



Sri Lakshmi Narayana Institute of Medical Sciences

Date:06.05.2020

From

Dr.Kamatchi
Professor and Head,
Department of Microbiology,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

To

The Dean,
Sri Lakshmi Narayana Institute of Medical College
Bharath Institute of Higher Education and Research,
Chennai.

Sub: Permission to conduct value-added course: Hospital Infection Control & Academic writing

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: Hospital Infection Control for July to August 2020 & Academic writing for September to October 2020. We solicit your kind permission for the same.

Kind Regards

Dr.Kamatchi

FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:

The Dean: **Dr. Rajasekar**

The HOD: **Dr. Kamatchi**

The Expert: **Dr. Abarna.V**

The committee has discussed about the course and is approved.

Dean

(Sign & Seal)
DEAN

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES
OSUDU, AGARAM VILLAGE,
KODDAPAKKAM POST,
PUDUCHERRY - 605 502

Subject Expert

(Sign & Seal)
DEPT OF MICROBIOLOGY
SRI LAKSHMI NARAYANA INSTITUTE OF
MEDICAL SCIENCES PONDICHERRY 605 502

HOD

(Sign & Seal)

PROFESSOR & HOD
DEPARTMENT OF MICROBIOLOGY
Sri Lakshmi Narayana Institute of Medical Sciences
PONDICHERRY - 605 502



Sri Lakshmi Narayana Institute of Medical Sciences

Circular

12.5.2020

Sub: Organising Value-added Course: Certificate course in Hospital Infection Control -reg

With reference to the above-mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Bharath Institute of Higher Education and Research**, is organizing “Certificate course in **Hospital Infection Control**” from July 2020 to August 2020. The course content enclosed below.”

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before June 30th 2020. Applications received after the mentioned date shall not be entertained under any circumstances.

Dean

DEAN
SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES
OSUDU, AGARAM VILLAGE,
KODAPAKKAM POST,
PUDUCHERRY - 605 502

Encl: Copy of Course content

Course Proposal

Course Title: Certificate course in Hospital Infection Control

Course Objective:

1. Definition for **Hospital Infection Control**
2. Infection Control Committee
3. Surveillance of healthcare associated infections
4. Standard Precautions Requirements
5. Prevention of healthcare associated infections
6. Cleaning, disinfection and sterilization
7. Antimicrobial policy and antimicrobial stewardship

Course Outcome: On successful completion of the course the students will be able to prescribe right drug, to right patient, to right time, to right dose

Course Audience: Medical undergraduates

Course Coordinator: Dr. Kamatchi

**Course Faculties with Qualification and Designation: Dr.Abarna.V, Assistant Professor
Dr.Arthi, Assistant Professor**

Course Curriculum/Topics with schedule (Min of 30 hours)

Date	Time	Topic	Hour	Lecture taken by
1.7.2020	4-7pm	Pre-test & Introduction	3hrs	Dr.Kamatchi
8.7.2020	4-7pm	Infection Control Committee & Routes of transmission and their prevention	3hrs	Dr.Abarna.V
4.7.2020	4-7pm	Practical aspect of hand wash	3hrs	Dr.Abarna.V
15.7.2020	4-7pm	Surveillance of healthcare associated infections	3hrs	Dr.Arthi
22.7.2020	4-7pm	Standard Precautions Requirements	3hrs	Dr.Abarna.V
29.7.2020	4-7pm	Practical aspect of biomedical waste management & Needle stick injury and post exposure prophylaxis	3hrs	Dr.Abarna.V
5.8.2020	4-7pm	Prevention of healthcare associated infections	3hrs	Dr.Arthi

12.8.2020	4-7pm	Cleaning, disinfection and sterilization	3hrs	Dr.Kamatchi
19.8.2020	4-7pm	Antimicrobial policy and antimicrobial stewardship	3hrs	Dr.Kamatchi
26.8.2020	4-7pm	Post test	3hrs	Dr.Abarna.V
		Total hours	30hrs	

References:

1. Handbook of hospital infection control by Sanjay singhal
2. Infection control in clinical practice- 3rd edition by Jennie wilson

VALUE ADDED COURSE

1. Name of the programme & Code

Certificate course in Hospital Infection Control and MIC01

2. Duration & Period

30 hrs & July 2020– August 2020

3. Information Brochure and Course Content of Value Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

Questionnaire - *Enclosed as Annexure- III*

6. Course Feed Back

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 July 2020– August 2020

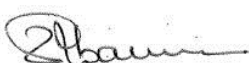
8. Year of discontinuation: 2020


9. Summary report of each program year-wise

Value Added Course- July 2020– August 2020					
Sl. No	Course Code	Course Name	Resource Person	Target Students	Strength & Year
1	MIC01	Certificate course in Hospital Infection Control	Dr. Abarna.V	2 nd yr MBBS	30 (July 2020– August 2020)

10. Certificate model

Enclosed as Annexure- V


RESOURCE PERSON


COORDINATOR

Annexure I

COURSE DETAILS

Particulars	Description
Course Title	Certificate course in Hospital Infection Control
Course Code	MIC01
Objective	Introduction Infection Control Committee Surveillance of healthcare associated infections Standard Precautions Requirements Prevention of healthcare associated infections Cleaning, disinfection and sterilization Antimicrobial policy and antimicrobial stewardship
Further learning opportunities	Hospital Infection Control Policies , Antimicrobial policy and antimicrobial stewardship
Key Competencies	On successful completion of the course the students will be able to prescribe right drug , to right patient , to right time , to right dose
Target Student	2 nd yr MBBS Students
Duration	30hrs Every July 2020– August 2020
Theory Session	10hrs
Practical Session	20hrs
Assessment Procedure	Questionnaire

Date	Time	Topic -	Resource person
1.7.2020	4-7pm	Pre-test & Introduction	Dr.Kamatchi
8.7.2020	4-7pm	Infection Control Committee & Routes of transmission and their prevention	Dr.Abarna.V
15.7.2020	4-7pm	Practical aspect of hand wash	Dr.Abarna.V
15.7.2020	4-7pm	Surveillance of healthcare associated infections	Dr.Arthi
22.7.2020	4-7pm	Standard Precautions Requirements	Dr.Abarna.V
29.7.2020	4-7pm	Practical aspect of biomedical waste management & Needle stick injury and post exposure prophylaxis	Dr.Abarna.V
5.8.2020	4-7pm	Prevention of healthcare associated infections	Dr.Arthi
12.8.2020	4-7pm	Cleaning, disinfection and sterilization	Dr.Kamatchi
19.8.2020	4-7pm	Antimicrobial policy and antimicrobial stewardship	Dr.Kamatchi
26.8.2020	4-7pm	Post test	Dr.Abarna.V

Background

Healthcare-associated infection (HCAI) is one of the most common complications of health care management. It is a serious health hazard as it leads to increased patients' morbidity and mortality, length of hospital stay and the costs associated with hospital stay. Effective infection prevention and control is central to providing high quality health care for patients and a safe working environment for those that work in healthcare settings.

