wjpmr, 2022, 8(11), 194-197

SJIF Impact Factor: 5.922

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Review Article

ISSN 2455-3301

WJPMR

STAFFING, POLICIES, PROTOCOLS AND NORMS OF PEADIATRIC INTENSIVE CARE UNIT (PICU)

***Shaista Mir**

PG Obstetrics & Gynaecological Nursing SKIMS, Soura Srinagar Kashmir.

***Corresponding Author: Shaista Mir**

PG Obstetrics & Gynaecological Nursing SKIMS, Soura Srinagar Kashmir.

Article Received on 20/09/2022 **Article Revised on 10/10/2022** **Article Accepted on 30/10/2022**

ABSTRACT

A paediatric Intensive Care unit usually abbreviated to **PICU** is an area within a hospital specializing in the care of critically ill infants, children and teenagers. PICU was first established in Goran Haglund in 1995. In 196, John Downes established the first PICU in North America at the Children's Hospital of Philadelphia The establishment of these two units would eventually lead to hundreds of PICUs. This number is still increasing in present day. The PICU will care for patients that are typically aged between birth up until their sixteenth birthday, diagnosed with (but not exclusive of); life-threatening potentially recoverable conditions, post-operative patients who may benefit from close nursing or technical support, and children with chronic complex medical co-morbidities which exceed the capabilities of other clinical care areas within the hospital. There will be instances where an adolescent aged 16 and over will be admitted to the PICU, where the transition to the specific adult services has not taken place. It is also widely recognised that end of life care, including potential organ donation and family bereavement counselling, are skills integral to the care of critically ill child, and are facilitated within the PICU.

KEYWORDS: Picu, Norms, Policies, Protocols, Staffing pattern.

Definition: A paediatric Intensive care unit (PICU) is a specialised facility within a hospital charged with the care of infants and children which is staffed by a specialist team and is designated to provide an increased level of detailed clinical observation, invasive monitoring, focused interventions and technical support to facilitate the care of critically ill paediatric patients over an indefinite period of time.

NORMS OF PICU

Structure

1. The Hospital Board in conjunction with the Medical Director of PICU, specify the catchment population for the service and any inclusions/exclusions in terms of age and conditions of children to be admitted.
2. The Clinical director will provide overall management and leadership of the unit and ensure compliance with best practice.
3. The Clinical Director of PICU should have clearly defined administrative time, to enable them to manage the Unit and engage with hospital management in determining use of critical care resources.

Minimum Requirements

1. A self contained area with easy access to Theatre, Accident and Emergency and Radiology.
2. Ambulance and / or helicopter access.
3. Appropriate design that provides adequate space for delivery of patient care, parental accommodation, clinical supplies storage, pharmacy, equipment preparation and storage, clinical staff (on-call) accommodation, administration, education and research.
4. A near patient testing laboratory, within the unit, for measuring time –sensitive commonly requested biochemical and haematological assays such as blood gas analysis, glucose, lactate and electrolytes.
5. There should be appropriate quantity and quality of medical equipment (including single use disposable equipment) which cater to the specific needs of the critically ill infants, children and adolescents.
6. Drugs and equipment checks should be carried out on a regular basis in line with hospital policy and vendor specifications, supplemented by any formally agreed recommendation in line with best international practice.

Access to other Specialities

1. Co – location with Paediatric Anaesthesia, Paediatric Surgery, Orthopaedic, ENT, Radiology, Cardiology, Cardio – Thoracic Surgery, Neurosurgery, Haematology, Respiratory Medicine, Nephrology, Neurology, Metabolic Medicine, Endrocinology, Major Trauma e.g maxillo-facial and plastic surgery.

2. Access as required to Infectious Diseases, Immunology, Urology, Gastro-enterology and Genetic Medicine

Clinical Governance

1. Data collection on all referrals to PICU, including patients who are not admitted and their eventual destination and clinical outcome.
2. Publication of key outcome and performance indices, such as standardised mortality and morbidity ratio, nosocomial infection rate.

3. If possible average occupancy on the unit should not exceed 85%.
4. Compilation of an annual report summarising activity, quality assurance initiatives and clinical outcomes with identified action plans required to meet expected standards.
5. Critical incident and process-of-care review and reporting structure.

