INDIAN DIPLOMA IN PEDIATRIC CRITICAL CARE NURSING

Duration: One Year

Hours of instruction
Theory: 150 hours
Practical: 950 hours
Total: 1100 hours

Course description:

This course is designed to assist in developing expertise and in-depth knowledge in the fields of pediatric critical care nursing. It will help nurses to develop advanced skills for nursing intervention in caring for critically ill children. It will enable the student to function as pediatric critical care nurse.

Objectives: At the end of the course the students will be able to

1. Appreciate trends and issues related to pediatric critical care nursing.
2. Describe the epidemiology, etiology, pathophysiology and diagnostic assessment of critically ill children.
3. Describe the various drugs used in critical care and nurse's responsibility in using them.
4. Perform physical, psychosocial and spiritual assessment.
5. Demonstrate advance skills/competence in managing critically ill children including pediatric advanced life support.
6. Demonstrate skill in handling various equipments/gadgets used for critical care.
7. Provide comprehensive care to critically ill children.
8. Appreciate team work and coordinate activities related to patient care.
9. Practice infection control measures.
10. Access and manage pain.
11. Identify complications and take appropriate measures.
12. Discuss the legal and ethical issues in critical care nursing.
13. Assist patients and their family to cope with emotional distress, grief and anxiety.
14. Assist in various diagnostic, therapeutic and surgical procedures.
15. Incorporate evidence based nursing practice and identifies the areas of research in the field of pediatric critical care nursing.

16. Identify the sources of stress and manage burnout syndrome among health care providers.
17. Teach and supervise nurses and allied health workers.
18. Design a layout of PICU and develop standards for critical care nursing practice.

THE PROGRAMME MAY BE OFFERED AT

A) Level III PICU (recognized by IAP – PCC)

B) Existing recognized units for PICU fellowships

RECOGNITION PROCEDURE

Application should be made in prescribed form to College of Pediatric Critical Care.

STAFFING

1. Full time teaching faculty in the ratio of 1:4
   Qualification: GNM / B.Sc / M.Sc Nursing
   Experience: Minimum 3 years in pediatric / Adult critical care (Faculty having teaching experience in critical care will be preferred)
2. Other faculty – Pediatric Intensivist

PHYSICAL FACILITIES

1. Class room – 1
2. Nursing Laboratory – 1
3. Library – Permission to use medical/hospital library having current nursing textbooks & journals in pediatric and neonatal nursing.
4. Teaching Aids – Facilities for the use of
   - LCD projector
   - Computer
   - Equipment or demonstration of skills (neonatal/child manikins, ambubag and mask, care equipment etc.)
5. Office facilities :
   - Facilities for office, equipment and supplies, such as
     -Stationery
     -Computer with printer
     -Xerox machine
     -Telephone and fax

CLINCIAL FACILITIES

- Minimum Bed strength : PICU beds : $\geq$ 6 excluding HDU
- The PICU must have infection control program (Infection control team, and various policies and activities demonstrating active Infection control activities. This will give the student nurses proper opportunity to learn about this crucial aspect of care)
- The PICU must participate in Quality control activities towards patient and employee safety issues.(Various activities like collecting important Quality indicators and their analysis on regular intervals must be demonstrated. Important Quality indicators are

Risk adjusted mortality rates, Incidence of Needle stick injuries, Incidence of decubitus ulcers, incidence of VAP, incidence of CRBSI etc).This will provide the student nurses a great opportunity to learn aspects of personal and patient safety.

ADMISSION TERMS AND CONDITIONS

The student seeking admission to this course should:

1. Be a registered nurse (R.N & R.M.) or equivalent (GNM / BSC)
2. Be physically fit.
3. Selection of candidate after taking interview locally
4. No Of candidates : maximum 8 depending upon the teaching faculty and institute's resources

FEES STRUCTURE

- Application fees for accreditation of unit – Rs. 5000/- to be paid by Institute
- Fees to be paid to PCCC – Rs. 2500/- by student
- Examination fees – Rs. 2500/- per student
- Fees to be charged by Institute –Nil
- Stipend and accommodation as per the norms of the Institute

ORGANIZATION OF THE COURSE

DURATION: Duration of the course is one academic year

EXAMINATION SCHEME

	Total Marks	**Duration (In hours)**
A. Theory Paper	100	3
B. Practical Clinical Nursing (Teaching & supervision to be integrated)	100	
Grand Total	**200**	

Eligibility for Examination

1. Minimum 75 % attendance is must to appear in the examination.
2. The student must participate in at least one research project. This project can be just an observational study , case series or a proper research. The main area to be covered should be patient safety, infection control, Nursing issues or clinical issue. This will help develop scientific temper in the student and help the organization in coming out with some interesting studies and data.This study should be shown by the student to the examiners at the time of their practical exams and some marks be allotted to this activity separately in the practical exam.

