



Advanced Certification in Respiratory Technology - ACRT



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(A Collaborative Certification Program by IARC and ISCCM)

Introduction and Scope of Practice:

The Advanced Certification in Respiratory Technology- ACRT Program is a one year certification program designed to provide opportunities for nurses and other skilled health care professionals to enhance their technical knowledge and skills with respiratory devices and equipment, which will enable them to work with multidisciplinary team of Intensivists, Respiratory Therapists, ICU Nurses and other ICU professionals. The ultimate goal of this program is to develop technical and equipment related skills of general health care providers to function competently in critical care settings. Upon successful completion of the program, the trainees will be awarded ACRT certificate jointly from the IARC & ISCCM.

Program Objectives:

Upon completion of the Advanced Certification in Respiratory Technology- ACRT, the candidates are expected to:

- Assemble, test, and deliver of all Respiratory Care equipment, supplies, devices and consumables.
- Ensure that Respiratory care equipment and consumables are made available and placed for access for staff and patient efficiency.
- Provide technical training for the Clinical staffs, regarding the operational aspects of various Respiratory care equipment and devices.
- Communicate with the vendors regarding the timely delivery of consumables and equipment and maintenance.
- Continuously monitor the units for the timely delivery of equipment as and when needed
- Perform the disinfection and sterilization of all the equipment used, and to keep it ready for next use.
- Demonstrate professionalism in the planning and delivery of patient care at all times.
- Demonstrate the interpersonal and psychomotor skills needed to deliver quality patient care.



- Participate in professional development activities, including self-directed learning and continuing professional education.

The **Advanced Certification in Respiratory Technology (ACRT)** is a one year (1 year) certificate program designed to prepare health care providers, for working in the respiratory care areas of Critical Care. The certification is a joint venture of IARC and ISCCM and follows the entry, coursework and exit requirements as set forth by both the societies.

Aim:

To design and establish a structured Certificate Program for Health Care Professionals to advance their skills in the areas of respiratory technology.

Need of the Program:

There is a huge gap in the ICU, when it comes to the areas of technical aspects of respiratory equipment and devices. There is a paucity of trained technical staffs, who can meet the demand of clinical staffs in ICU. Not many of the staffs are able to solve the crisis of timely delivery of consumables and calibrated and disinfected equipment, when and where it is required. A trained health care professional specialized in respiratory technology is expected to bridge the aforementioned gap in the technical areas of ICU.

Duration of the Program:

One year

Mode of Study:

Residential, Full time

Entry Requirements:

- ✓ A graduation/ diploma in any allied health specialty or nursing.



- ✓ On the Job Trainees with minimum 5 years of experience in the critical care units – certified by the head of the department endorsed by the hospital administration.
- ✓ Associate Membership in IARC
- ✓ Associate Life Membership in ISCCM

Important Information:

- 1) The trainee shall abide by the regulations and obligations established by the Indian Association of Respiratory Care (IARC) and Indian Society of Critical Care Medicine (ISCCM).
- 2) Training is a full-time commitment. The trainee shall be enrolled on a full-time, continuous basis for the entire duration of the program.
- 3) The training will be comprehensive in the specialty of the respiratory technology.
- 5) The Trainee and Certificate holder is **strictly prohibited** from using the credential of **RT or Respiratory Therapist**
- 7) The awarding body holds all rights to cancel/ withdraw the certification and credential, if noticed that the certification is used or misused for the purpose of seeking job for the position of Respiratory Therapist or mentioning wrongly as Respiratory Therapist.

Training Centre:

All Critical Care Medicine Departments, accredited or approved by ISCCM and IARC, as training centers, with ISCCM/ IARC accredited Faculties. It is mandatory that the training center shall be an approved/ accredited center by either one of the two societies.

Entry Criteria:

Upon the interview conducted by the Hospital HR personnel and Head of the Department of ICU, opted by the candidate, where he/ she want to pursue the Certification.

Certification Fee:

INR 10000/- (Rupees Ten Thousand only)

***Stipend:***

As per the Hospital policy

Log Book:

All the candidates are expected to have a logbook, in which the cases seen, procedures assisted and calibrations performed shall be noted, and to be signed by the designated faculty assigned by the Head of the Department. Faculty should be the in-charge of monitoring and reviewing this logbook and provide continuous feedback to the trainee.

Research and Journal Clubs:

- All the candidates are encouraged to attend a research module during the initial three months of certification (Either Online/ Onsite).;
- All Candidates are expected to actively participate in the ICU journal club with Case Presentations, Article Critique and Literature Reviews- All these need to be entered in the Logbook, countersigned by the Head of the Department/ Assigned Faculty.

Additional Requirements:

Attendance of ISCCM Annual National Conference, during the Certificate period	Mandatory
Attendance of IARC Annual National Conference, during the Certificate period	Mandatory
Completion of One Online Course conducted by IARC and ISCCM	Mandatory

Attendance Requirements:

48 hours per week x 48 weeks in one calendar year; or, As per the Hospital Policy, as reported by the Head of the Department of ICU.