The following Hospital Infection Control Policies are needed to be framed and practiced and monitored by the Hospital Infection Control Team (HICT) and Hospital Infection Control Committee (HICC). 1. Guidelines for prevention & control of infections 2. Antimicrobial policy 3. Surveillance policy 4. Disinfection policy 5. Isolation policy 6. Policy for investigation of an outbreak of infection The overall aim of this document is to provide evidence based information in the prevention and control of infection. It is relevant to all staff

including doctors, nurses, other clinical professionals and managers working in the hospital. This document will be updated as and when required.

Infection Control Committee

The Committee is an integral component of the patient safety programme of the health care facility, and is responsible for establishing and maintaining infection prevention and control, its monitoring, surveillance, reporting, research and education. This committee should include wide representation from all relevant disciplines or departments in the facility. The committee has one elected chairperson who is the hospital administrator or a person who has direct access to the head of the hospital. Structure i. Chairperson: Head of the Institute (preferably) ii. Member Secretary: Senior Microbiologist iii. Members: Representation from Management/Administration (Dean/Director of Hospital; Nursing Services; Medical Services; Operations) iv. Relevant Medical Faculties v. Support Services: (OT/CSSD, Housekeeping/Sanitation, Engineering, Pharmacologist, Store Officer / Materials Department) vi. Infection Control Nurse (s) vii. Infection Control officer

2.2 Infection Control Team

The Infection control team should comprise of at minimum an infection control officer, a microbiologist (if ICO is not a microbiologist), and infection control nurse. ICT takes daily measures for the prevention and control of infection in hospital. 6

Responsibilities of the Infection Control Team

- Develop a manual of policies and procedures for aseptic, isolation and antiseptic techniques.
- Carry out targeted surveillance of HAIs, data analysis for presentation in HICC meeting and take corrective steps
- Advise staff on all aspects of infection control and maintain a safe environment for patients and staff.
- Supervise and monitor cleanliness and hygienic practices
- Oversee sterilization and disinfection and monitor the use and quality control of disinfectants
- Advise management of at risk patients and supervision of isolation procedures.
- Investigate outbreaks of infection and take corrective measures for control and prevention of outbreak.
- Waste management
- Provide relevant information on infection problems to management.
- Assist in training of all new employees as to the importance of infection control and the relevant policies and procedures.
- Organize regular training programme for the staff to ensure implementation of infection control practices
- Audit infection control procedures and antimicrobial usage
- Monitors Health care workers safety Programme.

SURVEILLANCE OF HEALTHCARE ASSOCIATED INFECTIONS

Introduction Surveillance is one of the most important components of an effective infection control program. It is defined as the systematic collection, analysis, interpretation, and dissemination of data about the occurrence of HCAs in a definite patient population.

Purpose of Surveillance

1. To establish and maintain a database describing endemic rates of HCAs. Once endemic rates are known then the occurrence of an epidemic can be detected when infection rates exceed baseline values.
2. To identify trends manifested over a finite period, such as shifts in microbial pathogen spectrum, infection rates, etc.
3. To provide continuous observation of HCAs cases for the purpose of prevention and control.
4. To obtain useful information for establishing priorities for infection control activities.

Main components of Surveillance system 1. Definition of HCAI Infections that occur more than 48 hours after admission (It must be taken into account that different infections have different incubation periods, so that each occurrence must be evaluated individually to determine the relationship between its occurrence and hospitalization). Case Definition Each case definition must be standardized and consistent.

ACTIVE SURVEILLANCE

Active surveillance of Healthcare associated Infections (HCAI) Active surveillance shall be done at least for high risk areas.

High risk areas under various setting include:

- Intensive care units (Neonatal ICU, Pediatric ICU, ICUs – CardioThoracic Vascular Surgery, Respiratory infections (H1N1) units).
- Operation Theatres
- Dialysis Unit
- Burns Unit
- Transfusion services unit

- Food handlers
- Drinking water
- Central Sterile Services Department

Operation Theatres No routine fogging is recommended.

Any civil or engineering works should invite fogging of OTs. If Culture swabs and air sampling plates are sent from Operation Theatres for investigating surface contamination and air quality, fogging of OTs may be done on the basis of these reports and/or clinical procedures carried out in the operating areas

Intensive care units Monitoring of device associated infections needs to be done on regular basis.

The basic indicators required to be monitored are ventilator associated pneumonia (VAP), Catheter linked blood stream infections (CLBSI) and catheter associated urinary tract infections (CAUTI). Active surveillance is recommended through the emergence /clustering of positive cultures cases or similar clinical case clustering.

Introduction

The occurrence of two or more similar cases relating to place and time is identified as a cluster or an outbreak and needs investigation to discover the route of transmission of infection, and possible sources of infection in order to apply measures to prevent further spread. If the cases occur in steadily increasing numbers and are separated by an interval approximating the incubation period, the spread of the disease is probably due to person to person spread.

On the other hand if a large number of cases occur following a shared exposure e.g. an operation, it is termed a common source outbreak, implying a common source for the occurrence of the disease.

Epidemiological methods The investigation of an outbreak may require expert epidemiological advice on procedures.

Formulation of a hypothesis regarding source and spread is made before undertaking microbiological investigations in order that the most appropriate specimens are collected.

