

## GOALS AND OBJECTIVES OF THE PICU

**Patient Care: Provide family centered care that is developmentally and age appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.**

**Goal 1. Use a logical and appropriate approach to the assessment and daily management of seriously ill pediatric patients and their families, under the guidance of an intensivist, using evidence-based decision-making and problem solving skills.**

1. Demonstrate the ability to perform an age-appropriate history and physical on patients admitted to the PICU. (PL 1,3)
2. Demonstrate the ability to carefully collect data in the PICU (PL 1, 3) and synthesize it appropriately. (PL 3)
3. Demonstrate the ability to write appropriate admission orders for patients admitted to the PICU with varying medical problems listed below (see medical knowledge). (PL1, 3)
4. Demonstrate the ability to formulate carefully thought out daily care plans. (PL 3)
5. Develop and maintain a detailed problem list (PL 1, 3) with accurate prioritization. (PL 3)
6. Coordinate with multiple consultants involved in the care of the patient. (PL 1 ,3)
7. Show good clinical judgment and decision-making skills. (PL 1, 3)
8. Be able to formulate careful discharge plans on patients leaving directly to home from the PICU, including orders, patient education, and follow-up. (PL 1, 3)
9. (PL 1, 3)
10. Be able to write appropriate transfer summaries on patients leaving the PICU to go to the ward. (PL 1,3)
11. Recognize the limits of one's knowledge, skills, and tolerance for stress level; ask for help as needed. (PL 1,3)

**Goal 2. Recognize the critically ill patient and initiate appropriate stabilization and/or resuscitative measures.**

1. Explain and perform steps in resuscitation and stabilization, particularly airway management, volume replacement, and resuscitative pharmacology. (PL 1, 3)
2. Describe the common causes of acute deterioration in the previously stable patient in the PICU. (PL 1, 3)
3. Function appropriately in codes and resuscitations as part of the PICU team. (PL 3)
4. Explain how to stabilize and manage pediatric patients requiring transport to the PICU. (PL 3)

**Goal 3. Understand how to use the physiologic monitoring, special technology and therapeutic modalities used commonly in the intensive care setting. (PL 1, 3)**

1. Demonstrate understanding of the monitoring techniques and special treatments commonly used in the PICU by being able to:
  - a. Discuss indications, contraindications and complications.

- b. Have a basic understanding of the general techniques (ie. Seldinger technique for central venous line placement).
- c. Interpret the results of monitoring
- 2. Use appropriately the following monitoring techniques in the ICU under the supervision of an intensivist:
  - a. Central venous pressure monitoring.
  - b. Invasive arterial blood pressure monitoring.
  - c. Intracranial pressure monitoring.
  - d. End-tidal carbon dioxide monitoring.
- 3. Utilize appropriately or be familiar with the following treatments and techniques in the ICU, including monitoring effects and anticipating potential complications specific to each therapy:
  - a. Oxygen administration by cannula, masks, hood.
  - b. Positive pressure ventilation including less invasive modalities such as BiPAP/CPAP.
  - c. Principles of ventilator management, intubation and extubation procedures and criteria.
  - d. Analgesics, sedatives, and paralytics.
  - e. Enteral and parenteral nutrition.
  - f. Vasoactive drugs (pressors and inotropes)

**Medical Knowledge: Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.**

**Goal 1. Evaluate and manage, under the supervision of an intensivist, common signs and symptoms seen in critically ill infants, children and adolescents in the intensive care setting. (PL 1, 3)**

