HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Pediatric Intensive Care Unit (PICU)		
Document:	Departmental Policy and Procedure		
Title:	Pediatric Intensive Care Unit Admission Criteria		
Applies To:	All Pediatric Intensive Care Unit Staff		
Preparation Date:	January 12, 2025	**Index No:**	PICU-DPP-001
Approval Date:	January 26, 2025	**Version :**	2
Effective Date:	February 26, 2025	**Replacement No.:**	PICU-DPP-001 (1)
Review Date:	February 26, 2028	**No. of Pages:**	6

1. PURPOSE:

1.1 To provide a reference for admitting critically ill Pediatric patient.
1.2 To set standards for admission of patients to Pediatric Intensive Care Unit (PICU).
1.3 To facilitate the patient with potentially recoverable conditions who can benefit from more detailed observation and invasive treatment.

2. DEFINITONS:

2.1 **DNR or Do Not Resuscitate** – means that all procedures for resuscitation are not initiated; i.e. in the event of cardiopulmonary arrest, do not call the CPR Team, or initiate chest compression, defibrillation, cardioversion, intubations, ventilation, or administer advanced cardiac life support medications. Other supportive measures to maintain the patient's comfort that have been administered before cardiopulmonary arrest may be given.
2.2 **Anoxic Brain Damage** – due to insufficiency of oxygen delivery to the brain.
2.3 **Coma** – is a state of extreme unresponsiveness, in which an individual exhibits no voluntary movement or behavior. Furthermore, in a deep coma, even painful stimuli (actions which, when performed on a healthy individual, results in reactions) are unable to affect any response, and normal reflexes may be lost.
2.4 **Vegetative State** – a condition caused by injury, disease or illness in which a patient has suffered a loss of consciousness, with no behavioral evidence of awareness of self or surroundings in a learned manner, other than reflex activity of muscles and nerves for low level conditioned response; and from which to a reasonable degree of medical probability, there can be no recovery.

3. POLICY:

3.1 The admission criteria are laid down for the establishment of the standards for all the staff in hospital and pediatric intensive care units.
3.2 Criteria Models (based on diagnosis or objectives parameters) and prioritization schemas are established for patient selection for PICU admission. Before any consultation for any admission to PICU.

4. PROCEDURE:

4.1 Most responsible physician or team member sends consultation to PICU admission of the patient if he/she finds the patient's critically ill.
4.2 PICU physician after accepting the consultation examines the patient and assesses his/her condition whether it lies in any of the following admission criteria, defined by the objective parameters or diagnostic models.
4.2.1 **Objective Parameters Model:**
4.2.1.1 Vital signs with no response to emergency treatment:
4.2.1.1.1 Pulse rate less than 60 or more than 190bpm with poor perfusion.

4.2.1.1.2 Systolic arterial pressure less than 5th percentile of the patient's blood pressure.
4.2.1.1.3 Diastolic arterial pressure more than 90th percentile.
4.2.1.1.4 Respiratory rate more than 60 breaths per minute with signs of respiratory distress.
4.2.1.1.5 Shallow breathing and/or apnea.

4.2.1.2 Laboratory Values:
4.2.1.2.1 Serum Sodium <110mEq/L or >170mEq/L.
4.2.1.2.2 Serum Potassium <2.0mEq/L or >7.0mEq/L in patients without dialysis catheter or with hemodynamic instability.
4.2.1.2.3 PaO_2 < 50mmHg on FIO_2 >0.5 = SPO_2 <92% or FIO_2 >0.5.
4.2.1.2.4 pH<7.1 or >7.7.
4.2.1.2.5 Serum glucose >800mg/dl and less than 60 mg/dl.
4.2.1.2.6 Serum calcium >15mg/dl and serum calcium <6mg/dl with clinical signs.
4.2.1.2.7 Toxic level of drugs or other chemical substance in a hemodynamically or neurologically compromised patient.

4.2.1.3 Radiography/ ultrasonography/tomography/ (newly discovered).
4.2.1.3.1 Ruptured viscera, bladder, liver, esophageal varices with hemodynamic instability.

4.2.1.4 Physical Findings (acute onset).
4.2.1.4.1 Unequal pupils in an unconscious patient.
4.2.1.4.2 Anuria in the presence of functioning catheter in the bladder with acute renal failure complications.
4.2.1.4.3 Airway obstruction.
4.2.1.4.4 Coma.
4.2.1.4.5 Status epilepticus not responding to ER management.

4.2.2 Diagnosis Model:

4.2.2.1 Pulmonary System:
4.2.2.1.1 Acute respiratory failure requiring ventilator support.
4.2.2.1.2 Pulmonary emboli with hemodynamically instability.
4.2.2.1.3 Patient in an intermediate care unit who are demonstrating respiratory deterioration.
4.2.2.1.4 Hemoptysis with respiratory failure.
4.2.2.1.5 Newly place tracheostomy with or without the need for mechanical ventilation.
4.2.2.1.6 Acute barotrauma compromising the upper and lower airway.