Steps to be taken to investigate an outbreak

Step 1 • Recognition of the outbreak. Is there an increase in the number of cases of a particular infection or a rise in prevalence of an organism? Such findings indicate a possible outbreak.

- Preliminary investigation must begin by developing a case definition, identifying the site, pathogen and affected population. Define the outbreak in time, person and place.
- Determination of the magnitude of the problem and if immediate control measures are required. If so general control measures such as isolation or cohorting of infected cases; strict hand washing and asepsis should be immediately applied.
- Verification of the diagnosis. Each case should be reviewed to meet the definition.
- Confirmation that an outbreak exists by comparing the present rate of occurrence with the endemic rate should be made.

Step 2

- The appropriate departments, personnel and the hospital administration should be notified and involved.

Step 3

- Additional cases must be searched for by examining the clinical and microbiological records.
- Line listing for every case, patient details, place and time of occurrence and infection details should be developed.
- An epidemic curve based on place and time of occurrence should be developed, the date analyzed, the common features of the cases e.g. age, sex, exposure to various risk factors, underlying diseases etc. should be identified.
- A hypothesis based on literature search and the features common to the cases; should be formulated about suspected causes of the outbreak.

- Microbiological investigations depending upon the suspected epidemiology of the causative organism should be carried out. This will include (a) microbial culture of cases, carriers and environments (b) epidemiological typing of the isolates to identify clonal relatedness.
- The hypothesis should be tested by reviewing additional cases in a case control study, cohort study, and microbiological study.

Step 4

- Specific control measures should be implemented as soon as the cause of outbreak is identified. • Monitoring for further cases and effectiveness of control measures should be done.
- A report should be prepared for presentation to the HICC, 12 departments involved in the outbreak and administration. Immediate control measures Control measures should be initiated during the process of investigation. An intensive review of infection control measures should be made and general control measures initiated at once.

General measures include:

- Strict hand washing
 - Intensification of environmental cleaning and hygiene
 - Adherence to aseptic protocols
 - Strengthening of disinfection and sterilization
- Microbiological Study The study to be carried out to identify possible sources and routes of transmission. The investigation may include cultures from other body sites of the patient, other patients, staff and environment. Careful selection of specimens to be cultured is essential to obtain meaningful data. Specific control measures Specific control measures need to be instituted on the basis of nature of agent and characteristics of the high-risk group and the possible sources.

These measures may include:

- Identification and elimination of the contaminated product
- Modification of nursing procedures
- Identification and treatment of carriers

- Rectification of lapse in clinical technique or procedure Evaluation of efficacy of control measures

- The efficacy of control measures should be evaluated by a continued follow-up of cases after outbreak, as well as microbiologically. Control measures are clinically effective if cases cease to occur or return to the endemic level. The outbreak should be documented and the records should be kept with HICC and should be presented in HICC meeting.

Standard Precautions Standard Precautions are designed to reduce the risk of transmission of micro-organisms from both recognized and unrecognized sources of infection in the hospital. Standard Precautions applies to all patients regardless of their diagnosis.

Standard Precautions shall be implemented when contact with any of the following are anticipated: • Blood

- All body fluids, secretions and excretions, with the exception of sweat regardless of whether or not they contain visible blood.

- Non-intact skin (this includes rashes)

- Mucous membranes

Standard Precautions Requirements

A. Hand hygiene: Pathogenic organisms from colonized and infected patients (and sometimes from the environment) transiently contaminate the hands of staff during normal clinical activities and can then be transferred to other patients. Hand transmission is one of the most important methods of spread of infectious agents in health care facilities. Proper hand hygiene is an effective method for preventing the transfer of microbes between staff and patients. Increasing hand-washing compliance by 1.5 – 2 folds would result in a 25-50-% decrease in the incidence of healthcare associated infections.

Wash hands with plain or antimicrobial soap and water or rub hands with an alcohol-based formulation before handling medication or preparing food (steps shown in figure1 a, b) 14 Five (5) Moments in Hand Hygiene Hand hygiene must be practiced (Figure 2) –

1. Before touching a patient.

2. Immediately before performing a clean or aseptic procedure, including handling an invasive device for patient care, regardless of whether or not gloves are used.
3. Promptly after contact with body fluids, excretions, mucous membranes, non-intact skin, or wound dressings regardless of whether or not gloves were used.
4. After touching a patient and his/her immediate surroundings, even when leaving the patient's side.
5. After contact with inanimate objects (including medical equipment and furniture) in the immediate vicinity of the patient. Perform hand wash when hands are visibly dirty.

Surgical Hand Scrub: 1. Surgical hand scrub with medicated soap or surgical handrub with alcohol-based formulations - Either method is suitable for the prevention of surgical site infection. The combined effect – rapid action at the beginning and inhibition of regrowth of bacteria under the gloved hands – is best achieved by using an alcohol-based compound containing chlorhexidine, or with the addition of a quaternary ammonium compound such as mectronium sulfate.

2. STEPS FOR SURGICAL HAND PREPARATION - Steps before starting surgical hand preparation –

- Keep nails short and pay attention to them when washing your hands – most microbes on hands come from beneath the fingernails.
- Do not wear artificial nails or nail polish.
- Remove all jewellery (rings, watches, bracelets) before entering the operating room suite.
- Wash hands and arms up to elbows with a non-medicated soap before entering the operating room area or if hands are visibly soiled.
- Clean subungual areas with a nail file. Nailbrushes should not be used as they may damage the skin and encourage shedding of cells. Nailbrushes, if used, must be sterile and used only once. Reusable autoclavable nail brushes are available commercially. A. Protocol for surgical scrub with a medicated soap –
- Start timing. Scrub each side of each finger, between the fingers, and the back and front of the hand for two minutes.

