and firmly attached to container holding and potentially infectious materials. Labels will clearly state the contents and / or include the BIOHAZARD logo.
- ❖ Signs will be posted at the entrance to work areas that have been determined to pose an occupational hazard for employees.
- ❖ Each DMHD DAD hospital will provide to all employees training designed to teach the employees how to limit the risk of occupational exposure.

### **PROTOCOL FOR THE MANAGEMENT OF EXPOSURE TO BLOOD- BORNE PATHOGENS - CLIENT**

1. Determine if a true exposure has occurred. If no true exposure has occurred, there is no need to proceed. If there has been a true exposure, proceed with the following Protocol.
  1. Determine the need for tetanus prophylaxis (DT) and administer if indicated.

2. Follow the Protocol for Possible Exposure to Hepatitis B Virus (HBV):
  - a. For individuals who have previously been vaccinated against Hepatitis B, and are:
    - i. A known responder:
      - Test for Anti-HBs, If antibodies are adequate, no treatment is indicated, or If antibodies are inadequate, then give 1cc. Recombivax in the deltoid with follow-up in one month for antibody retesting or to complete the vaccine series
    - ii. A known non-responder:
      - Give HBIG x 2, one month apart, or
      - Give HBIG x 1, plus 1 dose Recombivax
    - iii. Response to vaccination unknown: Test for Anti-Hbs, and If antibodies are adequate, no treatment is indicated, or If antibodies are inadequate, give HBIG x 1 plus Recombivax. If antibodies are inadequate, give HBIG x 1 plus Recombivax.
  - b. For individuals who have not previously been vaccinated against Hepatitis B:
    - i. No laboratory test is needed.
    - ii. Administer HBIG
    - iii. Start Recombivax series
    - iv. Complete vaccine series.
  - d. For individuals who refuse vaccination:
    - i. Test for Anti-HBc (core antibody), and If core antibody is present, no treatment is indicated, or If core antibody is negative, order HBsAg/ Anti-HBS, and If HBsAg/Anti-HBs is positive, counsel for the possibility of acute HBV infection, and If HBsAg/ AntiHBs is negative, offer vaccine series.
3. Follow the protocol for Pre-test Counseling and Testing for Possible Exposure to Human Immunodeficiency Virus (HIV).
  - a. Determine the HIV status of the source individual, obtaining an anti-HIV, if needed, after obtaining a legally appropriate consent.
  - b. Provide HIV “pre-test counseling” for the exposed individual.
  - c. If clinically indicated, obtain anti-HIV on the exposed individual, after obtaining a legally appropriate consent.
  - d. Inform the exposed individual that, if the anti-HIV is non-reactive (negative), post- test counseling will be done, along with follow-up testing, at 1, 3, and 6 month intervals.
  - e. Advise the exposed individual to seek medical attention for any illness for at least the first twelve weeks post-exposure.
  - f. If the client has a true exposure to an individual who is known to be HIV+, the client is to be offered antiretroviral chemoprophylaxis, per local protocol. This medication must be initiated within 2 hours of exposure.
4. If clinically indicated, refer the individual to the ER for a sexual assault examination and contact law enforcement per local protocol.

## **PROTOCOL FOR THE MANAGEMENT OF EXPOSURE TO BLOOD- BORNE PATHOGENS – EMPLOYEES**

1. Determine if a true exposure has occurred. If no true exposure has occurred, there is no need to proceed. If there has been a true exposure, proceed with the following protocol.
2. Complete the Employee Exposure to blood borne pathogens report form and forward this form to Occupational Health.
3. Refer the employee to the identified local resource to evaluate the need for and provide HIV prophylaxis if indicated. This medication must be started within 2 hours of exposure.
4. Refer the employee to occupational health for follow-up.
  - (a) The office of occupational Health will maintain and make available:
    - I. To the health care professional(s) responsible for the Hepatitis B vaccination program, a copy of the OSHA regulation, Blood-borne pathogens
    - II. To the health care professional(s) responsible for evaluating an individual after an exposure incident.
      - A Copy of the OSHA Regulation, Blood – borne Pathogens
      - A description of the exposed employee’s duties as they relate to the exposure incident;
      - Documentation of the route(s) of exposure and circumstances under which the exposure occurred;
      - Results of the source individual’s blood testing, if available; and
      - All medical records that are contained in the employee’s health file and that are relevant to the appropriate treatment of the employee, including immunization status.
5. The Office of Occupational Health will establish and maintain an accurate record for the each employee who has had an occupational exposure. This record will include:
  - (a) The name and identification number of the employee;
  - (b) A copy of the employee’s Hepatitis B immunization status, including the dates of all the Hepatitis vaccinations and any medical records related to the employee’s ability to receive the vaccination;
  - (c) A copy of the results of the examinations, medical testing and follow-up procedures performed in the post-exposure evaluation and follow-up.

## INFECTION CONTROL POLICY TUBERCULOSIS CONTROL PROGRAMME

- A. The Infection control Committee will perform periodic risk assessment to evaluate the actual risk of TB transmission at the facility and a reassessment of the effectiveness of the TB Control Plan.
  - a. The risk assessment will consist of : Analysis of client and employee TST conversion rate, considering location / service area and identification of clusters.
  - b. Analysis of the number of TB cases (Class III) and number of TB suspects (Class V) identified.
  - c. Analysis of the estimated number of actual infectious (Class III) TB clients to which each occupational group and other clients may have been exposed.
  - d. Analysis of compliance with employee TST testing.
2. The reassessment of TB Control Plan will include, but not be limited to:
  - a. The evaluation of existing TB policies, procedures and protocols to determine the present practices with respect to both clients and employees.
  - b. The identification of any failures within the present system and any indications for improvement within the present system.

### **B. Early Detection:**

1. Screening clients who have symptoms of TB
  - a. Screening is performed to identify persons with previously unidentified active TB and require treatment.
  - b. Tuberculosis should be considered in any person presenting with the following Signs and symptoms:
    - Productive, persistent cough of 2-3 weeks duration, or longer;
    - Bloody sputum (hemoptysis);
    - Night sweats;
    - Unexplained weight loss;
    - Loss of appetite;
    - Fever; and
    - Hoarseness.
2. Certain groups of individuals are more likely to become infected within TB bacilli. These groups include.
  - a. People who are immuno-suppressed (transplant patients, HIV, chemotherapy, etc)
  - b. People who are in close contact with people who have known infectious TB; People from high prevalence countries;
  - c. Medically under-served low-income populations, including high –risk minorities;
  - d. People who abuse alcohol and drugs; and
  - e. People who reside in long-term care facilities, such as correctional facilities and nursing homes.
3. People who are at an increased risk of developing clinically active tuberculosis once infection has occurred should receive a Tuberculin Skin Test (TST).

**Risk factors include**, but are not limited to:

- a. Immunosuppression (transplant, HIV, chemotherapy, etc.,).
- b. Abnormal chest radiograph showing fibrotic lesions,
- c. Diabetes mellitus,