EXAMINATION

The examination is to be conducted by the IAP (ICC)-ISCCM

STANDARD OF PASSING

1. In order to pass a candidate should obtain at least 50% marks. Those who will be passed in the theory examination will be allowed to appear in practical examination.
2. Students will be given opportunity of maximum of 3 attempts for passing

CERTIFICATION

A. TITLE **– Diploma in Pediatric Critical Care Nursing**
B. Diploma is awarded upon successful completion of the prescribed study programme, which will state that

i) Candidate has completed the prescribed course of pediatric critical care Nursing.
ii) Candidate has completed prescribed clinical experience
iii) Candidate has passed the prescribed examination.

Academic posting

- Minimum 40 weeks in PICU AND 12 Weeks(in emergency ward and / or NICU (If available)

Course content:

Unit	Hours	Content
I	5	**Introduction to pediatric critical care nursing** • Historical review-progressive patient care (PPC) • Review of anatomy and physiology of vital organs, fluid and electrolyte balance • Concepts of critical care nursing. • Principles of critical care nursing. • Scope of critical care nursing • Critical care unit set up including equipments supplies, use and care of various type of monitors and ventilators. • Flow sheets.
II	10	**Concept of holistic care applied to critical care nursing** • Impact of critical care environment on patients: • Risk factors, assessment of patients, critical care psychosis, prevention and care for the patients' family and family teaching. • Stress and burn out syndrome among health team members.
III	15	**Review** • Pharmacokinetics • Analgesics/anti-inflammatory agents • Antibiotics. Antiseptics • Drug reaction and toxicity • Drugs used in critical care unit (inclusive of inotropic, life

		saving drugs) • Drugs used in various body systems • IV fluids and electrolytes • Blood and blood components • Principles of drug administration, role of nurses and care of drugs.
IV	5	**Pain management** • Pain and sedation in critically ill children • Theories of pain, types of pain, pain assessment, systemic responses to pain • Pain management-pharmacological and non-pharmacological measures Placebo effect
V	5	**Nutritional management** • Calculating calories and protein intake in children. • Feeding through NG tubes • Feeding in various conditions • Management of total parental nutrition
VI	5	**Infection control in pediatric intensive care unit** • Nosocomial infection in PICU, MRSA, disinfection, sterilization, standard safety measures, staff prophylaxis • Care of the skin, mouth hygiene, Blood stream infections, catheter related infections, ventilation associated pneumonias, needle stick injuries
VII	10	**Gastrointestinal system** • Causes, pathophysiology, clinical types, clinical features, diagnosis, prognosis, management: medical, surgical and nursing management of : severe dehydration, acute diarrheal disease, acute GI bleeding, abdominal trauma, hepatic failure with encephalopathy, acute intestinal obstruction, peritonitis.
VIII	10	**Renal system** • Causes, pathophysiology, clinical types, clinical features, diagnosis, prognosis, management: medical, surgical and nursing management of: acute renal failure, chronic renal failure, bladder trauma. • Management modalities: peritoneal dialysis, CVVH
IX	10	**Nervous system** • Causes, pathophysiology, clinical types, clinical features, diagnosis, prognosis, management: medical, surgical and nursing management of: common neurological disorders- acute pyogenic meningitis, acute encephalitis, metabolic encephalopathy, cerebrovascular accidents, LGBS, coma, persistent vegetative state, head injury, spinal cord injury. • Management modalities: assessment of intra cranial pressure, management of intracranial hypertension. • Problems associated with neurological disorders: thermoregulation, unconsciousness, herniation syndrome.
X	5	**Endocrine system** • Causes, pathophysiology, clinical types, clinical features,