Leaves:

As per the Hospital Policy



Certification Coursework:

- ✓ Attendance requirement, as per the policy of department/ hospital
- ✓ Completion of Logbook, signed by the Head of the Department/ Assigned Faculty
- ✓ Case Study Publication
- ✓ Certificate of Attendance- IARC and ISCCM National Conferences
- ✓ Certification of completion of one online course, each by IARC and ISCCM
- ✓ Completion of competency checklist, countersigned by the Head of the Department/ Assigned Faculty (Mandatory)

Assessment:

Overall, the evaluation and assessment of trainees is carried out in accordance with the examination rules and regulations, as set by IARC and ISCCM.

Assessment is divided into two parts:

1. Continuous Evaluation Process

- a.* Feedback from the assigned preceptor or faculty head this feedback should be obtained and documented every month and as needed.
- b.* Case study evaluation and Technical competency

2. Exit Exam

Upon the successful completion of certification Program, the candidate will have an exit exam, comprising of Theory and Practical evaluation.

- Theory: Objective MCQ
- Practical Examination- by External Examiners, assigned by IARC and ISCCM

Accreditation of certification:

- Indian Association of Respiratory Care
- Indian Society of Critical Care Medicine

Certification Board:

The board will also act as the grievance cell.



Program Director- ISCCM		Dr. Shyam Sunder T.	
Program Director- IARC		Dr. Manjush Karthika	
Coordinator- IARC		Mr. M. Kishore Kumar	
Head of the Department of ICU opted by the candidate			
ACRT Board Members- ISCCM		ACRT Board Members- IARC	
1.		1.	Dr. Sudhesh Rao- (Mangalore)- Advisor
2.		2.	Ms. Madhura Gauri Shevade (Pune)
3.		3.	Ms. Anmol Thorbole (Bengaluru)

Teaching Methodology:

- ✓ Classroom Lectures
- ✓ Laboratories
- ✓ Computer assisted interactive instructional programs
- ✓ Weekly reading assignments
- ✓ Webinars
- ✓ Presentations
- ✓ Group discussion of case studies

Award of Certification:

Upon the successful completion of certification coursework and final exit exam, the candidate will be announced to have cleared the “**Advanced Certification in Respiratory Technology- ACRT**”. The certification will be conferred to the candidate in the **National Conference of ISCCM**, in the presence of Board of Certification Program and representation from both the societies.

Mandatory Disclosures:

- The Trainees are not permitted to undergo/ study any Full-time University-based Academic Programs (Masters, PG Diploma etc.) while pursuing the Fellowship Program.
- The Advanced Certification in Respiratory Technology- (ACRT) is a Certification Program to enhance the technical skills of Healthcare Professionals and **is not a replacement for/ equivalent to Certification/ Diploma/ Bachelor Degree/ Master Degree/ Fellowship Programs offered in Respiratory Therapy**, offered by any UGC approved Indian Universities/ Foreign Universities or by any societies.
- The certification is not awarded by any University.
- The certification only aims to enhance the Technical skills of trained health care provides/ on the job trainees with specific years of experience to support teamwork of ICU Workforce.
- **The Certified professionals are not eligible to add or use the credential of Respiratory Therapist (RT) or Respiratory Care Specialist in any form.**



ACRT – Curriculum

Module	1
Title	Introduction to Respiratory Technology
Duration	Four months

Basic Life Support Certification

- The candidates are expected to obtain BLS certification from American Heart Association, within a month of commencement of certification program.
- Those candidates, who already have the BLS certification, are expected to have its validity till the completion of certification program.

Applied Cardiopulmonary Anatomy and Physiology

This Course aims to provide the trainee with basic knowledge of the applied anatomy and physiology of the cardiopulmonary system. Study units will include topics on cardiopulmonary anatomy and physiology and its applied areas in ICU. The topics include Thoracic Cavity, Upper and Lower Respiratory Airways, Ventilation, Oxygen and Carbon Dioxide Transport, Control of Ventilation etc.

Basics of Microbiology

This course gives the candidates an extensive overview about classification of microorganisms, pathogens involving respiratory tract, Mycobacterium and common gram negative bacteria, Methods of sterilization and disinfection, Disinfection of respiratory equipment's, Infection control – Meaning, methods of transmission of diseases.

Respiratory Technology I

This course deals about indications, calibration, setting up, cleaning and disinfection of the following; Medical gas and Medical Gas Pipelines, Oxygen Flow meters, Humidifiers, Heat & Moisture Exchanger, Heated Humidifier, Defibrillators, Capnography, Pulse Oximeter, Cuff Pressure manometer, Peak Expiratory flow meter



Module	2
Title	Infection Control Practices
Duration	Four months

Sterilization and Disinfection of Respiratory Equipment: This course will detail the various types of Sterilization and Disinfection techniques in ICU. The candidates are expected to; understand to sterilize instrumentation and equipment through a series of critical steps; understand microbiology and infection control as it pertains to sterile processing and decontamination procedures; implement infection control practices to ensure that patients avoid infections; provide instrumentation and equipment access to doctors, nurses and allied health professionals as required

Infection Control and Infectious diseases: The candidates are expected to understand various diseases caused by bacterial, fungal and viral organisms and the modes of disease transmission that includes; the infectious agent, reservoir, portal of exit, mode of transmission, portal of entry, and susceptible host. They are also expected to understand defence mechanisms like passive and active, including immunoglobulins, complement, macrophages and pyrexia.