- d. Hematological and reticuloendothelial diseases, and
  - e. Alcohol and drug abuse.
4. Any person with suspected tuberculosis should be immediately referred for evaluation.
  5. Tuberculin skin testing is the standard method of identifying persons infected with *M. tuberculosis*.
    - a. The TB skin test is performed by the intradermal injection of 0.1ml of PPD tuberculin containing 5 tuberculin units (TU) into the flexor surface of the fore arm, using a disposable tuberculin safety syringe. The injection is made just beneath the surface of the skin, with the needle bevel facing up, to produce a discrete, pale elevation of the skin (a wheal) 6mm to 10mm in diameter.
    - b. The TB skin test is to be read 48 -72 hours after the injection. Positive reactions may still be measurable up to 1 week after testing. To read, measure the diameter of induration, not erythema, transverse to the long axis of the forearm and record in millimeters. If the skin test is not read prior to the clients' discharge, documentation should be made in the medical record and notification given or sent to the client and / or care provider.
    - c. A reaction of 5mm or more is classified as positive in the following groups.
      - i. persons with close recent contact with an individual with infectious TB;
      - ii. persons who have chest x-rays with fibrotic lesions likely to represent old healed tuberculosis;
      - iii. persons who are known or suspected to be infected with HIV
    - d. A reaction of 10mm, or more is classified as positive in persons who do not meet the above criteria but who have other risk factors present for TB. These include the following groups;
      - Persons with other medical risk factors known to substantially increase the risk of tuberculosis once infection has occurred;
      - Persons from high prevalence countries;
      - Medically underserved, low-income populations;
      - IV drug users;
      - Clients of long-term care facilities;
      - Other populations that are identified locally as having an increased prevalence of TB.
      - Health care works that provide services to any of the identified high-risk groups.
    - e. The absence of a reaction does not exclude the diagnosis of tuberculosis or tuberculous infection. Cell-mediated responses such as tuberculin reactions may decrease or disappear during any severe or febrile illness, measles or other exanthems, HIV infection, live-virus vaccination, Hodgkin's disease, sarcoidosis, overwhelming military or pulmonary tuberculosis and during or after the administration of corticosteroid or immunosuppressive drugs. Persons who have been recently infected may not yet have a reaction to the skin test.
    - f. New employees and newly admitted clients with no documentation of previous TST results will have the two-step "Testing procedure". The two-step testing procedure is used to identify a boosted reaction or delayed hypersensitivity to tuberculin. The booster effect can be seen on a second test given as soon as one week after the initial stimulating test. A positive reaction to a test that is 10mm. or greater for those less than 35years old or 15mm. or greater for those over 35yrs old, within the next two years, is likely to represent the occurrence of infection with *M. tuberculosis* in the interval (skin test conversion).

- g. Bacillus of Calmette and Guerin (BCG) is used in many foreign countries as part of their tuberculosis control program. TST sensitivity and immunity to TB infection after BCG vaccination is highly variable, depending upon the strain of BCG used and the population vaccinated. There is no reliable method of determining whether the tuberculin reaction is caused by BCG or natural infection. Positive tuberculin reactions in BCG-vaccinated persons may indicate infection with *M. tuberculosis* and the individual should be evaluated for the need for treatment.
- h. TST's with confirmed significant reactions of 10 mm or more shall not be repeated.
- i. All long-term clients who are TST positive will have an annual evaluation for the symptoms of TB as part of their annual assessment.

### **C. Isolation And Management of Clients Who Are Suspected Of Having TB**

- i. Tissues will be provided for use by any individual with signs or symptoms of TB.
- ii. Any client who has signs or symptoms suggestive of TB will be screened for TB (to include a TST and CXR) if indicated.
- iii. If a client with signs and symptoms of TB or a positive TST has an abnormal chest X-ray consistent with TB, an approved TB mask will be placed on the client and the client will be referred for evaluation and treatment .

### **D. Treatment**

1. Discharge planning is coordinated with the local Health Department.
2. Refer to the "GATB Reference guide ," available online at, <http://health.ga.us/pdfs/epi/tbguide.05.pdf> for treatment guidelines.

### **E. Occupational Health Assessment:**

1. Prior to assuming job responsibilities, all employees (including those with previous vaccination with BCG) will have a skin test for TB unless documentation of a previous positive reaction and treatment can be provided. Participation in TB screening is considered a condition of employment.
    - a. If this initial test is positive, the individual will have a chest X-ray and will be referred by occupational Health to the Public Health Department or his/her private physician for appropriate evaluation and follow-up.
    - b. If the individual reports a previous positive reaction, an assessment of tuberculin status will be done and reviewed by occupational Health.
  2. HCW's with a persistent cough will be screened for active TB if other symptoms of TB are present.
    - ❖ HCW's who are being evaluated for active TB may not return to work until TB is excluded or therapy is initiated and the HCW is determined to no longer be infectious.
    - ❖ HCW's with a history of a positive TST and adequate treatment for disease or adequate preventive therapy are not required to have repeat skin testing.
    - ❖ Date on employee skin test conversions will be monitored monthly by occupational Health.
- a . Employee Tb test results will be recorded on the appropriate form and filed in the employee's medical file. Employee TB test results will be reviewed at least monthly for evidence of trends.
1. Employees known to be immuno compromised may be referred Occupational health who will arrange for individual counseling regarding his /her risk of TB or may be referred to the Public health department in their country of residence.

2. All aspects of the employee TB program will be evaluated annually as part of the continuing risk assessment.

#### **F. Health Care Worker Education:**

- ❖ Education appropriate to the job should be conducted prior to the initial assignment and repeated annually at the time of the infection control update by the training department.
- ❖ TB Education Course Content includes:
  - o TB basics regarding transmission, sign and symptoms, and the difference between a positive skin test and active TB
  - o The risk of occupational exposure to TB, situations that increase TB exposure risk, and how to minimize that risk.
  - o The purpose of TB skin testing, significance of the test results and the importance of participation in the program.
  - o The HCW responsibility to seek medical evaluation if he or she develops symptoms that may indicate TB infection or if TST conversion occurs and his or her responsibility to notify the facility if diagnosed with TB.

#### **G. Evaluation Of Conversion/ Transmission**

1. Development of TB (Class III, Active ) in a HCW
  - a. A contact investigation among other HCW's client and visitors with significant TB exposure will be initiated by occupational health.
  - b. If Occupational Health determines that transmission is likely to have occurred.
    - i. Identify potential client and staff exposures and perform TST, and
    - ii. Consult with the local Health Department and TB control for community contact investigation and guidance.
2. Client Exposure follow-up unrecognized TB at the time of Hospitalization, if the person is still in the hospital.
  - a. Interview the client and review the medical record.
  - b. Determine the area and the persons who were potentially exposed.
  - c. Contact investigation should begin with the closest contacts, and, if transmission has occurred, expand to less-close contacts.
  - d. TST all HCW's and clients with documented exposure, and, if negative repeat 12weeks after exposure. Persons known to have a positive TST do not require skin testing, but evaluation for symptoms is indicated.
  - e. Clinically evaluate people with TST conversions or symptomatic persons.
  - f. Sent the results of the contact investigation to the State Public Health Department and TB control.



## INFECTION CONTROL POLICY HOSPITAL SERVICES

**Purpose:** To provide for the maintenance of Infection Control Standards during the operations performed by these services.

### **A. Pharmacy Services**

1. The Infection Control Committee will review and approve all Pharmacy service policies and procedures that relate to infection control issues.
2. Pharmacy Services will be represented in the Infection Control Committee meeting when Pharmacy service issues that are related to infection control are addressed.

### **B. Food Services:**

1. The Infection Control Committee will review and approve all Food Service policies and procedures that relate to infection control issues.
2. Food services will be represented in the Infection Control Committee meeting when Food Services issues that are related to infection control are addressed.

### **C. Plant Operations:**

1. The Infection Control Committee will review and approve all Plant Operations policies and procedures that relate to infection control issues.
2. Plant Operations will be represented in the Infection Control Committee meeting when Plant Operations issues that are related to infection control are addressed.

### **D. Housekeeping:**

1. The Infection Control Committee will review and approve all Housekeeping Service policies and procedures that relate to infection Control issues.
2. Housekeeping Services will be represented in the Infection Control Committee meeting when; Housekeeping service issues that are related to infection control are addressed.

### **E. Laundry Services:**

1. The Infection Control Committee will review and approve all Laundry Service
2. Policies and procedures that relate to infection control issues.
3. Laundry Services will be presented in the Infection Control Committee meeting when Laundry Services issues that are related to infection control are addressed.

### **F. Dental Services:**

1. The Infection Control Committee will review and approve all Dental Service policies and procedures that relate to infection control issues.
2. Dental services will be represented in the Infection Control Committee meeting when Dental Service issues that are related to infection control are addressed.

### **G. Laboratory Services:**

1. The Infection Control Committee reviews and approves all Laboratory Service policies and procedures that relate to infection control issues.
2. Laboratory Services will be represented in the Infection Control Committee meeting when Laboratory Service issues that are related to infection control are addressed.