- 1. Cardiovascular: Acute life-threatening event, bradycardia, cardiopulmonary arrest, congestive heart failure, cyanosis, hypertension, hypotension, poor capillary perfusion, rhythm disturbances, tachycardia.
- 2. Endocrine: Signs and symptoms suggestive of hypo- and hyperglycemia and adrenal insufficiency/crisis.
- 3. GI: Abdominal distension, hematemesis and melena, icterus, peritoneal signs, vomiting.
- 4. Hematologic: Pallor, petechiae, purpura, uncontrolled bleeding.
- 5. Infectious diseases: Endotoxic shock, fever.
- 6. Neurologic: Acute weakness, altered mental status, coma, delirium, encephalopathy, seizures, tetany.
- 7. Renal: Anuria, hematuria, oliguria, polyuria, severe electrolyte disturbances.
- 8. Respiratory: Apnea, cyanosis, dyspnea, hemoptysis, hypercarbia, hyperpnea, hypoxemia, increased or decreased respiratory effort, poor air movement, pulmonary edema, respiratory failure, stridor, tachypnea, wheezing.

**Goal 2. Recognize and manage, under the supervision of an intensivist, conditions that commonly present to the intensive care unit, using consultation when appropriate. (PL 1, 3)**

- 1. Evaluate and manage, under the supervision of an intensivist, patients with conditions that present commonly to the ICU:
  - a. General: Burns, common intoxications, drug overdose, shock, inhalation injury, malignant hyperthermia, non-accidental trauma, submersion

- injury, toxic or caustic ingestion or inhalation injury, toxic shock syndrome.
- b. Allergy/Immunology: Anaphylaxis
- c. Cardiovascular: Arrhythmias, congestive heart failure, cyanotic congenital heart disease, myocarditis/cardiomyopathy
- d. Endocrine: diabetes insipidus and adrenal insufficiency/crisis, DKA, hypo- and hyperglycemia, SIADH
- e. Fluids/metabolic: Inborn errors of metabolism, severe dehydration, severe acid-base disturbances, severe electrolyte disturbance.
- f. GI: Acute abdomen, acute GI bleeding, hepatic dysfunction, pancreatitis.
- g. Surgery: Postoperative management.
- h. Hematologic: Anemia, DIC, DVT, neutropenia, sickle crisis, thrombocytopenia, tumor lysis syndrome.
- i. Infectious Disease: Encephalitis, botulism, meningitis, nosocomial infections, sepsis.
- j. Neurologic: Increase ICP, cerebral edema, CVA, encephalopathy, Guillain-Barre, head injury, spinal muscular atrophy, status epilepticus.
- k. Pulmonary: ARDS, epiglottitis, pulmonary edema, pneumothorax, respiratory failure, severe croup, status asthmaticus, upper airway obstruction.
- l. Renal: Acute renal failure, HUS.

**Goal 3. Utilize common diagnostic tests and imaging studies appropriately in the ICU, obtaining consultation as indicated for interpretation of results.**

1. Demonstrate understanding of common diagnostic tests and imaging studies used in the PICU by being able to:
  - a. Explain the indications for and limitations of each study. (PL 1, 3)
  - b. Know or be able to locate readily age-appropriate normal ranges. (PL 1, 3)
  - c. Apply knowledge of diagnostic test properties, including the use of sensitivity & specificity to assess the utility of tests in various clinical settings. (PL 3)
  - d. Discuss cost and utilization issues. (PL 3)
  - e. Interpret the results in the context of the specific patient. (PL 1, 3)
  - f. Discuss therapeutic options for correction of abnormalities. (PL 1, 3)
2. Use appropriately the following laboratory and imaging studies when indicated for patients in the PICU setting: (PL 1, 3)
  - a. CBC with diff, platelet count
  - b. Blood chemistries
  - c. Renal function tests
  - d. Tests of hepatic function and damage
  - e. Serologic tests for infection
  - f. CRP, ESR
  - g. Therapeutic drug concentrations
  - h. Coagulation studies
  - i. Arterial, capillary, and venous blood gases
  - j. Detection of bacterial, viral, and fungal pathogens.
  - k. Urinalysis
  - l. CSF analysis
  - m. Gram stain
  - n. Stool studies
  - o. Toxicologic screens/drug levels

