University at Buffalo Pediatric Emergency Medicine Fellowship

PICU rotation – The pediatric critical care rotation is a one month rotation completed in the first year of fellowship. During this time the fellows function as a member of the critical care team to gain experience in the acute as well as long term management of critically ill patients. The rotation takes place in the OCH PICU located on the 9th floor.
Please email Dr Breuer 4 weeks prior to the start of the rotation for schedule.

Schedule: Fellows are scheduled for 2 weeks of days and 2 weeks of nights. Please email the PICU 4 weeks prior to the start of the rotation to remind them of your rotation

- Days shifts: Please report to the PICU at 8 am
- Night shift: Report for evening sign out at 4 pm.

Rotation Goal:
The main goal of the PICU rotation is to increase experience, knowledge, technical skills and judgement to manage critically ill patients.

- Fellows will participate in PICU rounds and care for patients as well as:
    a. Accompany STAT and PICU teams to **all** rapid response and medical emergencies
    b. Participate in **all** ICU consults and Ed admissions, including (when necessary) staffing with ICU attending

Objectives:

2. Recognize a critically ill patient
    a. Become familiar with respiratory, cardiovascular, neurological findings that distinguish "sick" from "not sick". Including ability to identify patients requiring PICU admission.
    b. Learn to prioritize and triage management strategies within, and among, patients.
    c. Actively participate in clinical decision making in the admitting, discharge, and transfer of patients in the intensive care unit.

3. Understand the essentials of PICU management of critically ill patients with:
    a. Acute (and acute on chronic) respiratory failure
        i. Evaluation, diagnosis and treatment strategies
        ii. Indications for, uses of non-invasive support (high-flow cannula, RAM cannula, CPAP, BiPAP, negative pressure ventilation)
        iii. Indications for, strategies of invasive mechanical ventilation
        iv. Indications for, strategies of high-frequency ventilation
        v. Use of invasive, non-invasive monitoring strategies (e.g. blood gas, end-tidal CO_2, transcutaneous CO_2)
    b. Shock (especially septic shock)
        i. Evaluation (clinical and laboratory-based) and recognition of cardiovascular dysfunction, multi-organ dysfunction syndrome and assessment of their reversibility

ii. Understand indications for resuscitation, goal-directed therapy
iii. Understand indications for mechanical ventilation, central venous and arterial access
iv. Use of invasive, non-invasive monitoring strategies (e.g. CVP, pulse pressure, central venous blood gas values)
v. Understand indications for vasoactive medications, such as dopamine, epinephrine, norepinephrine, milrinone, and vasopressin; appreciate side effects, initiation/adjustments/weaning to stated goals

c. Intracranial hypertension
   i. Evaluation of ICH, persistent and acute
   ii. Understand tiered therapy of ICH management
   iii. Appreciate benefits, side effects of hyperosmolar therapy
d. Status epilepticus
   i. Evaluation of seizure activity, both clinical and EEG-based
   ii. Understand treatment algorithm for status epilepticus
   iii. Identify refractory status epilepticus and strategies for management
e. Status asthmaticus
   i. Evaluation of status asthmaticus, near-fatal asthma
   ii. Understand medical, respiratory therapies for persistent bronchospasm
   iii. Discuss challenges with, considerations for, invasive mechanical ventilation in these patients
f. Diabetic ketoacidosis
   i. Evaluation (clinical and laboratory-based) of severity
   ii. Understand medical therapies, metabolic derangements associated with this condition
   iii. Discuss evaluation, management of cerebral edema
g. Management of DNR and end of life issues
   i. Identify patients and families who might benefit from ancillary services
   ii. Understand strategies for discussing quality, quantity of life concerns with families

4. <u>Procedures</u>:
   a. Fellows should know the indications for procedures used in the care of critically ill children
   b. Fellows should know the proper technique and should actively preform the following procedures when available:
      i. Arterial puncture and arterial line placement
      ii. Venipuncture and intravenous catheter placement
      iii. Central line placement
      iv. Endotracheal intubation
      v. Intravenous catheter placement
      vi. Thoracentesis and chest tube insertion

First-year PICU fellows generally should not defer procedures. Other PICU providers, once competence has been achieved, may supervise PEM fellows. Ask!

Recommended Texts -

Rogers' Textbook of Pediatric Critical Care

Pediatric Critical Care by Fuhrman and Zimmerman

Pediatric Critical Care Study Guide (Steven E. Lucking, first editor)

Comprehensive Critical Care Pediatric (published by Society of Critical Care Medicine)

Additional "Must read" articles given at start of rotation

Supervision – PEM fellows will be under supervision of the critical care attendings for clinical decision making and performance of procedures.

Evaluation: The PICU faculty are responsible for supplying the PEM program with a written evaluation after the rotation is complete. PICU faculty are also responsible to inform the fellow and program director of any problems or issues that may arise during the rotation.