# POLICY ON SAFE INJECTION, INFUSION, AND MEDICATION VIAL PRACTICES

## OBJECTIVE

- ❖ To distinguish between the risk of medication errors and microbial contamination during compounding of sterile preparations.
- ❖ To describe the best practices of handling compounding supplies before compounding sterile preparations.
- ❖ To explain aseptic techniques that is used to minimize the introduction of microorganism during the compounding of sterile preparations.
- ❖ To describe ways to minimize microorganisms in the environment surrounding the compounding of sterile preparation.
- ❖ To discuss about beyond use date, labeling of the compound, and strategies for preventing sharp injuries to compounding personnel.
- ❖ To discuss about settings for medication preparation, clean room concept, hand hygiene and garbing.

## SCOPE

The use of safe injection practices is critical to prevent microbial contamination of products administered to patients. Employees should have the knowledge, training and equipment to safely implement these procedures.

## RESPONSIBILITY

Staff Nurse / Senior Nurse/ Nurse Managers INSTRUCTION DETAIL PROCEDURE:

- Perform hand hygiene (hand washing with soap and water or by application of a 60% or greater alcohol based hand sanitizer rub that is allowed to dry) before accessing supplies, handling vials and IV solutions, and preparing or administering medications.
- Use aseptic technique in all aspects of parenteral medication administration, medication vial use, injections, and glucose monitoring procedures.
- Store and prepare medications and supplies in a clean area on a clean surface.
- Never store needles and syringes unwrapped because sterility cannot be ensured.
- Discard all opened vials, IV solutions, and prepared or opened syringes that were involved in an emergency situation.
- Avoid contacting sterile drugs and sterile areas of devices and containers with non- sterile objects and/or secretions and particles shed from personnel.

## IV SOLUTIONS

- Never use IV solution containers (eg, bags, bottles) to obtain flush solutions or for any other purpose for more than 1 patient.
- Prepare IV solutions and medications as close to administration as feasible.

- Disinfect IV ports and vial stoppers by wiping and using friction with a sterile 70% isopropyl alcohol or approved antiseptic swab. Allow the port to dry before accessing.
- An admixture is defined as the addition of one or more concentrated drug injections from ampoules and vials to larger volume bags and bottles of intravenous infusion fluids such as dextrose and sodium chloride injections.
- Do not use spiking devices, even if they have a 1-way valve, to remove fluid from IV bottles/bags for multiple uses or patients.

## **FLUSHING**

- Use single-dose containers for flush solutions, whenever possible.
- If a multi-dose vial must be used, use it for only 1 patient and then discard it. Each entry into the multi-dose vial (dedicated to that patient) must be made with a new, unused sterile needle and new, unused sterile syringe.

## **SYRINGES**

- Remove the sterile needle/ cannulas and/or syringe from the package immediately before use.
- Never use a syringe for more than 1 patient even if the needle has been changed between patients. Changing the needle but not the syringe is unacceptable.
- Use a new syringe and a new needle for each entry into a vial or IV bag.
- Utilize sharps safety devices whenever possible.
- Discard syringes, needles, and cannulas after use directly on an individual patient or in an IV administration system.
- Dispose of used needles/syringes at the point of use in an approved sharps container.
- Do not prepare medication in one syringe to transfer to another syringe, ie, nurse draws up solution into syringe then transfers the solution to a syringe with plunger removed or injected into the bevel of the syringe to then be injected into the patient.
- Never store or transport syringes in clothing or pockets.
- Prepare syringes as close to administration as feasible.

## **VIALS**

- Always follow the manufacturer's instructions for storage and use.
- Use single-use or single-dose vials whenever possible.
- Always use a new sterile syringe and new needle/ cannula when entering a vial. Never enter a vial with a syringe or needle/cannula that has been previously used (eg, to inject a patient or access a medication vial).
- Cleanse the access diaphragm of vials using friction and a sterile 70% isopropyl alcohol.
- Allow the diaphragm to dry before inserting any device into the vial.
- Discard single-dose vials after use. Never use them again for another patient.

- Discard any vial that has been placed on a contaminated surface or a used procedure tray or that has been used during an emergency procedure.
- Use multi-dose medication vials for a single patient whenever possible and access all vials using a new sterile syringe and new needle/ cannula adhering to aseptic technique. The risk of viral hepatitis transmission posed by multi-dose vials has been clearly demonstrated and mandates a practice of using 1 vial per 1 patient whenever possible. Infection transmission risk is reduced when multi-dose vials are dedicated to a single patient.
- Keep multi-dose vials away from the immediate patient environment.
- Never store or transport vials in clothing or pockets.
- Never pool or combine leftover contents of vials for later use.
- Never leave a needle, cannula, or spike device (even if it has a 1-way valve) inserted into a medication vial rubber stopper because it leaves the vial vulnerable to contamination.
- The beyond-use date and disposal of opened multi dose medication vials for injection and/or IV administration remains an unresolved issue with differing opinions on the approach. unless the manufacturer's expiration date will be reached before 28 days or the product labeling (package insert) states otherwise.
- Discard the vial when the beyond-use date has been reached. CDC indicates that the beyond-use date can be based on the manufacturer's expiration date.
- When following CDC guidelines, date the vial to reflect the date opened.
- Regardless of the beyond-use date or manufacturer's expiration date, a vial should be discarded sooner if the sterility of the product is in question.
- The CDC Immunization Program recommends discarding of vaccines according to the manufacturer's expiration date.
- Inspect vials and discard if sterility is known or suspected to be compromised. Examine the vial for any particulate matter, discoloration, or turbidity; if present, do not use and discard immediately.
- All vials used during an emergency should be discarded because sterility cannot be guaranteed.

## **BLOOD GLUCOSE MONITORING DEVICES**

- Assign a glucometer to each individual patient if possible.
- Clean and disinfect glucometers if they must be shared between multiple patients.
- Restrict the use of finger stick capillary blood sampling devices to individual patients.
- Maintain supplies and equipment, such as finger stick devices and glucometers, within individual inpatient rooms, if possible.
- Use single-use lancets that permanently retract after puncture.
- Never reuse finger stick devices and lancets. Dispose of them at the point of use in an approved sharps container. Lancets in a pen should be removed by mechanical means (hemostat) to avoid finger contact.
- Thoroughly clean all visible soil or organic material (eg, blood) from the glucometer before disinfection.

- Disinfect the exterior surfaces of the glucometer after each use following the manufacturer's directions.

## **POLICY ON SAFE INJECTION PRACTICE:**



### **HEALTH CARE WORKERS:**

- Provide the HBV vaccination series to all previously unvaccinated health care personnel whose activities involve contact with blood or body fluids.
- Check and document post vaccination titers 1 to 2 months after completion of the vaccination series.
- Immediately report body fluid exposures and needle stick/ sharps injuries.
- Ensure that staff preparing or administering injections or other parenteral medications are competent to perform these tasks aseptically.
- Periodically assess compliance with safe injection practices by observing and evaluating all personnel performing these procedures.

### **CONCLUSION**

- ❖ The use of safe injection practices is critical to prevent microbial contamination of products administered to patients.
- ❖ HCWs and their managers must understand and practice these procedures safely. Administrators of medical facilities must be aware of safe injection practices and ensure that employees have the knowledge, training, and equipment to safely implement these procedures.

- ❖ It is critical that Injectable medications, IV delivery systems, and blood glucose monitoring are used safely in all health care settings.
- ❖ As infection preventionists, we have an obligation to reiterate and ensure that safe injection, infusion, and medication vial practices are the absolute standard of care throughout various health care settings and across the continuum of care. We must take a lead role in promoting adherence by HCWs to these safe practices to protect the health and safety of our patient.

## **POLICY ON SPILL MANAGEMENT:**

### **MANAGEMENT OF BLOOD, BODY FLUID AND MICROBIOLOGICAL CULTURES SPILLS**

- The spills shall be promptly confined by covering it with absorbent material like paper napkins, toilet paper.
- Completely cover the spillage with 1% household bleach or 1% sodium hypochlorite solution for 20 minutes.
- Do not touch the soiled material by hand. Either use” forceps, tongs or gloved hands. Rubber gloves are better than surgical gloves.
- Remove the soiled material.
- Discard all soiled material into contaminated waste bag as per hospital waste disposal policy.
- This material shall be sent for autoclaving / incineration / deep burial in respective bags.
- Clean the area with neutral detergent.
- Allow to dry.
- Wash and dry your hands.