- Proceed to scrub the arms, keeping the hand higher than the arm at all times. This helps to avoid recontamination of the hands by water from the elbows and prevents bacteria-laden soap and water from contaminating the hands.
- Wash each side of the arm from wrist to the elbow for one minute.
- Repeat the process on the other hand and arm, keeping hands above elbows at all times. If the hand touches anything except the brush at any time, the scrub must be lengthened by one minute for the area that has been contaminated.
- Rinse hands and arms by passing them through the water in one direction only, from fingertips to elbow. Do not move the arm back and forth through the water.
- Proceed to the operating room suite holding hands above elbows.
- At all times during the scrub procedure, care should be taken not to splash water onto surgical attire.
- Once in the operating room suite, hands and arms should be dried using a sterile towel and aseptic technique before putting on gown and gloves. B. Protocol for surgical scrub with an alcohol-based preparation –
- Start timing. Use sufficient product to keep hands and forearms wet with the handrub throughout the procedure.
- After application of the alcohol-based product, allow hands and forearms to dry thoroughly before donning sterile gloves.
- Proceed to the operating room suite holding hands above elbows.
- If hands are visibly soiled, wash hands with plain soap before surgical hand scrub.
- Training and compliance for hand-hygiene needs to be monitored. Availability of hand rubs, Soaps hand towels and water should be ensured. Foot operated and wall mounted dispensing stations are required. Hand hygiene training programme for doctors, nursing staff, and housekeeping staff needs to be done regularly for each category of staff. Hand hygiene compliance need to be monitored.

B. Personal protective equipment

1. Use of Gloves: Clean gloves must be worn when touching blood, body fluids, excretions, secretions and contaminated items and when performing venipuncture.

2. Face Mask, eye protection & face shield: Face Mask must be worn during procedures or patient care activities that are expected to generate splashes or sprays of blood, body fluids, secretions and excretions. For example, suctioning, irrigating a wound, performing certain laboratory tests, etc. N95 Respirators Respirators are masks specifically designed to filter small particles spread by the airborne route, such as tuberculosis, measles and varicella.

They are used for aerosol generating procedures that have been shown to expose staff, including:

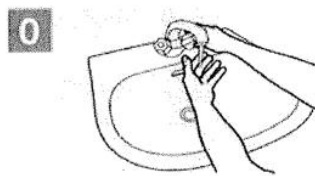
- Sputum induction
- Diagnostic bronchoscopy
- Autopsy examination
- Laboratory handling of Mycobacterium tuberculosis such as concentrating respiratory samples for smear and culture. Staff required to wear N95 Respirators must undergo fitting

3. Gown or Apron: Gown/apron must be worn to protect skin and to prevent soiling of clothing during procedures or patient care activities that are expected to generate splashes or sprays of blood, body fluid, secretions and excretions. Respiratory hygiene/cough etiquette: Instruct symptomatic persons and health care workers to cover their mouths/noses when coughing or sneezing, use and dispose of tissues, perform hand hygiene after hands have been in contact with respiratory secretions and wear surgical mask if tolerated or maintain spatial separation, >3 feet if possible.

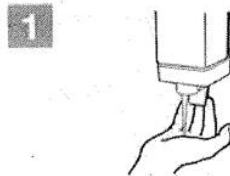
How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the entire procedure: 40-60 seconds



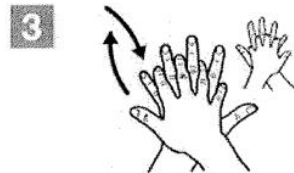
Wet hands with water;



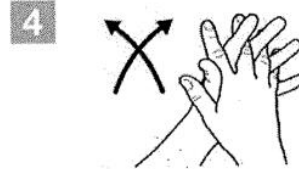
Apply enough soap to cover all hand surfaces;



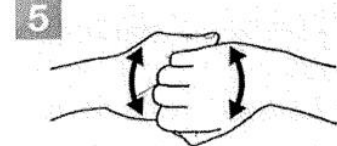
Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



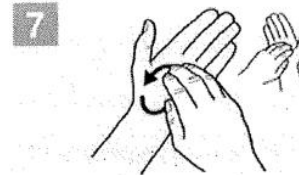
Palm to palm with fingers interlaced;



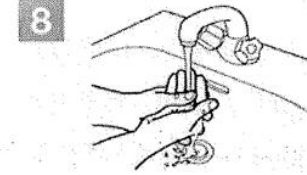
Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



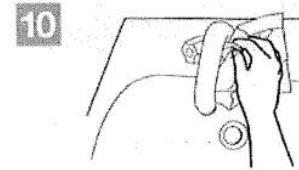
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



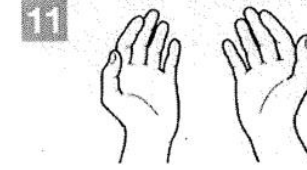
Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.



World Health Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES


Clean Your Hands

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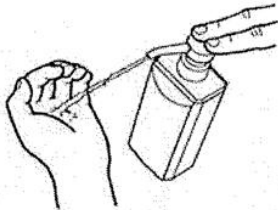
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How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

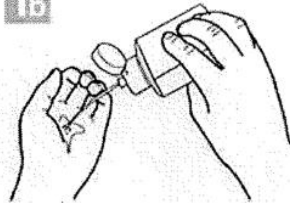
 Duration of the entire procedure: 20-30 seconds

1a

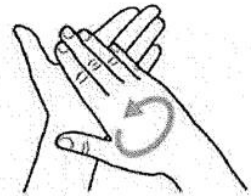


Apply a palmful of the product in a cupped hand, covering all surfaces;

1b

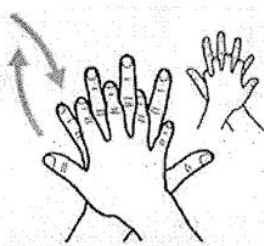


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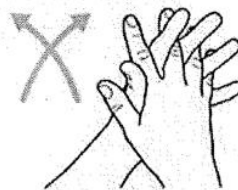
Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4



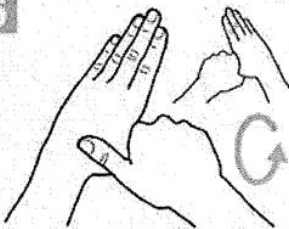
Palm to palm with fingers interlaced;

5



Backs of fingers to opposing palms with fingers interlocked;

6



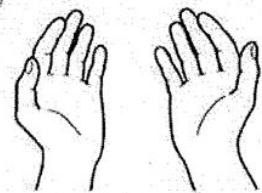
Rotational rubbing of left thumb clasped in right palm and vice versa;

7



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8



Once dry, your hands are safe.