4.2.2.2 Neurological Disorders:
4.2.2.2.1 Acute stroke with altered mental status.
4.2.2.2.2 Coma: metabolic, toxic or anoxic.
4.2.2.2.3 Intracranial hemorrhage with potential for herniation.
4.2.2.2.4 Acute subarachnoid hemorrhage (SAH).
4.2.2.2.5 Meningitis with altered mental status or respiratory compromise.
4.2.2.2.6 Central nervous system or neuromuscular disorders with deteriorating neurological or pulmonary function.
4.2.2.2.7 Status epilepticus.
4.2.2.2.8 Progressive neuromuscular dysfunction with or without altered sensorium requiring cardiovascular monitoring and/or respiratory support.
4.2.2.2.9 Spinal cord compression or impending compression.
4.2.2.2.10 Placement of external ventricular drainage device (in acute phase).

4.2.2.3 Drug Ingestion and Drug Overdose:
4.2.2.3.1 Patient with history of drug overdose or drug ingestion who presented with:

4.2.2.3.1.1 Hemodynamic instability.
4.2.2.3.1.2 Deterioration of level of consciousness with threatened airway.
4.2.2.3.1.3 Seizures.
4.2.2.3.1.4 Serious side effect which need close monitoring.

4.2.2.4 Gastrointestinal Disorders:
4.2.2.4.1 Gastrointestinal bleeding with hypotension.
4.2.2.4.2 Fulminant hepatic failure.
4.2.2.4.3 Severe pancreatitis.
4.2.2.4.4 Perforated viscous with or without mediastinitis.

4.2.2.5 Endocrine/Metabolic:
4.2.2.5.1 Diabetic ketoacidosis complicated by hemodynamic instability, altered mental status respiratory insufficiency or severe acidosis.
4.2.2.5.2 Thyroid storm or myxoedemic coma with hemodynamic instability.
4.2.2.5.3 Severe hypercalcemia with altered mental status or requiring hemodynamic monitoring/hypocalcemia.
4.2.2.5.4 Hyponatremia or hypernatremia with seizures or altered mental status.
4.2.2.5.5 Hypomagnesemia or hypermagnesemia with hemodynamic compromise or dysrhythmias.
4.2.2.5.6 Hypokalemia or hyperkalemia with dysrhythmias.
4.2.2.5.7 Hypophosphatemia with muscular weakness.
4.2.2.5.8 Hypoglycemia or hyperglycemia requiring intensive monitoring.
4.2.2.5.9 Complex intervention required to maintain fluid balance.
4.2.2.5.10 Severe metabolic acidosis requiring bicarbonate infusion, intensive monitoring or complex intervention.
4.2.2.5.11 Inborn errors of metabolism with acute deterioration requiring respiratory support, acute dialysis, management of intracranial hypertension, inotropic support.

4.2.2.6 Cardiovascular System:
4.2.2.6.1 Shock.
4.2.2.6.2 Post cardiopulmonary resuscitation.
4.2.2.6.3 Life – threatening dysrhythmias.
4.2.2.6.4 Unstable congestive heart failure, with or without need for mechanical ventilation.
4.2.2.6.5 Congenital heart disease with unstable cardiorespiratory status.
4.2.2.6.6 After high – risk cardiovascular and intrathoracic procedures.
4.2.2.6.7 Need for monitoring or arterial, central venous, or pulmonary artery pressures.
4.2.2.6.8 Need for temporary cardiac pacing.
4.2.2.6.9 Need for continuous IV infusion of inotrope or vasopressor.

4.2.2.7 Hematology/Oncology:
4.2.2.7.1 Patients with life threatening or unstable hematologic or active life threatening bleeding. Conditions include, but not limited to:
4.2.2.7.1.1 Exchange transfusions.
4.2.2.7.1.2 Plasmapheresis or leukopheresis with unstable clinical condition.
4.2.2.7.1.3 Severe coagulopathy with high risk of bleeding.
4.2.2.7.1.4 Severe 00000anemia resulting in hemodynamic and/or respiratory compromise.
4.2.2.7.1.5 Severe complications of sickle cell crisis, such as neurologic changes, acute chest syndrome, or anemia with hemodynamic instability.

4.2.2.7.1.6 Initiation of chemotherapy with anticipated tumor-lysis syndrome.

4.2.2.7.1.7 Tumors or masses compressing or threatening to compress vital vessels, organs, or airway.

4.2.2.8 Renal System:

4.2.2.8.1 Patients with life – threatening or unstable renal disease. Conditions include, but are not limited to:

4.2.2.8.1.1 Acute renal failure requiring close monitoring or special intervention with hypertensive encephalopathy, pulmonary edema requiring ventilator support, hyperkalemia with arrhythmia, severe metabolic acidosis with coma, failure of airway protective reflexes.

4.2.2.8.1.2 Requirement for acute hemodialysis, peritoneal dialysis, or other continuous renal replacement therapies in the unstable patient.