## POLICY AND PROCEDURE FOR DIALYSIS UNIT

### General Recommendations In the Dialysis Unit

- ❖ Standard Precautions are to be followed every time, everywhere and by everyone.
- ❖ Do not share clamps, scissors, other non-disposable items unless sterilized or disinfected between patients.
- ❖ Separate clean and contaminated areas; for example, handling and storage of medications and hand washing should not be done in the same or adjacent area to that where blood samples or used equipment are handled.
- ❖ Disposable gloves should be worn by staff members for their own protection when handling patients or dialysis equipment and accessories. Gloves should be worn when taking blood pressure, injecting saline or heparin, or touching dialysis machine knobs to adjust flow rates.
- ❖ For the patient's protection, the staff member should use a fresh pair of gloves with each patient to prevent cross-contamination. Gloves also should be used when handling blood specimens. Staff members should wash their hands after each patient contact.
- ❖ Avoid touching surfaces with gloved hands that will subsequently be touched with ungloved hands before being disinfected.
- ❖ Staff members are advised to wear protective eyeglasses and masks and head caps gowns for procedures in which spurting or spattering of blood may occur, such as cleaning of dialyzers and centrifugation of blood.
- ❖ Staff members should wear gowns, scrub suits, or the equivalent while working in the unit and should change out of this clothing at the end of each day. Staff members should not smoke, eat, or drink in the dialysis area.

### HAEMODIALYSIS STEPS

- I. Dialysis Machine cleaned.
  - ❖ Internal pathways are decontaminated with disinfectant
  - ❖ External Surfaces cleaned with 3% Hydrogen Peroxide
  - ❖ Bed, chair, table, dialysis tray, BP instrument, Stethoscope wiped with 70% Isopropyl Alcohol after each use Bed sheet and pillow - cover changed after each use
- II. Patient is called from waiting area. Weight, BP, PR, brief physical examination is done and the ultra filtration to be done is decided.
- III. Dialyzer with attached tubings are brought from Storage area and fitted into the machine .Dialyzer and tubings are primed (flushed) with 2 to 3 litres of Normal Saline to wash off any formalin residue. After that do the formalin free test (schiff's test)
- IV. Vascular access (AV fistula or dialysis catheter is examined).  
**AV Fistula:** Skin cleaned by betadine followed by Isopropyl Alcohol /Ethyl Alcohol 70%. Dialysis catheter site examined and cleaned and dressed. A new sterile glove is used to puncture fistula and catheter connection. Fistula punctured by two fistula needles (G-16). Tubings attached to both needles and circuit is completed.
- V. After completion of duration of dialysis, (usually 4 hours) arterial line connection is stopped and blood in extracorporeal circuit returned through venous port into the j body.



**AV Fistula:** Both AV Fistula needles removed and punctured sites pressed for 10 -15 minutes. After achieving haemostasis, Sure seal is applied at puncture sites. Dialysis Catheter: Dialysis catheter ports are cleaned with Povidine - Iodine ( Betadine) and Isopropyl Alcohol / Ethyl Alcohol 70%. Both limbs are flushed with heparin (1 ml = 1000 u), 1.6 ml in arterial line, &

1.5 ml in venous line to prevent catheter thrombosis.

Dialysis Catheter: Both exit site and catheter ports are cleaned with Povidine -Iodine (Betadine) and Isopropyl Alcohol / Ethyl Alcohol 70%. Exit site dressed e

- Flow checked in both ports
- Ports caps put in a sterile Vestibule (Katori) taken from autoclaved dialysis tray.
- Both catheters ports are attached to the tubings and circuit is completed.

Heparin is put according to 'patient's condition given as bolus (100 unit/kg) followed by continuous infusion (1000 u/ hour) for first three hours of dialysis.

VI. BP, PR informed consent to be taken before starting H.D regularly checked during dialysis .BP, PR at 30 min interval.

VII. Blood Glucose - once or twice, depending upon the patient. Patients weight is checked and recorded

#### **FOR EVERY NEW PATIENT**

\* Check Serology Status HBs Ag ELISA

Anti HCV ELISA

HIV-1 & II. ELISAVDRL

In case of emergency, Rapid tests for all three must be done,

#### **REPROCESSING OF DIALYSER**

Hospital protocol: Dialysers are reprocessed for up to 6 times before final discard.

#### **METHOD:**

- Switch “ON “ electric circuit
- Push the switch labeled “ON” ,”SEL” will be displayed in the “VOLUME” display window and “\_\_ “ will appear in “PROGRAM STEP” display window
- Connect dialyzer on the front panel marked “DIALYSATE OUT LET /SANITIZE INTER LOCK “ this connection acts as the dialyzer holding fixture .
- Push the “ RESET “ switch and the ” MUTE “ switch at same time to display the proper program mode in the “ PROGRAM STEP “display window for the dialyzer to be reprocessed ie. ” OO “ , ”CH” , “HF”.
- Touch and hold the “ HOLD TO SET “ switch.
- Adjust and “ SET “ Knob until the “ VOLUME “ Display indicates the physician’s prescribed blood compartment reference volume for the dialyzer to be reprocessed.
- Touch the “ START PROCESS “ switch .

- When the “ PROCESS COMPLETE “ message appears the reprocessed dialyzer is ready to be removed.
- If a “ VOLUME FAIL “ or “ PRESSURE FAIL “ message appears press the “ START PROCESS “ switch to repeat.

| CODE   | PROGRAM   | KUF     | TIME   |
|--------|---|---------|--------|
| (0 0)  | Low Flex Dialyzer                                     | < 8     | 8 min  |
| (C H)  | Mid-Range/High Efficiency and Hemophan Tipe Dialyzers | 15- Aug | 10 min |
| ( H F) | High -Range /High Flux Dialyzers and Hemofilters      | 15 +    | 10 min |
| (PC)   | Pre - clean Program for all Dialyzers                 | ALL     | 4 min  |

#### **HOW TO DISCONNECT DIALYZER FROM RENATRON MACHINE:**

- Disconnect the “ ARTERIAL INLET “ line from the reprocessing connector attached to dialyzer arterial blood port .
- Wipe the external surfaces of the dialyzer arterial blood port using gauze soaked in fresh 1% Renalin 100 Solution or full strength Actril cold Sterilant.
- Place a disinfected blood port cap on the dialyzer arterial blood port.
- Disconnect the dialysate outlet of the dialyzer from the “ DIALYSATE OUTLET/SANITIZE INTER LOCK “ connector on the Renatron machine.
- Wipe the external surfaces of the dialyzer outlet port with gauze soaked in fresh 1 % Renalin 100 solution or full strength Actril cold Sterilant.
- Place a disinfected dialysate port cap on the dialysate outlet port of the dialyzer.
- Disconnect the “ DIALYSATE INLET “ line from the dialysate inlet port.
- Wipe the external surfaces of the dialyzer inlet port with gauze soaked in fresh 1 % Renalin 100 solution or full strength Actril cold Sterilant.
- Place a disinfected dialysate port cap on the dialysate inlet port of the dialyzer.
- Disconnect the “ VENOUS OUT LET “ line from the reprocessing connector attached to the dialyzer venous blood port .Remove the reprocessing connector and place it in fresh 1 % Solution 100 Solution or full strength Actril cold Sterilant for a minimum of thirty (30) minutes.
- Wipe the external surfaces of the dialyzer venous blood port with gauze soaked in fresh 1 % Renalin 100 solution or full strength Actril cold Sterilant
- Place a disinfected blood port cap on the dialyzer venous blood port

## **HOW TO SANITIZE DIALYZER MACHINE:**

- Operator connects the system's " ARTERIAL IN LET " and " VENOUS OUTLATE " lines to the calibration cell and connects the "DIALYSATE INLET " line to the " DIALYSATE OUTLET " – SANITIZE INTERLOCK " connector using the male /male fitting attached to front of the machine.
- Operator touches the " ON " switch ,selects a program by pressing the "MUTE "and "RESET " switches then touches the "START SANITIZE "switch which activates the sanitize cycle.
- The machine will automatically fill and flush all internal blood contact surfaces and the dialysate circuit with Proportioned Renalin 100 Solution .
- The machine then enters " PROGRAM STEP " 83, at which time the " SANITIZE COMPLETE " message will be displayed and a 3 second continuous tone will sound
- Operator presses the "OFF "switch, and allows the machine to sit for a minimum of 6 hours before using again.