World Health
Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES

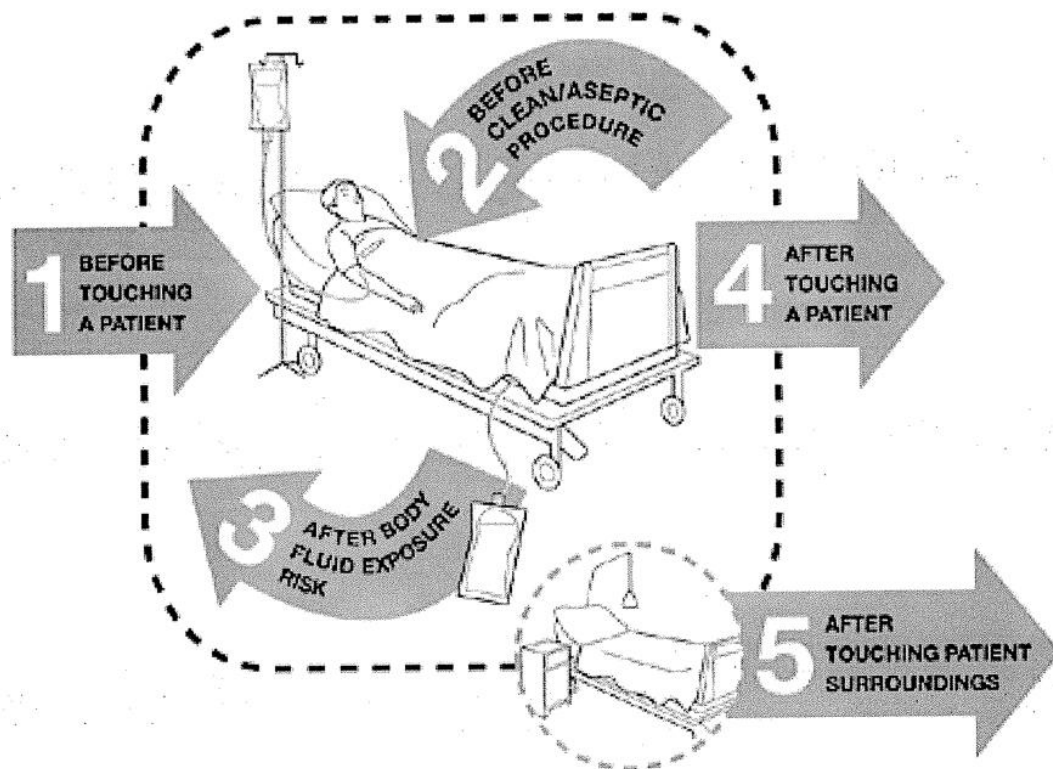
Clean Your Hands

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May 2009

BIHER

SLIMS



PREVENTION OF HEALTHCARE ASSOCIATED INFECTIONS

The four major HCAs are:

1. Catheter associated Urinary tract infection (CAUTI)
2. Surgical site Infection (SSI)
3. Catheter related blood stream infection (CRBSI)
4. Ventilator Associated Pneumonia (VAP)

A. CATHETER-ASSOCIATED URINARY TRACT INFECTION

Introduction

Urinary tract infections (UTIs) are one of the commonest types of HCAs. One of the common reasons is the use of urinary catheters.

Indications for Catheterization

Placement of an indwelling catheter should be performed only when indicated. It should be removed as soon as possible. The accepted indications for catheterization are:

1. Patient requiring prolonged immobilization, such as in the setting of unstable lumbar/thoracic spine injuries, or multiple traumatic injuries including pelvic fracture For short-term (days) management of incontinence (the inability to control urination) needed to assist in healing of sacral or perineal wounds or for retention (the inability to pass urine) not helped by other methods.
2. To measure urine output over several days in critically ill patients
3. For treatment of bladder outlet obstruction
4. For post-operative management of surgical patients with impaired bladder function.

B. SURGICAL SITE INFECTIONS (SSI)

The common source of pathogens is the endogenous flora of the patient's skin, mucous membranes, or hollow viscera. Therefore, the pathogens isolated from infection differ, primarily depending on the type of surgical procedure. In clean surgical procedures, in which the gastrointestinal, gynaecologic, and respiratory tracts have not been entered;

Staphylococcus aureus from the exogenous environment or patient's skin flora is the usual cause of infection. In other categories of surgical procedures, including clean contaminated, contaminated, and dirty, the polymicrobial aerobic and anaerobic flora closely resembling the normal endogenous microflora of the surgically excised organ are the most frequently isolated pathogens. Other sources of SSI pathogens are from distance focus such as in patients with prosthesis or implant place during the surgery, surgical personnel, operating environment, surgical tools, instruments, and materials brought to the field during an operation.

Antimicrobial prophylaxis

1. Administer a prophylactic antibiotic agent only when indicated, and select it based on its efficacy against the most common pathogens causing SSI for a specific operation.
2. Administer by IV route the initial dose of prophylactic antibiotic agent, timed such that a bactericidal concentration of the drug is established in serum and tissues when the incision is made. Maintain therapeutic levels of the agent in serum and tissues throughout the operation and until at most a few hours after the incision is closed in the operating room. In most cases, antibiotic should be given within 60 minutes before the incision and the antibiotics should be stopped within 24 hours after surgery. Microbiological sampling Routine environment sampling of the Operation Room (OR) is not required. Perform microbiologic sampling of OR environment surfaces or air as part of an epidemiologic investigation.

C. VENTILATOR-ASSOCIATED PNEUMONIA

Pneumonia is one of the three most common HCAs. Patients who are mechanically ventilated are at risk for ventilator-associated pneumonia (VAP). Most bacterial nosocomial pneumonias occur by aspiration of bacteria colonizing the oropharynx or upper gastrointestinal tract of the patient. Intubation and mechanical ventilation greatly increase the risk of nosocomial bacterial pneumonia because they alter first-line patient defenses.

Prevention of VAP

1. Adhere to hand-hygiene guidelines.
2. Health-care worker should wear a mask and an apron or gown when anticipates soiling of respiratory secretions from a patient (e.g. intubation, tracheal suctioning, tracheostomy, and

28 bronchoscopy) and change it after the procedure and before providing care to another patient.