POLICIES OF PICU

1. Admission policy

A formal policy for admission and discharge of patients must be adopted. All referrals to the Pediatric intensive Care Unit shall be discussed with the Pediatric Intensivist or Pediatrician in charge.

Admission criteria for PICU

a. Intensive Care Dependent Therapy

• Ventilation; invasive and non-invasive
• Tracheostomy
• Continuous Venovenous Haemofiltration
• Acute hemodialysis/ plasmapheresis
• Vasoactive drug infusion
• Initiation of IV thrombolytic therapy

b. Invasive monitoring

• Invasive haemodynamic monitoring and intracranial pressure monitoring.

c. Risk of critical event

• Respiratory failure
• Upper & Lower airway obstruction
• Acute encephalopathy and GCS <10
• Severe polytrauma
• Risk of life threatening event; apnea and arrhythmia
• Severe metabolic, fluid and electrolyte derangement
• Sepsis and shock
• Post- operative care for high risk patients
• Progressive neuro-muscular disorders
• Malignancies with acute illness

2. Discharge Policy

Discharge criteria for PICU

- Patients are discharged when their need for intensive treatment, intensive monitoring is no longer present and there is no risk of deterioration or any active interventions required.
- The patient may be discharged to the Pediatric High Dependency Unit or general ward depending on the condition of the patient and the bed situation.
- The decision to discharge a patient will be the responsibility of the paediatric intensivist.
- The discharge summary has to be completed prior to transfer out of the patient to the wards.
- At the time of discharge, there must be complete handover of the patient to the ward doctors and nurses by the PICU doctors and nurse respectively

3. Policy regarding Death in the PICU

- The confirmation of death shall be done by the PICU medical officer.
- The paediatric intensivist / paediatrician and the primary unit doctor on duty shall be informed of the death as soon as possible.
- Death certificate and burial permit shall be signed by the primary unit and in the event of medico legal cases requiring post mortem by the forensic doctor.
- All medico legal cases should be notified to the police by the ICU staff.

4. Referral and Transfer Policy

Inter Hospital Transfer

• Patients who are referred to PICU where a bed is not available, shall then be referred to another PICU in the region. The coordinator shall be the PICU team.

Intra Hospital Transfer

• In the event that there is no critical care bed available within the hospital facility, provision to transfer the patient to another hospital facility shall be arranged.

5. Therapeutic Policies

- To avoid confusion and in the interests of training, a consistent approach to common therapeutic procedures should be adopted within the unit.
- For example, insertion of a chest drain should be carried out in the prescribed manner in all patients, unless there is a special reason for not doing so.
- The actual writing of prescriptions should preferably be the responsibility of the intensive care resident. A standard handbook describing these policies should be readily available to all staff.

6. Investigational Policies

- Uniform procedures should be adopted for routine investigations.
- The arrangements for collecting, transmitting and reporting on laboratory samples must be fast, reliable and clearly understood. Laboratories should give appropriate priority to samples from ICUs.

7. Infection Control policy

With the concurrence of the consultant microbiologist and infection control team, infection control procedures should be agreed and enforced regarding:
a) antibiotic policy

b) clothing of staff and visitors
c) hand washing
d) sterilisation
e) aseptic precautions for invasive procedures
f) use of disposables
g) filtering of patients' respired air
h) changing of catheters, humidifiers, ventilator tubing and other equipment
I) isolation of at-risk or infected patients
j) cleaning of the unit
i) Local procedures should be agreed and documented.

PROTOCOLS OF PICU

protocols for emergency care of children are not limited to but should include the following:

1. Illness and injury triage
2. Pediatric assessment
3. Proper hand washing before and after each procedure
4. Physical or chemical restraint of patients
5. Safe surrender and child abandonment
6. Consent (including situations in which a parent is not immediately available)
7. Do not resuscitate orders
8. Death in the ED(Emergency Department) to include SIDS (Sudden infant death syndrome) and care of the grieving family.
9. Procedural sedation
10. Radiation dosage protocol
11. Scheduled resuscitation medication and supply inventory check
12. Immunization status
13. Mental health emergencies

14. Family Centered Care protocol, including:
a. Education of the patient, family, and regular caregivers
b. Discharge planning and instruction
c. Family presence during care