## **POLICY ON PRESSUE ULCER:**

- ❖ The pressure ulcer is observed and measured by using Braden scale. (Annexure )

## POLICY ON SINGLE USE AND RE-USING DEVICES

**PURPOSE:** To define a set of guidelines for the reprocessing of single-use, or disposable medical devices (SUD).

**Note:** This policy does not address the reprocessing of devices that are marketed or labeled as reusable or multi-use devices.

### **DEFINITIONS:**

**Single-Use or Disposable Device:** A device that is marketed or labeled for single patient use or single procedure use. It is not marketed or labeled with the intent of reusing the device on another patient. The labeling identifies the device as single-use, or disposable and does not include instructions for reprocessing.

**Note:** Some SUDs are marketed and labeled as non-sterile and include appropriate pre-use sterilization or processing instructions to make the device patient ready. This is not considered “reprocessing”.

**Open but Unused:** An “Open but Unused” product is a SUD whose sterility has been breached or whose sterile package was opened but the device has not been used on a patient. This also includes a device whose packaging has expired as identified by the label on the package.

**Reuse:** The repeated use or multiple use of any medical device on the same patient or different patients, with applicable reprocessing (cleaning, functionality verification, and/or disinfecting /sterilization) between uses.

**Reprocessing:** Includes all operations performed to assure that a previously used SUD is clean, sterile and will function as intended by the original equipment manufacturer (OEM). The process includes, but is not limited to, disinfection, cleaning, functional verification, packaging and possibly sterilization.

**Reserialization:** The repeated application of a terminal process designed to remove or destroy all viable forms of microbial life, including bacterial spores, to an acceptable sterility level.

### **POLICY:**

- ❖ KBNTGH has adopted the following policy regarding the reprocessing of SUDs:
- ❖ KBNTGH is committed to reprocess SUD’s in a manner so as to ensure patient safety and stringent quality controls.
- ❖ SUDs that may be reprocessed are those listed below. SUDs not listed cannot be reprocessed and should be discarded after single use.

**List of SUDs which are re-used:**

| S.No. | Item                              | User Area           | No. of times re-sterilized |
|-------|-----------------------------------|---------------------|----------------------------|
| 1.    | ALL DIAGNOSTIC CATHETERS          |                     |                            |
| 2.    | ALL GUIDNG HETERS                 |                     |                            |
| 3.    | ALL PTCA GUIDE WIRES              |                     |                            |
| 4.    | ALL PTCA BALLOONS                 |                     |                            |
| 5.    | ALL GUIDE WIRES                   |                     |                            |
| 6.    | PBMV SET                          |                     |                            |
| 7.    | ASD SET                           |                     |                            |
| 8.    | PDA SET                           |                     |                            |
| 9.    | TPI SET                           |                     |                            |
| 10.   | PPI SET                           |                     |                            |
| 11.   | ALL RADIAL SHEATHS                |                     |                            |
| 12.   | ALL FEMORAL SHEATHS               |                     |                            |
| 13.   | TVAC – CATHETER                   |                     |                            |
| 14.   | THROMBUS ASPIRATION CATHETER      |                     |                            |
| 15.   | MICRO CATHETERS                   |                     |                            |
| 16.   | WEDGE PRESSURE CATHETER           |                     |                            |
| 17.   | BERMAN CATHETER                   |                     |                            |
| 18.   | LONG SHEATH                       |                     |                            |
| 19.   | LV SYRINGE                        |                     |                            |
| 20.   | HIGH PRESSURE TUBE                |                     |                            |
| 21.   | PTCA KIT                          |                     |                            |
| 22.   | AORTIC CANNULAS (ADULT&PAED)      | OT (PERFUSION DEPT) |                            |
| 23.   | VENOUS CANNULAS                   |                     |                            |
| 24.   | CARDIOPLEGIA CANNULAS(ADULT&PAED) |                     |                            |
| 25.   | ROOT CANNULAS                     |                     |                            |
| 26.   | CARDIOPLEGIA CANNULA              |                     |                            |
| 27.   | OSTIAL CANNULAS                   |                     |                            |
| 28.   | RETROGRADE CANNULA CONNECTORS     |                     |                            |
| 29.   | VEIN CANNULAS                     |                     |                            |
| 30.   | SHUNTS                            |                     |                            |

|     |                                 |          |  |
|-----|---------------------------------|----------|--|
| 31. | AORTIC PUNCH                    |          |  |
| 32. | CLIP APPLICATOR                 |          |  |
| 33. | OCTOPUS & STARFISH              |          |  |
| 34. | BIPOLAR CABLES                  |          |  |
| 35. | DISPOSABLE TROCARS              |          |  |
| 36. | RELOADS GUN                     |          |  |
| 37. | TAGUN                           |          |  |
| 38. | IRRIGATION TUBE(ACLR)           |          |  |
| 39. | GUIDEWIRES(ADULT & PAEDIATRICS) |          |  |
| 40. | DIALYSERS                       |          |  |
|     |                                 | DIALYSIS |  |

**AUTHORITY:**

Authority for the program is vested with the Infection Control Committee. The Infection Control Committee is a multi-disciplinary group comprised of clinical, Central Sterile Processing, Materials Management, Risk Management, Infection Control, Quality control and Clinicians with a commitment to patient safety and will follow the policies set forth regarding the reprocessing of SUDs.

**PROCEDURE:**

**Sorting:**

An initial sort of each SUD shall take place to eliminate obvious rejects or unapproved products. Any SUD for reprocessing which has visible color change, change in handling properties, leaks, kinks, physical damage, fraying etc. will be immediately identified & discarded.

**Cleaning:**

The SUD shall be cleaned thoroughly to eliminate any blood or other body fluids. The SUD shall be cleaned with heparin saline (hollow items) or plain water. Hollow instruments shall be cleaned with a brush. The SUD shall then be placed in Multi-enzyme solution to dissolve all protein residues. These items are then cleaned with hydrogen peroxide (3%) to remove blood residue. The items are then sent to CSSD where they undergo a cleaning cycle in the ultra-sonic cleaner. The SUD shall then be thoroughly rinsed with water and left to dry or dried with air under pressure for hollow tubing's.

**Testing:**

Verifying that devices perform as intended shall be an integral component of the reprocessing cycle. This can involve injection of water through the catheters, or other device-specific functional indicators.

**Packaging:**

All devices shall be packaged, sealed and labeled in Hospital approved pouches for EO purposes. Prior to packing, a dot with a permanent marker shall be placed on the device, indicating the number of times it has been reused. Those SUD used more than ten times are either sturdy or may get potentially damaged following marking. Hence such items shall not be marked.

**Sterilization:**

Sterilization shall be performed in state-of-the-art Ethylene Oxide (EO) gas sterilizer.

Every load shall contain PCD & chemical indicators. Biological indicators shall be used once a week & shall be sent to the Microbiology laboratory for testing.

Final Inspection & Product Release: After undergoing sterilization cycle, the sterilization indicators and integrator are inspected. If the cycles have passed, only then shall the devices be brought in use.

**Labeling requirements:**

All reprocessed SUD shall be labeled with the number of times the device has been used, date of reprocessing, date of expiry, EO machine number & Lot number. Lot number is a non-repeatable number that shall be allocated to the device in order to facilitate recall of the device. Incident reporting:

Any incident due to a reprocessed SUD shall be immediately reported on the "Incident" Form. The data shall be collated and analyzed by the HIC Team and report shall be submitted to HIC committee. The Safety Committee and Infection Control Committee shall review the data.

**SUD Recall:**

Any SUD found to be unsafe due to repetitive incidents or due to a report by Microbiology or from manufacturers, shall be immediately recalled and disposed of as per hospital policy for bio-medical waste.

**Disposal:**

All devices that have been reused the number of times as per policy, shall be mutilated and disposed off in the yellow waste bags.

**Inspection at the time of Reuse:**

All SUDs that are re-sterilized would be inspected by the end-user at the time of re-use for integrity, damages, kinks, frays or any such indication that the SUD may not fulfill the patient care necessity. Such SUDs that are found unsuitable for use on patients would be discarded by the end user.