3. Elevate the head of the bed 30 – 45 degrees of a patient on mechanical ventilation or at high risk for aspiration (e.g. on oro or nasoenteral tube)

4. Remove devices such as endotracheal, tracheostomy, oro/ nasogastric tubes from patients as soon as they are not indicated.

5. Perform orotracheal rather than nasotracheal intubation unless contraindicated.

6. Use non-invasive ventilation whenever possible.

7. Perform daily assessments of readiness to wean and use weaning protocols. 8. Avoid unplanned extubation and reintubation.

9. Use a cuffed endotracheal tube with in-line or subglottic suctioning.

10. Avoid histamine receptor blocking agents and proton pump inhibitors for patients who are not at high risk for developing a stress ulcer or stress gastritis.

11. Perform regular oral care with an antiseptic solution.

12. Avoid gastric overdistension.

13. Remove condensate from ventilatory circuits. Keep the ventilatory circuit closed during condensate removal.

14. Change the ventilatory circuit only when visibly soiled or malfunctioning. 15. Store and disinfect respiratory therapy equipment properly.

16. Educate healthcare workers who provide care for patients undergoing ventilation about VAP.

Develop a surveillance system to study the incidence of VAP.

1. Conduct active surveillance for VAP in units that care for patients undergoing ventilation who are known or suspected to be at high risk for VAP.

2. Collect data that will support the identification of patients of VAP and calculation of VAP rates.

D. CATHETER-RELATED BLOOD STREAM INFECTIONS

Hand hygiene

1. Observe proper hand hygiene.
2. Palpation of the insertion site should not be performed after the application of antiseptic, unless aseptic technique is maintained.

Aseptic technique during catheter insertion and care

1. Maintain aseptic technique for the insertion and care of intravascular catheters. Wearing clean gloves rather than sterile gloves is acceptable for the insertion of peripheral intravascular catheters if the access site is not touched after the application of skin antiseptics.
2. Sterile gloves should be worn for the insertion of arterial, central, and midline catheters.
3. Change the dressing on intravascular catheters using aseptic technique. Maximal sterile barrier precautions during catheter insertion Use aseptic technique including the use of a cap, masks, sterile gown, sterile gloves, and a large sterile sheet for the insertion of Central venous catheter (CVCs, including peripherally inserted central catheter- [PICC]) or guidewire exchange.

Catheter Site Dressing Regimens

1. Use either sterile gauze or sterile, transparent, semipermeable dressing to cover the catheter site.
2. Replace the catheter site dressing if the dressing becomes damp, loosened, or visibly soiled.
3. Replace dressings used on short-term CVC sites every 2 days for gauze dressings.
4. Replace dressings used on short-term CVC sites at least every 7 days for transparent dressings, except in those pediatric patients in which the risk for dislodging the catheter may outweigh the benefit of changing the dressing.
5. Monitor the catheter sites visually or by palpation through the intact dressing on a regular basis, depending on the clinical situation of individual patients. If patients have tenderness at the insertion site, fever without obvious reasons, or other manifestations suggesting local

or BSI (Blood Stream infections), the dressing should be removed to allow thorough examination of the site. Prevention of CRBSI

1. Select the catheter, insertion technique, and insertion site with the lowest risk for complications (infectious and noninfectious) for the anticipated type and duration of IV therapy.
2. Avoid using the femoral vein for central venous access in adult patients.
3. Use a subclavian, rather than a jugular or a femoral site, in adult patients to minimize infection risk for nontunneled CVC placement.
4. Promptly remove any intravascular catheter that is no longer essential. Do not routinely replace central venous or arterial catheters solely for the purposes of reducing the incidence of infection.
5. There is no need to replace peripheral venous catheters more frequently than 72—96 hours to reduce the risk of infection and phlebitis in adults. Leave peripheral venous catheters in place in children until IV therapy is completed, unless complications (e.g: phlebitis and infiltration) occur.

Develop a surveillance system to study the incidence of CRBSI.

1. Conduct active surveillance for CRBSI in units that care for patients undergoing ventilation who are known or suspected to be at high risk for CRBSI.
2. Collect data that will support the identification of patients of CRBSI and calculation of CRBSI rates.

CLEANING, DISINFECTION AND STERILIZATION

DISINFECTION

Disinfection is a process where most microbes are removed from defined object or surface, except spores.

Disinfectants can be classified according to their ability to destroy different categories of micro-organisms:

- High Level disinfectants : Glutaraldehyde 2%, Ethylene Oxide

- Intermediate Level disinfectant : Alcohols, chlorine compounds, hydrogen Peroxide, chlorhexidine,
- Low level disinfectants : Benzalkonium chloride, some soaps

GENERAL GUIDELINES FOR DISINFECTION:

Critical instruments/equipment (that are those penetrating skin or mucous membrane) should undergo sterilization before and after use. e.g. surgical instruments. Semi-critical instruments /equipments (that are those in contact with intact mucous membrane without penetration) should undergo high level disinfection before use and intermediate level disinfection after use. e.g. endotracheal tubes. Non-critical instruments /equipments (that are those in contact with intact skin and no contact with mucous membrane) require only intermediate or low level disinfection before and after use. e.g. ECG electrodes.

Endoscopes - cleaning and disinfection

1. Clean: mechanically clean internal and external surfaces, including brushing internal channels and flushing each internal channel with water and a detergent or enzymatic cleaners
2. Disinfect: immerse endoscope in high-level disinfectant such as 2% glutaraldehyde and perfuse disinfectant into all accessible channels, such as the suction/biopsy channel and air/water channel and expose for a time recommended for specific products (20 minutes for 2% glutaraldehyde).
3. Rinse: rinse the endoscope and all channels with sterile or filtered water followed by 70-90% ethyl or isopropyl alcohol to remove all traces of disinfectant.
4. Drying: After rinsing, purge the channels using forced air. Hang endoscopes in a vertical position to facilitate drying.

STEAM STERILIZATION

Use biological indicators, such as a commercial preparation of spores of *Geobacillus stearothermophilus*, at least weekly to monitor the effectiveness of steam sterilization.