Respiratory Technology II: This course deals about indications, calibration, setting up, cleaning and disinfection of the following; AMBU, BAINS circuit, Spirometer, Artificial airways – Basic & Advanced, Various routes of O₂ administration, Aerosol therapy, Nebulizer – Jet, Ultrasonic and ICD.



Module	3
Title	Advanced Respiratory Technology
Duration	Four months

Advanced Respiratory Technology, including Oxygen Therapy and Humidification.

This course deals about indications, calibration, setting up, cleaning and disinfection of the following; ABG Analyser, NIV, Ventilator, O2 Analyser, ETCO2, Laryngoscope, Bronchoscope etc. This module will also include application of medical gas delivery devices such as Oxygen masks, High flow oxygen devices etc. Also briefly describe the specifications of gas sources like cylinders and hospital gas storage and delivery system. The candidates are expected to be exposed in the indications, contraindication and complications of these medical gases. The candidates are also expected to learn various types of humidification devices and its care and trouble shooting in respiratory critical care.

Property Control, Inventory Management and Procurement Process in Respiratory Department

This course includes an overview of inventory management and updates. This course also covers the importance of keeping an accurate inventory, purchase of equipment's and consumables, tagging & capturing equipment transactions, managing ICU inventory, annual physical inventory and property disposal procedures and requirements. By the end of this course the technician will have a strong understanding of inventory management skills and will be much more able to handle procurement tasks professionally.

Disaster Management, Ethics, Quality and Safety

This module details the ethical concepts and conflicts, commonly seen in critical care areas, including patient autonomy, informed consent, end of the life care, withdrawal of life support, and organ donation. This module will also cover the importance of multidisciplinary team performance and important components of healthcare quality and patient safety and the importance of effective disaster management plan in ICU.

Competency Checklist



Name of the Candidate: _____

Procedure	Date	Date
OBTAINING AND RECORDING		
Universal Precautions		
Hand washing		
Isolation Techniques		
Infectious/Hazardous Waste Disposal		
Supply/Equipment Disposal		
Proper use of specific barrier, methods: Gloves, Gown, Mask/Goggles		
Assisting Code Team		
Assessing Vital signs		
Mouth Care		
Positioning the Patient		
Managing Equipment dispatch and Supply		
Applying Oximeter/ Pulse Oximeters (SpO ₂)		
Use, and troubleshooting alarms; Bed, Patient, Unit		
Disinfection of respiratory care equipment		
Calibration and preparation of ventilators		
Trouble shooting ventilator alarms		
Blood gas machine / calibration & maintenance		
Carbon Dioxide Module (CO ₂), EtCO ₂ calibration and maintenance		
Defibrillator		
Fiberoptic Light Sources		
Maintain annual test equipment calibration and records		
Arterial Sampling and Analyzing		
Defibrillators		
Bag Valve and Mask		
Oxygen Therapy Devices; Masks, Nasal Cannulas, Ventury Masks		
Safe handling, cracking and operation of oxygen cylinders		
Humidification Therapy devices and maintenance		
Aerosol Therapy equipment & disinfection		
BHT Equipment maintenance		
Suctioning the airway; Oropharyngeal and nasopharyngeal		
Cuff manometer		
Preparing the Intubation kit/trolley		
Preparing the equipment for extubation		
Preparing the tracheostomy/and decannulation		
Preparing the equipment for thoracostomy		



Preparing for arterial line insertion/removal		
Preparing for chest tube insertion/removal		
Preparing the equipment for transporting the ventilated		
Preparing the equipment for transporting respiratory patient		
Schedule Planned Maintenance		
Inventory – Addition, Deletion, Modification		

- All the Respiratory Technology candidates are strictly expected to complete the competency checklist on a weekly basis, and get it countersigned by Assigned Respiratory Therapist of the Department or by the Assigned Faculty

Name and Signature of the Assigned Faculty_____

Date of Completion: _____

Remarks: _____

Reference Resources:

Copyrighted Material



Books
10. Egan's Fundamentals of Respiratory Care- RM Kacmarek
11. Mechanical Ventilation: Clinical Application- V Deshpande
12. ICU Protocols- R Chawla (ISCCM)
13. Clinical Application of Mechanical Ventilation- D Chang
14. Mosby's Respiratory Care Equipment- JM Cairo
Journals
7. Indian Journal of Critical Care Medicine (ISCCM)
8. Indian Journal of Respiratory Care (IARC)
9. Respiratory Care Journal (AARC)
10. Clinical Practice Guidelines (CPGs) - AARC
11. Intensive Care Medicine Journal (ESICM)
12. Canadian Journal of Respiratory Therapy (CSRT)

Contact Details:	
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