**Sorting:**

An initial sorting of each SUD shall take place to identify defects. Any SUD for reprocessing which has visible color change, change in handling properties, leaks, kinks, physical damage, fraying etc. will be immediately identified & discarded.

**Testing:** Verifying that devices perform as originally intended by the manufacturer is an integral component of the reprocessing cycle. This testing of functional integrity is performed by the end-user before the item is sent to CSSD for reprocessing.

**Packaging:**

All devices shall be packaged, sealed and labeled in hospital approved pouches for Ethylene oxide sterilization. Prior to packing, a dot with a permanent marker shall be placed on the device, indicating the number of times it has been reused.

**Sterilization:**

Sterilization shall be performed using the Ethylene Oxide (EO) gas sterilizer in the CSSD following the CSSD protocol for EO sterilization.

**Final Inspection & Product Release:** After undergoing sterilization cycle, the sterilization indicators are checked and the device is then released for use.

**Inspection at the time of Reuse:**

All SUDs that are re-sterilized would be inspected by the end-user at the time of re-use for integrity, damages, kinks, frays or any such indication that the SUD may not fulfill the patient care necessity. Such SUDs that are found unsuitable for use on patients would be discarded by the end user.

**Labeling requirements:**

All reprocessed SUD shall be labeled with the number of times the device has been used, date of reprocessing, date of expiry, EO machine number & Lot number. Lot number is a non- repeatable number that shall be allocated to the device in order to facilitate recall of the device.

**Incident reporting:**

Any incident due to a reprocessed SUD shall be immediately reported on the “Patient Incident” Form. The data shall be collated and analyzed by the HIC Team and report shall be made in the Quarterly Steering Committee. The Safety Committee and the Infection Control Committee shall also review the data.

**SUD Recall:**

Any SUD found to be unsafe due to repetitive incidents or due to a report by Microbiology or from manufacturers, shall be immediately recalled and disposed of according to the guidelines on bio-medical waste management.

**Disposal:**

The devices are discarded when they have been used to the maximum 10 number of times as stated in this policy or earlier, if found to be defective.



## **TRAINING PROGRAMMES FOR STAFF: IN SERVICE TRAINING PROGRAM FOR INFECTION CONTROL**

### **Aim:**

Infection Control training educates employees in the basic elements of infection control. This infection control training program is intended for the staff who come in direct contact with the patients.

### **Rationale:**

- ❖ To prevent infection from one patient to other patient.
- ❖ To prevent infection from patient to staff.
- ❖ Environmental hygiene
- ❖ Catheter bundle care
- ❖ Care of patients in case of airborne/contact/bloodborne transmission of infection
- ❖ Hand hygiene
- ❖ To prevent occupational hazards

### **Responsibilities of various personnel in the department**

- Infection control nurse
- Sister -Incharge
- HR executive
- Responsibilities of staff
- The infection control nurse is accountable for implementing the standards of infection prevention and control within the clinical area managed.
- The Ward Sister-Charge Nurse expected to promote good infection control practice in the clinical area and identify the development needs of team members and to make appropriate arrangements to have these training needs met in co-operation with the Infection Prevention and Control Service.
- All employees of the hospital must be aware of infection prevention and control policies and are expected to follow them at all times.
- Any breach of infection control policies will put patients at risk and repeated non compliance will lead to disciplinary action.
- All staff having clinical contact with patients should take monthly updates on Infection Prevention and Control policies and guidelines.
- The Project manager/Infection control nurse will monitor adherence (Evaluation of the training)to the policy according to the NABH guidelines.

### **Role of HR**

- To make arrangements for the training sessions.
- To keep records of the training sessions
- To keep feedback of the training sessions
- To do infection control training need analysis

### **Support Documents for in service training**

- ❖ Infection control manual ICM
- ❖ Induction training material
- ❖ Training feedback form
- ❖ Evaluation form

# MONITORING OF HOSPITAL ASSOCIATED INFECTIONS

## MEASURES OF DISEASE FREQUENCY

### Rates

Rates describe the frequency with which events occur. In other words, a rate measures the occurrence of an event in a defined population over time. Rates are used to track trends, such as the occurrence of nosocomial infections over time. The rates most frequently used are incidence, prevalence and attack rates. When an increase in a disease or other health-related event is suspected, rates can be calculated and used to determine if there is a change in the occurrence of disease from one period of time to the next.

### Infection Rate Calculation

#### Rates

Rates describe the frequency with which events occur. In other words, a rate measures the occurrence of an event in a defined population over time. Rates are used to track trends, such as the occurrence of nosocomial infections over time. The rates most frequently used are incidence, prevalence and attack rates. When an increase in a disease or other health-related event is suspected, rates can be calculated and used to determine if there is a change in the occurrence of disease from one period of time to the next.

- **Nosocomial Infection rate:**

$$\frac{\text{No. of nosocomial Infections}}{\text{No. of patients admitted}} \times 100$$

- **Patient infection rates:**

$$\frac{\text{No. of infected patients}}{\text{No. of patients admitted}} \times 100$$

### Incidence Rates

Incidence rates are used to measure and compare the frequency of new cases or events in a population.

$$\text{Incidence rate} = \frac{\text{Number of new cases that occur in a defined period}}{\text{Population at risk during the same period}} \times K$$

Where K = 100 for discharges and 1,000 for device-days (e.g. IV lines).

### Prevalence Rate

Prevalence is a measure of the number of active (new and old) cases in a specified population either during a given period of time (period prevalence) or at a given point in time (point prevalence). A prevalence rate is used to describe the current status of active disease at a particular time in a particular population. It is sometimes helpful to review the incidence and prevalence simultaneously.

$$\text{Prevalence rate} = \frac{\text{Number of all (new and existing) cases  
Of a disease at specified period or point in time}}{\text{Population at risk during the same time period}} \times K$$

Where k = 100 for discharges and 1,000 for device –days (e.g. IV lines).

### Attack Rate

Attack rate is another type of incidence rate that is expressed as cases per 100 population (or as a percentage). It is used to describe the new and recurrent cases of disease that have been observed in a particular group during a limited time period in special circumstances, such as during an epidemic.

$$\text{Attack rate} = \frac{\text{Number of new and recurrent cases that occur  
In a population in a specified time period}}{\text{Population at risk for the same period}} \times 100$$

Where k = 100 for discharges and 1,000 for device –days (e.g. IV lines).

### The ICT monitors the following rates (incidence rates)

- **Urinary tract infections,**
- **respiratory tract infections,**
- **surgical site infections**
- **intra vascular device associated infections**
- **CRBSI**

The analyzed data is circulated to all the clinicians every quarterly by e- mail and or a circular.

## ANNEXURES

### INFECTION CONTROL CHECKLIST

Department :-

| S.No. | CHECK POINTS   | STAFF | Scale of Scoring | Remarks/Compliance/ Non Compliance |
|-------|--|-------|------------------|------------------------------------|
|       | <b>Invasive lines/Intracath</b>                                  |       |                  |                                    |
| 1     | Date Written On Invasive Site                                    | 1     |                  |                                    |
| 2     | Dressing clean (No blood stains)                                 | 1     |                  |                                    |
| 3     | Presence Of Tenderness, pus, redness                             | 1     |                  |                                    |
| 4     | Aware of protocol for inserting CVC                              | 1     |                  |                                    |
|       |  | 4     |                  |                                    |
|       | <b>Urinary Catheterization</b>                                   |       |                  |                                    |
| 1     | Awareness about no touch technique of inserting urinary catheter | 1     |                  |                                    |
| 2     | Aware of maintenance of urinary catheters                        | 1     |                  |                                    |
|       | <b>Universal Precautions</b>                                     | 2     |                  |                                    |
| 1     | Aware of guidelines  | 1     |                  |                                    |
| 2     | Aware of barrier nursing/ reverse barrier nursing                | 1     |                  |                                    |
| 3     | Awareness on PPE   | 1     |                  |                                    |
|       | <b>Hand wash</b>   | 3     |                  |                                    |
| 1     | Awareness On Duration Of Procedural Hand wash ( 30Secs-1mnt)     | 1     |                  |                                    |
| 2     | Knows The Solution Used For Hand wash (Micro shield/Sterilium)   | 1     |                  |                                    |
| 3     | Demonstrate The Steps As Per Hand wash Chart                     | 1     |                  |                                    |
| 4     | Demonstrate knowledge when to wash hands or to use hand rubs     | 1     |                  |                                    |
| 5     | Aware of hand scrub duration(5-7mts)                             | 1     |                  |                                    |
| 6     | Demonstrate hand scrub steps (for OT only)                       | 1     |                  |                                    |
| 7     | Aware of hand scrubbing agent                                    | 1     |                  |                                    |
|       | <b>Blood Spillage</b>  | 7     |                  |                                    |
| 1     | Aware of guidelines  | 1     |                  |                                    |
| 2     | Aware of spot and small area                                     | 1     |                  |                                    |