4.2.2.8.1.3 Acute rhabdomyolysis with renal insufficiency.

4.2.2.9 Multisystem and other:

4.2.2.9.1 Patient with life – threatening or unstable multisystem disease. Conditions include, but are not limited to:

4.2.2.9.1.1 Toxic ingestions and drug overdose with potential acute decompensation of major organ systems.

4.2.2.9.1.2 Multiple organ dysfunction syndrome.

4.2.2.9.1.3 Suspected or documented malignant hyperthermia.

4.2.2.9.1.4 Electrical or other household or environmental (e.g. lightning) injuries.

4.2.2.9.1.5 Burn covering >10% of body surface.

4.2.2.10 Special intensive technologic needs:

4.2.2.10.1 Conditions that necessitate the application of special technologic needs, monitoring, complex intervention, or treatment including medications associated with the disease that carry some risk on the patient well – being and exceed individual patient care unit policy limitations.

4.2.2.11 Miscellaneous:

4.2.2.11.1 Septic shock with hemodynamic instability.

4.2.2.11.2 Environmental injuries (near drowning, hypo/hyperthermia).

6.3 The PICU physician considers following factors when assessing suitability for admission to intensive care:

6.3.1 Diagnosis
6.3.2 Severity of illness
6.3.3 Age
6.3.4 Coexisting disease
6.3.5 Physiological reserve
6.3.6 Prognosis
6.3.7 Availability of suitable treatment
6.3.8 Response to treatment to date
6.3.9 Recent cardiopulmonary arrest
6.3.10 Anticipated quality of life

6.4 Prioritization:

6.4.1 PICU provides services that include both intensive monitoring and intensive treatment for patient with actual or potential vital system failures. During times of high utilization and scarce beds, patients requiring intensive treatment have priority over monitoring. PICU physician must consider one of the given models for patient selection for admission to PICU according

to prioritization schema. Prioritization of patient requiring intensive care services are listed by clinical examples:

6.4.1.1 Priority 1: critically ill, unstable patients in need of life – saving intensive treatment and nursing care such as ventilator support, vasoactive drugs, aggressive volume resuscitation, etc. no limits are placed on therapy. Examples include:

6.4.1.1.1 Hypoxic or hypercapnic respiratory failure requiring mechanical ventilation, aerosol treatment frequency every hour or less and/or supplemental oxygen of 100% by no rebreathing mask. These patients include those with impending failure.

6.4.1.1.2 Endocrine emergencies such as severe diabetic ketoacidosis requiring insulin infusion or adrenal insufficiency with hemodynamic instability.

6.4.1.1.3 Shock states of any kind as defined by inadequate tissue organ oxygen delivery.

6.4.1.1.4 Acute neurologic events requiring frequent neurological or respiratory checks to evaluate progression.

6.4.1.1.5 Continuous veno – venous hemofiltration (CRRT).

6.4.1.1.6 Complicated cardiac events requiring thrombolytic therapy, temporary pacing and/or hemodynamic or electrophysiological stabilization.

6.4.1.1.7 Patients for post – operative care when underlying background illness can be exacerbated and continue to a post – operative complication.

6.4.1.2 Priority 2: critically ill patient whose hemodynamic, respiratory and neurologic states are stable. Example include:

6.4.1.2.1 Acute GI bleed at risk for re – bleed.

6.4.1.2.2 Drug overdose inpatients whose hemodynamic, respiratory and neurologic states are stable.

6.4.1.3 Priority 3: critically ill patients with chronic illness with or without superimposed acute illness that because of limited physiologic reserve, are less likely to survive or be benefited greatly from intensive care. Care may be limited to supportive and comfort measures. Their need may be for more intensive nursing care delivery rather than acute medical care.

6.5 Exclusion Criteria for PICU admission:

6.5.1 Patient shall also be assessed according to exclusion criteria, as it is not appropriate to admit the patient to PICU in the following conditions:

6.5.1.1 Patients for whom there is no anticipated benefit from PICU care and for whom active intervention can be undertaken in the ward or in an intermediate care unit e.g. end stage cardiomyopathy, drug overdose with preserved consciousness, etc.

6.5.1.2 Patients who decline intensive care or invasive maneuver and who are to receive comfort care only.

6.5.1.3 Patient with terminal and irreversible illness facing imminent death.

6.5.1.4 Patient in persistent in a persistent vegetative state (PVS) or who are persistently unconscious, etc.

6.5.1.5 Patient with do not resuscitate (DNR) status.

5. MATERIALS AND EQUIPMENT:

N/A

6. RESPONSIBILITIES:

6.1 Head of the Department
6.2 Primary Consultant or Team
6.3 PICU Physician

7. APPENDICES:

7.1 N/A

8. REFERENCES:

8.1 Saudi Critical Care Society
8.2 Guidelines for Adult Intensive Care, Ministry of Health, 2013.
8.3 Directorate of Health Affairs Holy Capital, Maternity and Children Hospital, 1438.

9. APPROVALS:

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