FOGGING:

In patient care areas regular fogging is not recommended. Necessary decision is taken by in charge of concerned patient care area.

ENVIRONMENTAL SURFACES

Clean housekeeping surfaces (e.g., floors, walls, tabletops) on a regular basis, when spills occur, and when these surfaces are visibly soiled. Disinfect environmental surfaces (e.g., bedside tables, bedrails, and laboratory surfaces) on a regular basis and when surfaces are visibly soiled. Clean walls, blinds, and window curtains in patient-care areas when these surfaces are visibly contaminated or soiled. Decontaminate mops heads and cleaning cloths regularly to prevent contamination (e.g., launder and dry at least daily).

Do not use high-level disinfectants or liquid chemical sterilants for disinfection of non-critical surfaces.

Bedding and blanket

Clean and disinfect mattress impermeable covers. Launder pillow covers, washable pillows, and blankets between patients or when they become contaminated with body substances.

Monitoring of biomedical waste management practices

A person or persons should be designated to be responsible for establishing, monitoring, reviewing, and administering a plan for the collection, handling, predisposal treatment, and terminal disposal of regulated medical wastes.

DEALING WITH SPILLAGE:

a. LIQUID SPILL MANAGEMENT:

1. Promptly clean and decontaminate spills of blood and other potentially infectious materials.
2. Wear protective gloves.
3. Using a pair of forceps and gloves, carefully retrieve broken glass and sharps if any, and use a large amount of folded absorbent paper to collect small glass splinters. Place the broken items into the puncture proof sharps container.
4. Cover spills of infected or potentially infected material on the floor with paper towel/ blotting paper/newspaper. Pour 0.5% freshly prepared sodium hypochlorite. 5. Leave for 30 minutes for contact

6. Place all soiled absorbent material and contaminated swabs into a designated waste container.

7. Then clean the area with gauze or mop with water and detergent with gloved hands. NB: Any material treated with hypo-chlorite solution should never be sent for incineration

b.MERCURY SPILL MANAGEMENT: If accidental spill of mercury occurs it is to be collected in a special manner as follows:

1. Spilled mercury should be collected with a “mercury spill kit”- containing nitrile gloves, N-95 face mask, 2 pieces of cardboards, 2 plastic containers, cello tape, and flashlight.

2. Do not touch mercury.

3. Remove all jewelry, wear gloves, masks.

4. Use flashlight to locate and cardboards to bring mercury beads together.

5. Collect with an eyedropper or a syringe and carefully place it or ‘contain’ in a bottle containing water.

6. Any remaining beads of mercury should be picked up with a sticky tape and place 7. in the plastic bag, properly labeled.

8. The bottle should be sealed with a tape, labeled as hazardous waste and securely stored inside another plastic container; awaiting final disposal to Govt. nominated or authorized mercury dealers.

9. After mercury has been recovered the spill area should be covered with calcium sulfide or sodium thiosulfate to neutralize it.

10. Reporting formats will be used to report and register any mercury spills/leakages.

ANTIMICROBIAL POLICY AND ANTIMICROBIAL STEWARDSHIP

Introduction

The annual antibiogram should be prepared by microbiology department. Antibiotic susceptibility profile may be analyzed regularly and the common resistance patterns of the bacterial isolates to be reported and discussed in the HICC meetings and the antibiotic policy

to be reviewed accordingly. Antibiotic policy need to be prepared in consultation with respective clinical departments.

Antibiotic policy shall be prepared using following general principles:

1. Data is analyzed on a quarterly basis as per hospital records)

(a) Common etiological agents as per

(i) site of infection (ii) age groups (iii) patient location – outdoor (OPD), indoor (wards & critical care areas)

(b) Antibiogram data as per

(i) site of infection (ii) age groups (iii) patient location – outdoor (OPD), indoor (wards & critical care areas)

(c) Unusually resistant organisms to be confirmed and submitted for further characterization to National Centre for Disease Control (NCDC) for

2. Standard treatment guidelines [categorization of patients as 45 per age and Community acquired infections (CAI) / Health care associated infections (HCAI)]

(a) Guidelines for empirical antimicrobial therapy as per common clinical syndrome

(i) Adults & older children

1. Blood Stream Infections (BSI)

2. Meningitis

3. UTI

4. Pneumonia

(a)Community Acquired Pneumonia (CAP) (b)Ventilator Associated Pneumonia (VAP)

5. GIT Infections

6. Conjunctivitis

7. Otitis Media

8. Tonsillitis / Pharyngitis

9. Skin and Soft Tissue Infection (SSTI)

10. Genital Infections

11. Osteomyelitis

(ii) Neonates (special conditions)

1. Sepsis 2. Meningitis

(iii) Infants & Small Children (special conditions)

1. Meningitis

2. Sepsis

3. Pneumonia

(b) Classification of Antimicrobials into first line, second line and reserve group of drugs (c)

Chemoprophylaxis

(i) Pre-operative antimicrobials

(ii) Other invasive procedures

(iii) Special high risk groups e.g. Prophylaxis for rheumatic fever, splenectomy patients, and immuno-compromised patients

(d) Special clinical syndromes (e.g. STIs)

4. Prescription auditing

5. Review of surveillance data generated from antibiograms & prescription auditing.

6. Education and training for all infection control activities in collaboration with the Hospital Infection Control Committee.