15. Communication with patient's primary health care provider
16. Pain assessment and treatment

17. Disaster preparedness plan that addresses the following pediatric issues:
a. A plan to minimize parent-child separation and improved methods for reuniting separated children with their families.
b. A plan that addresses pediatric surge capacity for both injured and non-injured children.
c. A plan that includes access to specific medical and mental health therapies, as well as social services, for children in the event of a disaster.
d. Decontamination

18. Medication safety protocols:
a. Record all weights in kg
b. Process to solicit feedback from staff including reporting of medical error
c. Involvement of families in the medication safety process
d. Medication orders are clear and unambiguous
e. Proper documnentation before and after giving medication.

STAFFING PATTERN OF PICU

1. Medical Staffing

- There should be a nominated ***Medical Director*** for the unit who with the Unit Manager is responsible for ensuring training, protocols, policies, guidelines and audit are in place.
- Paediatric Critical Care ***Consultants*** appointed should have registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in the speciality of Paediatric Anaesthesia, Anaesthesia, Paediatrics, Emergency Medicine or Paediatric Surgery and two years post specialist training in a recognised paediatric critical care medicine training programme.
- All Paediatric Critical Care consultants should have regular day-time commitments on the Paediatric Critical Care Unit.
- A minimum of two ***resident doctors*** should be on duty in an ICU.
- All medical staff working on the unit should have training in Advanced Paediatric Life Support.
- The medical staff should be round the clock ***post graduate level pediatrician*** in PICU with good airway and pediatric advanced life support skills and active PALS certification.

2. Nursing Staff

PICU nursing represents a specific body of knowledge that can be achieved through education, training, guidance, and supervision. Programmes such as the PCCU Foundation and Post– Graduate programme in PCCU facilitate nursing competence from Novice to Competent. The nursing personnel in PICU should have a primary degree in nursing or a related subject, or hold an equivalent level 8 qualification.

- ✓ ***Head Nurse/ Supervisor*****:** one head nurse with full time appointment in ICU. The head nurse is assisted by one senior nurse who is among the senior nursing staff of ICU and also experienced.
- ✓ ***Incharge Nurse*****:** One Incharge nurse must be on duty per shift in an ICU. Also assisting head nurse when required.
- ✓ ***Other Nursing Staff***
- A ventilated patient needs one pediatric/ICU trained nurse by the bed side.
- A very unstable patient (hypotensive/ hypoxemic patient despite moderate support) may require two nurses by the bed side.
- Other unventilated/relatively stable patients (such as post operative patients and ones admitted for overnight observation) may require only one nurse per 2-3 patients

3. Ancillary Staff

- Respiratory Therapists,
- Nutritionist
- Physiotherapist
- Technicians, Computer programmer,
- Biomedical Engineer, and
- Clinical Pharmacist
- Social worker or counsellor
- Other support staff. Like cleaning staff, guards and Class IV employee.

REFERENCES

1. DNV Consortium –"Right Place, Right Place, Right Time"; Advise on the Development of Paediatric Critical Care Facilities and Services in the Dublin Childrens' Hospitals Between Now and the Completion of the National Paediatric Hospital. July 2008.
2. HBN 57 – Facilities for Critical Care Published by NHS estates.
3. HBN 23 – Hospital accommodation for children and young people. Published by NHS estates.
4. IC-1. Minimum Standards for Intensive Care Units. Revised 2003. College of Intensive Care Medicine of Australia and New Zealand.
5. Infection Prevention and Control Building Guidelines for Acute Hospitals in Ireland. Strategy for the Control of Antimicrobial Resistance in Ireland (SARI). 2008. Published by HSE Health Protection Surveillance Centre.
6. National Standards for Adult Critical Care Services. Joint Faculty of Intensive Care Medicine 2011.
7. The Paediatric Intensive Care Society – Standards for the Care of Critically Ill Children, 4th Edition 2010.
8. American Academy of Pediatrics, Committee on Pediatric Emergency Medicine and American College of Emergency Physicians, Pediatric Committee. Care of Children in the Emergency Department: Guidelines for Preparedness. *Pediatrics,* 2001; 107: 777-781.