- p. CXR, abdominal series, skeletal survey
- q. CT scans of abdomen, chest, and head
- r. MRI

**Goal 4. Describe the following procedures, including how they work and when they should be used. (PL 1, 3)**

1. Conscious sedation & pain management
2. Arterial puncture.
3. Cardioversion/defibrillation.
4. Central line use and care and placement.
5. Chest physiotherapy.
6. Chest tube placement and thoracentesis.
7. Endotracheal intubation.
8. Intraosseous line placement.
9. Lumbar puncture.
10. Seldinger technique.
11. Tracheostomy tube: replacement and suctioning.
12. Bag-valve-mask ventilation.
13. Initiation of ventilation.

**Interpersonal and Communication Skills: Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families, and professional associates.**

**Goal 1. Provide effective and sensitive communication with families of patients in the PICU setting. (PL 1, 3)**

1. Share information with the patient and family in a way that enhances their understanding of the problem and management plan, and include them in the decision-making to the extent that they desire.
  - a. Assess the family's understanding of the problem and desire for more information
  - b. Regard the physician-patient relationship as a partnership and respect the families' participation in decision-making
  - c. In giving explanations, use words that are easy to understand and avoid medical jargon. Answer the families' questions.
  - d. Identify and enlist resources and supports as appropriate.
2. In discussions with the family, elicit and respond to their perspective.
3. Develop awareness of one's personal reactions to patients and families, recognize when one's own emotional reactions may interfere with communication, and handle these properly
4. Understand and communicate effectively and empathically with families in the given special circumstances:
  - a. Giving bad news about a patient's illness
  - b. Discussing end-of-life issues
  - c. Dealing with the "difficult" family
  - d. Talking with families with language barriers or different cultural or religious perspectives
  - e. Discussing substance abuse issues

**Goal 2. Function effectively as part of an interdisciplinary team member in the PICU to create and sustain information exchange and team work for patient care. (PL 1, 3)**

1. Communicate and work effectively with:
  - a. Members of an interdisciplinary health care team
  - b. Specialists/ Consultants
  - c. Support and administrative staff
  - d. Surgeons and other specialists who manage children in the PICU
2. Work collaboratively as a member of the health care team:
  - a. Know the various roles of the team members and utilize their skills appropriately
  - b. Demonstrate an appreciation of and respect for the contribution of each team member
  - c. Serve as a team member or team leader in the appropriate situations
  - d. Participate in family conferences.
3. Communicate effectively to transfer information and responsibility at the time of sign-in, sign-out, and change of service
4. Communicate effectively in the following contexts:
  - a. Oral case presentations
  - b. Written, dictated, and computerized medical records

**Goal 3. Maintain accurate, timely, and legally appropriate medical records in the setting of the PICU. (PL 1, 3)**

1. Including:
  - a. History
  - b. Appropriate physical examination
  - c. Problem list or working differential, and final diagnoses
  - d. Initial and updated plans
  - e. Procedure notes
  - f. Results of studies ordered
  - g. Discharge instructions
  - h. Transfer summaries
2. Describe the requirements of HIPPA and other relevant legislation, and apply them in one's written and electronic medical record keeping

**Practice-based Learning and Improvement: Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.**

**Goal 1. Use scientific methods to investigate, evaluate, and improve one's patient care practice in the PICU setting. (PL 1,3)**

1. Demonstrate effective approaches to acquiring new or additional information.
2. Identify one's knowledge gaps in the course of providing patient care, and cultivate the habit of continuous inquiry to expand one's knowledge of medical advances.
3. Seek and incorporate feedback and self-assessment into a plan for

- professional growth as well as provide constructive feedback to others.
4. Demonstrate a habit of critical thinking, evidence-based decision making and continuous, quality improvement.
  5. Continually strive to integrate best evidence into one's daily practice.
  6. Describe one's own style of learning, gathering and storing information, and decision-making, and translate this understanding into an approach to professional development.
  7. Identify resources for up-to-date information related to the PICU (e.g., journals, texts, DVD's, computer)
  8. Use information technology to optimize life-long learning (e.g., use PDAs, online information resources, curriculum guides, self-assessment tools, and tracking systems).