|                                    |  |   |  |  |
|------------------------------------|--|---|--|--|
| 3                                  | Large and small area cleaned with 10 % sod. hyp. sol.          | 1 |  |  |
| 4                                  | Aware of hazardous spillage                                    | 1 |  |  |
| 5                                  | Awareness on spill team  | 1 |  |  |
| <b>Cleaning and Disinfection</b>   |  | 5 |  |  |
| 1                                  | Aware of Cleaning and Disinfection policy                      | 1 |  |  |
| 2                                  | Floor and items/equipments disinfected with 1% sod. hypo. sol. | 1 |  |  |
| 3                                  | Disinfection of BP. cuff                                       | 1 |  |  |
| 4                                  | Disinfection of oxygen humidifier                              | 1 |  |  |
| 5                                  | Disinfection of Suction Bottle                                 | 1 |  |  |
| 6                                  | Disinfection of laryngoscope blade & Handle                    | 1 |  |  |
| 7                                  | Aware of types of disinfectant                                 | 1 |  |  |
| 8                                  | Shelf life of see through pouches & linen packs                | 1 |  |  |
| <b>Linen policy</b>                |  | 8 |  |  |
| 1                                  | Aware of handling of infected linen                            | 1 |  |  |
| 2                                  | know about transporting and handling of used linen             | 1 |  |  |
| <b>NSI Policy</b>                  |  | 2 |  |  |
| 1                                  | Aware of how to avoid sharp injuries<br>Aware of NSI policy    | 1 |  |  |
| <b>Biomedical Waste Management</b> |  | 1 |  |  |
| 1                                  | Waste Bins Present At Required Points As Per The BMW Chart     | 1 |  |  |
| 2                                  | Segregation As Per The BMW Chart                               | 1 |  |  |
| 3                                  | Sharps Disposal In Puncture Proof Container                    | 1 |  |  |
| 4                                  | Biohazard label present on bins                                | 1 |  |  |
| 5                                  | Check nurses knowledge on segregation of BMW                   | 1 |  |  |
| 6                                  | Aware of preparation of sod. Hypo. Chl Soln.                   | 1 |  |  |
| 7                                  | CheckGDAs' knowledge on segregation of BMW &                   | 1 |  |  |
| 8                                  | Preparation of sod. Hypo. Chl Soln.                            | 1 |  |  |

|   |  |          |  |  |
|---|--|----------|--|--|
|   | <b>CSSD</b>  | 7        |  |  |
| 1 | check date of expiry on sets   | 1        |  |  |
| 2 | Aware of shelf life of linen pack and C through pouches                            | 1        |  |  |
| 3 | Multi Dose Vials & Solutions Labeled With Date Of Opening                          | 1        |  |  |
| 4 | Sterilized items (Bouggie, Magill's forceps, Pacing Lead) with date of autoclaving | 1        |  |  |
| 5 |  |          |  |  |
|   | <b>Professional Conduct /Grooming</b>  | 4        |  |  |
| 1 | Uniform Clean & Complete   | 1        |  |  |
|   | (Uniform Shoes, Id Band, Help Badge, Appulates)                                    | 1        |  |  |
| 2 | No Flashy Jewelleries ( No Bangles, Small Ear Studs, No Rings)                     | 1        |  |  |
| 3 | Demonstrate Appropriate Wishing & Telephone Ettiquets                              | 1        |  |  |
| 4 | Report On Duty 5 Mts Prior To Shift  | 1        |  |  |
| 5 | Attends Nurse Call Within In 1 Mt  | 1        |  |  |
| 6 | Use Of Official ( Hindi, English) Language   | 1        |  |  |
|   | <b>TOTAL MARKS-50</b>  | <b>6</b> |  |  |

20% of the total strength to be audited

**Sign of Auditor**

**Sign of Auditee**

## INFECTION CONTROL DAILY CHECK LIST

| S. No. | CHECK POINTS  | MARKS | OPD | EMERGENCY ROOM | OT | CCU | AMC | MICU | NICU | DIALYSIS | LAB | SLCU | RADIOLOGY | KITCHEN | LAUNDRY | BLOOD BANK |
|--------|---|-------|-----|----------------|----|-----|-----|------|------|----------|-----|------|-----------|---------|---------|------------|
| 01     | Compliance with hand hygiene                                  | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 02     | compliance with bio medical waste                             | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 03     | compliance with bin labels                                    | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 04     | compliance with universal precautions                         | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 05     | Cleanliness of Dirty Utility Room                             | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 06     | Labeling of central catheters                                 | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 07     | Labelling of multidose vials/solutions/ ointments             | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 08     | Disinfection of oxygen humidifiers/suction bottles with label | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 09     | Nails to be cut short with no nail paints                     | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 10     | Disinfection of Pt unit after Discharge/ Transfer             | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 11     | Is the ventilator circuit type Closed or Open Suction System  | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 12     | Is VAP Bundle being followed or Not                           | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |
| 13     | What is the Nurse to Patient Ratio                            | 1     |     |                |    |     |     |      |      |          |     |      |           |         |         |            |

|    |                                      |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----|--------------------------------------|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 14 | Oral hygiene of unconscious pt       | 1  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Eye care of unconscious pt           | 1  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Labelling of peripheral catheter     | 1  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | Is the surgical site inspected daily | 1  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|    | TOTAL MARKS                          | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|    | signature of supervisor              |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|    | SIGNATURE OF ICN                     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**CRITERIAS**

**EXCELLENT: 14-17**  
**SATISFACTORY: 8**

**GOOD: 9-14**  
**UNSATISFACTORY <8**



# NEEDLE STICK INJURY REPORTING FORM

Instruction for filling up the form

M.S to fill the form and send a copy to Department of Quality Management

Name: \_\_\_\_\_ Age/Sex: \_\_\_\_\_ Employee no. \_\_\_\_\_

Designation & Duty Areas \_\_\_\_\_

Date and time of Needle Stick / Sharp Injury \_\_\_\_\_

Date and time of Reporting to Casualty \_\_\_\_\_

Nature of Injury: Needle Prick- Solid/hollow / Sharp Cut / Laceration / Splattered Glass/ Fluids Splash –Low volume / large volume

Site & Depth of Injury \_\_\_\_\_

Status of Source (if available)

- HIV/HBV/HCV status of the source: \_\_\_\_\_ positive/ negative/ not known
- Has the patient serum been sent for testing: \_\_\_\_\_ Yes/No
- Does the patient have signs/symptoms of HIV/HBV/HCV infection: Yes / No

## Action taken in casualty

Hepatitis B. vaccination given: \_\_\_\_\_ Yes/No

HB Immunoglobulin given: \_\_\_\_\_ Yes/No

If immunized specify the date and route: \_\_\_\_\_ Intradermal/Intramuscular

Whether ART given: Yes / No (if yes specify within 2 hours/72 hours/ >3days)

## Investigations sent:

Please tick (✓) in the appropriate box

HbsAg :

HIV antibody:

Anti HbsAg Titres

Anti- HCV:

Note: The person to report in OPD after 3 months i.e. on \_\_\_\_\_

Signature with date of injured HCW

Signature with date of M.S

# EXAMPLE OF A DATA COLLECTION FORM FOR SURGICAL SITE INFECTION SURVEILLANCE

|   |  |   |
|---|--|---|
| <u>Hospital</u>                                       | _____  | _____                                     |
| <u>Unit</u>   | _____  | _____                                     |
| <b>Patient</b>  |  |   |
| <u>Patient Identification</u>                         | _____  | _____                                     |
| <u>Age</u>  | _____ (years)  | _____                                     |
| <u>Gender</u>   | male _____ female _____  | _____                                     |
| <u>Date of admission (in the hospital) (dd/mm/yy)</u> | _____  | _____                                     |
| <u>Date of discharge (from the unit) (dd/mm/yy)</u>   | _____  | _____                                     |
| <b>Operation</b>                                      |  |   |
| <u>Date of operation</u>                              | _____ (dd/mm/yy)   | _____                                     |
| <u>Main procedure</u>                                 | _____ (code)   | _____                                     |
| <u>Wound class</u>                                    | <input type="checkbox"/> Clean   | <input type="checkbox"/> Contaminated     |
|   | <input type="checkbox"/> Clean – contaminated  | <input type="checkbox"/> Dirty / infected |
| <u>ASA score</u>                                      | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 | _____                                     |
| <u>Duration of operation</u>                          | _____ (minutes)  |   |
| <u>Urgent</u>   | <input type="checkbox"/> Yes <input type="checkbox"/> No   | _____                                     |
| <u>Prosthesis/implant</u>                             | <input type="checkbox"/> Yes <input type="checkbox"/> No   | _____                                     |

Multiple procedures  Yes  No

\_\_\_\_\_

**ANTIBIOTICS**

Antimicrobial prophylaxis  Yes  No

\_\_\_\_\_

Starting date (dd/mm/yy)

\_\_\_\_\_

Duration (Days)

\_\_\_\_\_

**SURGICAL SITE INFECTION**

Surgical site infection  Yes  No

\_\_\_\_\_

Date of infection (dd/mm/yy)

\_\_\_\_\_

Infection site  Superficial  deep  organ / space

\_\_\_\_\_

Microorganism

\_\_\_\_\_

Date of last contact (dd/mm/yy)

\_\_\_\_\_

## HEALTHCARE-ASSOCIATED INFECTION SURVEILLANCE DATA COLLECTION FORM.

|                        |                  |                                 |                                      |             |  |
|------------------------|------------------|---------------------------------|--------------------------------------|-------------|--|
| Patient Name:          | Hospital number: | Age:                            | Sex:                                 | ICU/Ward:   |  |
| Department:            |                  | Date of admission:              | Date of transfer to current location |             |  |
| Provisional Diagnosis: |                  | Final Diagnosis:                |                                      |             |  |
| Outcome:               | Transfer out on: | Left against medical advice on: | Discharged on:                       | Expired on: |  |

| Type of Surgery-                               |   | Date of Surgery: |     |     |     |     |     |     |     |     |      |
|--|---|------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Daily Monitoring                               |   | D-1              | D-2 | D-3 | D-4 | D-5 | D-6 | D-7 | D-8 | D-9 | D-10 |
| <b>HAI</b>                                     | <b>Date</b>                               |                  |     |     |     |     |     |     |     |     |      |
| <b>CA-UTI</b>                                  | Catheter present                          |                  |     |     |     |     |     |     |     |     |      |
|  | Temperature                               |                  |     |     |     |     |     |     |     |     |      |
|  | Suprapubic tenderness                     |                  |     |     |     |     |     |     |     |     |      |
|  | Costovertebral angle pain/tenderness      |                  |     |     |     |     |     |     |     |     |      |
|  | *Urgency                                  |                  |     |     |     |     |     |     |     |     |      |
|  | *Frequency                                |                  |     |     |     |     |     |     |     |     |      |
|  | *Dysuria                                  |                  |     |     |     |     |     |     |     |     |      |
|  | Apnea                                     |                  |     |     |     |     |     |     |     |     |      |
|  | Bradycardia                               |                  |     |     |     |     |     |     |     |     |      |
|  | Vomiting                                  |                  |     |     |     |     |     |     |     |     |      |
| Lethargy                                       |   |                  |     |     |     |     |     |     |     |     |      |
| <b>CLABSI</b>                                  | CL (central line) present                 |                  |     |     |     |     |     |     |     |     |      |
|  | Temperature Chills                        |                  |     |     |     |     |     |     |     |     |      |
|  | Chills                                    |                  |     |     |     |     |     |     |     |     |      |
|  | Hypotension (SBPs 90)                     |                  |     |     |     |     |     |     |     |     |      |
|  | Apnea                                     |                  |     |     |     |     |     |     |     |     |      |
|  | Bradycardia                               |                  |     |     |     |     |     |     |     |     |      |
| <b>VAE</b>                                     | MV (mechanical ventilator) present        |                  |     |     |     |     |     |     |     |     |      |
|  | PEEP (daily minimum)                      |                  |     |     |     |     |     |     |     |     |      |
|  | FIO <sub>2</sub> (daily minimum)          |                  |     |     |     |     |     |     |     |     |      |
|  | Mean airway pressure (MAP)                |                  |     |     |     |     |     |     |     |     |      |
|  | Temperature                               |                  |     |     |     |     |     |     |     |     |      |
|  | WBC count                                 |                  |     |     |     |     |     |     |     |     |      |
| Qualified antimicrobial days (new antibiotics) |   |                  |     |     |     |     |     |     |     |     |      |
| <b>SSI</b>                                     | Purulent drainage at site                 |                  |     |     |     |     |     |     |     |     |      |
|  | Pain or tenderness (localized)            |                  |     |     |     |     |     |     |     |     |      |
|  | Localized swelling                        |                  |     |     |     |     |     |     |     |     |      |
|  | Erythema                                  |                  |     |     |     |     |     |     |     |     |      |
|  | Increased local temperature (heat)        |                  |     |     |     |     |     |     |     |     |      |
|  | Abscess at site"                          |                  |     |     |     |     |     |     |     |     |      |
|  | Surgeon's diagnosis (for superficial SSI) |                  |     |     |     |     |     |     |     |     |      |

- \*To be reported only when urinary catheter is not in place
- \*\*\*Detected by gross anatomical examination/ histopathological examination/imaging
- During data collection (daily monitoring)- blue-colored rows to be filled for adult patients, dark gray rows to be filled for patients <1 year age for CAUTI/CLABSI and for all paediatric locations for VAE: rest rows to be filled for all patients

| Microbiology Culture Report (Site specific culture and blood culture) |                      |                   |              |                                     |
|---|----------------------|-------------------|--------------|-------------------------------------|
| Date of sample collection   | Sample               | Organism isolated | Colony count | Antimicrobial susceptibility report |
|   | Blood                |                   |              |                                     |
|   | Site-specific sample |                   |              |                                     |

|   |  |
|---|--|
| Data collected by Infection control nurse | Data verified by Infection control officer |
| Name and Signature with date              | Name and Signature with date               |



## CONSENT FOR HIV TESTING

Please initial your choice and sign below.

I authorize the hospital to test me for HIV, the virus that causes Acquired Immunodeficiency Syndrome (AIDS) and related syndromes.

In signing this consent form, I acknowledge that I have been provided with information about this test, about the HIV virus and about AIDS. I have been given the opportunity to ask questions regarding this information and my questions have been answered.

I have been informed that both my request for HIV test and test results are considered confidential and will be released only to me except as required or permitted by law.

If the test results are positive, I will be provided information about the consequences for my own health care so that I might take precautions to prevent transmission of the virus to others. I understand that Georgia law requires the reporting of confirmed positive test results to the Public Health Department.

I understand that, unless otherwise limited by state and federal regulations, and except to the extent that action has been taken which was based on my consent, I may withdraw this consent at any time.

I do not authorize blood collection for HIV antibody testing.

---

Signature of Employee

---

Signature of Witness

Date \_\_\_\_\_

I have consulted with the above mentioned person about testing him or her for HIV, about availability and necessity of post – testing counselling, and that test results will be handled confidentially as prescribed by law.

---

Date

---

Signature of Physician  
(EMPLOYEES ONLY)



Email: [kbnuniversity@gmail.com](mailto:kbnuniversity@gmail.com)  
[contact@kbn.university](mailto:contact@kbn.university)

Rauza-i- Buzurg, KALABURAGI - 585104.

Tel: 08472 - 245555, 236041, 228540, 224591, 267657.

Fax: 08472 - 271111

---