		diagnosis, prognosis, management: medical, surgical and nursing management of: hypoglycemia, diabetic ketoacidosis, adrenal crisis, syndrome of inappropriate secretion of anti-diuretic hormone.
XI	15	**Management of other emergency conditions:** • Mechanism of injury, thoracic injuries, abdominal injuries, pelvic fractures, complications of trauma, head injuries. • Shock- shock syndrome, hypovolemic, septic, cardiogenic, anaphylactic, neurogenic. • Systemic inflammatory response-multi organ dysfunction syndrome. • Disseminated intravascular coagulation • Drug overdose and poisoning • Acquired immunodeficiency syndrome (AIDS) • Eye injuries, ear nose throat-foreign bodies, stridor, bleeding, acute allergic condition • Crisis intervention
XII	18	**Cardiovascular emergencies** • Principles of nursing in caring for patients with cardiovascular disorders. • Assessment: cardiovascular system: heart sounds, diagnostic studies, cardiac enzymes, ECG monitoring. • Causes, pathophysiology, clinical types, clinical features, diagnosis, prognosis, management: medical, surgical and nursing management of: hypertensive crisis, cardiomyopathy, heart block, congenital heart diseases, cardiac arrhythmias, congestive heart failure, CPR, including BLS and PALS. • Management modalities: cardioversion, defibrillation.
XIII	15	**Respiratory system** • Acid base balance and imbalance. • Assessment: history and physical examination • Diagnostic tests: pulse oximetry; end tidal CO2monitoring, ABG studies, chest xray interpretation. • Causes, pathophysiology, clinical types, clinical features, diagnosis, prognosis, management: medical, surgical and nursing management of: pneumonia, foreign body, stridor, Bronchiolitis, status asthmaticus, pleural effusion, pneumothorax, chronic lung disease, pulmonary edema, acute respiratory failure, ARDS, chest trauma, hemothorax, pneumothorax. • Management modalities: airway management • Ventilatory management: invasive, non-invasive ventilation. • Bronchial hygiene: nebulisation, chest physiotherapy, intercostals drainage, suction procedure.

XIV	8	**Burns** • Clinical types, classification, pathophysiology, clinical features, assessment, diagnosis, prognosis, management : Medical, Surgical & Nursing management of burns • Fluid and electrolyte therapy – calculation of fluids and its administration • Wound care • Infection control • Prevention and management of burn complications
XV	10	**Neonatal emergencies** Causes, pathophysiology, clinical types, clinical features, diagnostic, prognosis, management : medical, surgical and nursing management of • Neonatal emergencies: Asphyxia neonatorum, pathological jaundice in neonates, neonatal seizures, metabolic disorders, intra cranial hemorrhage, neonatal sepsis, RDS/HMD • Congenital disorders :-Cyanotic heart disease, tracheo oesophageal fistula,
XVI	2	**Legal and ethical issues in critical care-Nurse's role** • Brain death • Organ donation & counseling Do not resuscitate (DNR)
XVII	2	**Quality Assurance** • Standards, protocols, policies, procedures as per NABH guidelines • Infection control; Standard safety measures • Nursing audit • Staffing

Procedures Assisted

2. Pediatric Advanced life support system
3. Basic life support
4. Arterial line/arterial pressure monitoring/blood taking
5. Arterial blood gas
6. ECG recording
7. Blood transfusion
8. IV cannulation therapy
9. Arterial Catheterization
10. Chest tube insertion
11. Endotracheal intubations
12. Ventilation – conventional and high frequency, Nitric Oxide therapy if availability in unit
13. Insertion of central line/cvp line
14. Connecting lines for dialysis

Procedures Performed

1. **Airway management**
    a. Application of oropharyngeal airway
    b. Oxygen therapy
    c. CPAP (Continuous positive airway pressure)
    d. use of LMA
    e. Care of tracheostomy
    f. Endotracheal intubation

2. Cardiopulmonary resuscitation, Basic cardiac life support, ECG
3. Monitoring of critically ill patients – clinically with monitors, capillary refill time (CRT), ECG
4. Gastric lavage
5. Assessment of critically ill children:
   Identification & assessment of risk factors, Glasgow coma scale and dolls eye movement, arterial pressure monitoring.
6. Admission & discharge of critically ill patients.
7. Nutritional needs – NG feeds, gastrostomy feeds, jejunostomy feeds, TPN, formula preparation and patient education.
8. Assessment of patient for alteration in blood sugar levels monitoring blood sugar levels periodically and administering insulin periodically.
9. Administration of drugs: IM, IV injection, IV cannulation & fixation of infusion pump, calculation of dosages, use of insulin syringes/tuberculin, monitoring fluid therapy, blood administration.
10. Setting up dialysis machine and starting, monitoring and closing dialysis.
11. Procedures for prevention of infections :
    Hand washing, disinfection & sterilization surveillance, and fumigation universal precautions.
12. Collection of specimen.
13. Setting, use & maintenance of basic equipment, ventilator, O2 analyzer, monitoring equipment, transducers, defibrillator, infusion & syringe pumps, centrifuge machine.