**Professionalism: Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.**

**Goal 1. Demonstrate commitment, responsibility, accountability for patient care, including continuity of care. (PL 1,3)**

1. Demonstrate personal accountability to the well being of all patients
  - a. Follow up on lab results and imaging studies of your patients
  - b. Write comprehensive notes on your patients
  - c. Seek answers to difficult patient care questions
  - d. Take responsibility in patient duties until sign-out is complete and care of your patient is insured
  - e. Take responsibility for communicating with consultants and other members of the health care team regarding patient care issues

**Goal 2. Understand basic principles in bioethics and identify issues in the PICU that frequently lead to ethical dilemmas.**

1. Identify issues that frequently lead to ethical conflicts such as divergent perspectives on the interrelationship of health care with morality, religion, spirituality, humanism, and health and cultural belief systems. (PL 1,3)
2. Identify and describe the potential ethical dilemmas that one may face in pediatrics regarding each of the following: (PL 3)
  1. "Do Not Resuscitate orders".
  2. Forgoing/withdrawing life sustaining treatment.
  3. Brain death.
3. Identify when one's own management goals for a patient are in conflict with the wishes of a family. (PL 1, 3)
4. Identify diagnostic and therapeutic procedures that require informed consent and obtain informed consents prior to their initiation. (PL 1, 3)

**Goal 3. Understand and appreciate cultural diversity in patients and recognize the health-related implications of cultural and religious beliefs and practices of groups represented in a community. (PL1, 3)**

1. Use culturally and linguistically appropriate terms in communicating medical information

2. Describe how to offer and provide language assistance services (including bilingual staff and interpreter services) in a timely manner to each patient and family with limited English proficiency.
3. Demonstrate ease and competence in the use of a trained medical interpreter by telephone and in person.
4. Identify barriers to the provision of culturally appropriate services within your hospital or practice, and develop strategies to address these barriers.
5. Recognize the range of differing health beliefs and value systems of patients/families from diverse cultural and ethnic backgrounds, and treat these differences with respect and sensitivity.
6. Create and sustain a professional and therapeutic relationship with patients and families across a broad range of socioeconomic and cultural backgrounds.

**Systems-Based Practice. Understand how to practice high quality health care and advocate for patients within the context of the health care system.**

**Goal 1. Practice cost-effective health care and resource allocation that does not compromise quality of care.**

1. Defend choice of any invasive, painful, or expensive diagnostic test or procedure in terms of risks and benefits to patient.
  - a. Identify risks and benefits for common diagnostic studies and procedures. (PL 1, 3)
  - b. Obtain diagnostic studies at an appropriate time and in an appropriate sequence. (PL 1, 3)
  - c. Select invasive or painful methods only when necessary. (PL1, 3)
  - d. Discuss general costs of diagnostic tests and procedures and consider cost when selecting these tests/procedures. (PL 3)
2. Demonstrate awareness of the costs of PICU care and its impact on families (PL 3); refer families for social services support as needed. (PL 1, 3)

**Goal 2. Develop an understanding of the role of subspecialists in the PICU and demonstrate the ability to consult appropriately. (PL 1, 3)**

1. Use consultants appropriately.
2. Demonstrate skills in effective communication with the subspecialists.

**Goal 3. Take steps to avoid medical errors by recognizing the limits of knowledge and expertise; work with the health care team to recognize and address systems errors.**

1. Demonstrate a commitment to systematic error reduction, including self-surveillance to reduce or manage error-prone conditions (PL 1, 3)
2. Honestly acknowledge an error when it has occurred. (PL 1, 3)
3. Understand the impact of medical errors on the health of the public, and consider how such errors might occur in one's own practice. (PL 3)