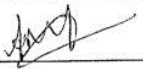
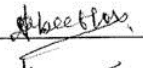
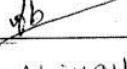
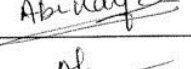
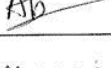
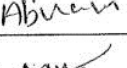

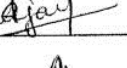

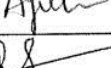
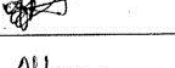
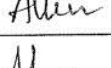





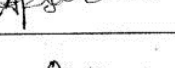
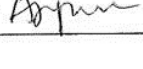
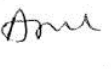
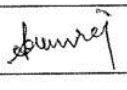
Appropriate antimicrobial use

1. Each health care facility should have an antimicrobial use programme. The goal is to ensure effective economical prescribing to minimize the selection of resistant microorganisms.
2. Formulation of guidelines with a multidisciplinary approach using the local antibiogram.
3. Provide ongoing education on rational use of antibiotics to clinicians and ensure implementation of antibiotic policies.
4. Restricted antibiotic use
5. Use must be justifiable based on clinical diagnosis.
6. Before initiating antibiotic treatment, appropriate specimens for bacteriological examination must be submitted to laboratory and selection of an antibiotic must be based on the sensitivity pattern, patient tolerance, and cost
7. An agent with as narrow a spectrum as possible should be used with appropriate dosage and duration of antimicrobial therapy.
8. The correct dose must be used.
9. Control antibiotic use - Selected antibiotics may be restricted in use. -Cyclic rotation of antibiotics in a class - Discontinuation of antimicrobial therapy based on predefined criteria
10. Carry out periodic prescription audits.
11. Restriction of hospital formulary through pharmacy.
12. Standard and contact Precautions including rigorous adherence to hand hygiene, appropriate use of PPE.

VALUE ADDED COURSE

Certificate course in Hospital Infection Control and MIC01

List of Students Enrolled July 2020- August 2020

2 nd Year MBBS Student			
Sl. No	Name of the Student	Roll No	Signature
1	AASHIK MUKESH. M. S	U14MB201	
2	ABEETHA.M	U14MB202	
3	ABHINAV. S	U14MB203	
4	ABINAYA. M	U14MB204	
5	ABISHEK. R	U14MB205	
6	ABIRAMI. S	U14MB206	
7	AGALYA. S	U14MB207	
8	AJAY PANDIAN. V	U14MB208	
9	AJEETH. R	U14MB209	
10	AJITH KUMAR. M.K.	U14MB210	
11	AKSHAI. S	U14MB211	
12	ALLEN DANIEL XAVIER.J	U14MB212	
13	ALTHAF AHMED	U14MB213	
14	AMARA LOKESH	U14MB214	
15	AMRESH. K	U14MB215	
16	ANANT SURYA. R	U14MB216	
17	ANDREW MARIE XAVIER.V	U14MB217	
18	APSARA. P	U14MB218	
19	ARPUDHA. A	U14MB219	
20	ARUL PRABHA MADHIVADHANI. M	U14MB220	
22	ARUNRAJ. T	U14MB221	

23	ARVIND. M	U14MB222	<i>Ar</i>
24	ASHOK. V.S.I	U14MB223	<i>ASH</i>
25	ASPIN NIVYA. M	U14MB224	<i>Nivi</i>
26	ASWINI @ LAKSHMI.B	U14MB225	<i>Aswin</i>
27	AYYANAN. R	U14MB226	<i>Ayyan</i>
28	AZHARUDDIN. R	U14MB227	<i>Azhar</i>
29	BALAJI. K	U14MB228	<i>B</i>
30	BARATHGANESH. A	U14MB229	<i>Baran</i>

Baran
RESOURCE PERSON

Samadhi
COORDINATOR



**SRI LAKSHMI NARAYANA INSTITUTE OF HIGHER EDUCATION
AND RESEARCH**

Annexure - III

Certificate course in Hospital Infection Control

Questionnaire

Course Code: MIC01

Abeetha M

I. ANSWER ALL THE QUESTIONS

1. Surveillance of healthcare associated infections

- TO provide continuous observation of HCAIs cases for the purpose of prevention & control

2. Standard Precautions Requirements

- Hand hygiene
- PPE
- Gown or Apron
- Mask
- Goggles

3. Antimicrobial policy and antimicrobial stewardship

- Carry out periodic prescription audits.



**SRI LAKSHMI NARAYANA INSTITUTE OF HIGHER EDUCATION
AND RESEARCH**

Annexure - III

Certificate course in Hospital Infection Control

Questionnaire

Course Code: MIC01

I. ANSWER ALL THE QUESTIONS

Arunraj T

1. Surveillance of healthcare associated infections

*Systematic collection, analysis,
Interpretation & dissemination of data
about the occurrence of HCAs*

2. Standard Precautions Requirements

- Hand Hygiene*
- Personal protective equipment*
- mask*

3. Antimicrobial policy and antimicrobial stewardship

*Systematic collection, analysis,
Interpretation & dissemination of data about
the occurrence of HCAs*

Annexure IV

Student Feedback Form

Course Name: **Certificate course in Hospital Infection Control**

Subject Code: **MIC01**

Name of Student: _____

Anuraj T

Roll No.: UU MB221

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance.

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear				✓	
2	Course contents met with your expectations			✓		
3	Lecturer sequence was well planned				✓	
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective				✓	
6	Instructors encourage interaction and were helpful			✓		
7	The level of the course			✓		
8	Overall rating of the course	1	2	3	4	5

* Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2 – Satisfactory; 1 - Not-Satisfactory

Suggestions if any:

Date:

26/8/2020

Anuraj
Signature

Annexure IV

Student Feedback Form

Course Name: **Certificate course in Hospital Infection Control**

Subject Code: **MIC01**

Name of Student: Akshai S Roll No.: U14MB211

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance.

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear			✓		
2	Course contents met with your expectations				✓	
3	Lecturer sequence was well planned			✓		
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective				✓	
6	Instructors encourage interaction and were helpful			✓		
7	The level of the course			✓		
8	Overall rating of the course	1	2	3	4	5

*Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2 – Satisfactory; 1 - Not-Satisfactory

Suggestions if any:

Date:

26.8.2021

Signature





Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research
(Deemed to be University under section 3 of the UGC Act 1956)



CERTIFICATE OF MERIT

This is to certify that Amresh .K has

actively participated in the Value Added Course on **Certificate course in Hospital Infection Control** held during July 2020– August 2020 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.Abarna.V

RESOURCE PERSON

Dr.Kamatchi

COORDINATOR



Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research
(Deemed to be University under section 3 of the UGC Act 1956)



CERTIFICATE OF MERIT

This is to certify that Abhinav.S has

actively participated in the Value Added Course on **Certificate course in Hospital Infection Control** held during July 2020– August 2020 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.Abarna.V


RESOURCE PERSON

Dr.Kamatchi


COORDINATOR