<table>
<thead>
<tr>
<th>Background</th>
<th>Goal(s) of the Curriculum</th>
<th>Program Objectives</th>
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<tbody>
<tr>
<td>Pediatric residents in our institution are the team leader for inter-facility critical care transports. Although this practice is declining amongst pediatric critical care programs (1), several studies have recognized that transport medicine is an unrealized source of education in pediatric training. (1-3) To enhance existing education at our institution, we developed a new rotation: Transport Medicine-Acute Care. Through active patient care, didactics, and simulation, PGY-2 and -3 residents are exposed to pre-hospital medicine, inter-facility transport, and the initial stabilization of patients. Residents are also exposed to the concepts of quality improvement (QI).</td>
<td>1. Learn and practice directive and closed loop communication skills 2. Develop proficiency in the recognition and management of respiratory insufficiency/failure, status epilepticus, and shock 3. Become proficient in bag mask ventilation 4. Become proficient in IV and IO access 5. Develop proficiency in PALS algorithms 6. Understand the concepts and terminology of the Model for Improvement and its application to pediatric practice</td>
<td>1. Develop communication and team leadership skills 2. Improve resident’s ability to evaluate and provide initial management of common pediatric critical illnesses 3. Encourage critical and independent decision making 4. Become familiar with QI methodology</td>
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<tr>
<th>Resident/Fellow Learning Objectives</th>
<th>Educational Strategies/Activities</th>
<th>Learner Assessment</th>
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<tbody>
<tr>
<td>(What resident/fellow will learn?) (Bloom’s Taxonomy)</td>
<td>(Miller’s Pyramid)</td>
<td>(How is the learner assessed for success? Results?)</td>
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| 1. Understand  
   a. Learn invasive and non-invasive ventilation strategies  
   b. Recognize and manage shock, status epilepticus and respiratory insufficiency/failure | 1. Knows  
   a. Pediatric Fundamental Critical Care Support (PFCCS) certification  
   b. Syllabus of transport-related review articles  
   c. Didactics on modes of ventilation and quality improvement methodology | 1. Direct observation by Pediatric Anesthesia Faculty  
   a. Provides feedback to rotation supervisor throughout block  
   b. Residents demonstrate proficiency in manual ventilation prior to intubation attempts |
| 2. Apply  
   a. Demonstrate correct bag mask ventilation and IV insertion  
   b. Use closed-loop communication during mock-code simulations and inter-hospital transports | 2. Knows how  
   a. Initial transports are mentored by senior trainees  
   3. Shows how  
   a. Required QI exercises and attendance at Departmental QI meetings  
   b. Weekly sessions with Anesthesia to acquire and demonstrate airway and IV access skills  
   c. Lead weekly mock codes on pediatric general floors  
   d. Weekly review and feedback on transports | 2. Resident Self-Assessment in IV skills and bag mask ventilation  
   a. Mid-year informal survey confirmed increased comfort |
| 3. Analyze and Evaluate  
   a. Initial transports are mentored by senior trainees  
   3. Shows how  
   a. Required QI exercises and attendance at Departmental QI meetings  
   b. Weekly sessions with Anesthesia to acquire and demonstrate airway and IV access skills  
   c. Lead weekly mock codes on pediatric general floors  
   d. Weekly review and feedback on transports | 3. PFCCS certification requires 70% success on final exam  
   a. 100% pass rate in Fall session |
| 4. Create  
   a. Demonstrate understanding of the Model for Improvement through QI exercises  
   b. Demonstrate knowledge of PALS algorithms and stabilization through creation of a mock code | 4. Does  
   a. Create and teach a mock code scenario with debrief  
   b. Team leader on all inter-facility PICU transports | 4. Multisource evaluation by Transport RNs focusing on knowledge and communication skills  
   a. Rotation supervisor provides corrective feedback if issues identified |

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<tr>
<th>Program Evaluation</th>
<th>Implementation</th>
<th>Lessons Learned</th>
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<tr>
<td>How is the experience/rotation assessed for success? Results?</td>
<td>Collaboration? Resources? Skills? Faculty Development? Barriers?</td>
<td>This rotation is meant to foster independent learning. Providing a breadth of activities that cover acute care, transport medicine, and QI, while allowing for rest due to the rigorous call schedule remains challenging. To facilitate coverage and educational experiences we have:</td>
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| The rotation is assessed by confidential evaluations using New Innovations, as well as direct feedback elicited by the rotation supervisor. The response has been extremely positive. Residents report: 4.5/5 Fostered development of relevant knowledge 4.2/5 Fostered development of physical exam skills 4.5/5 Increased ability to manage relevant problems 4.21/5 Fostered formulation of differential diagnosis | Implementation is dependent upon cooperation with Pediatric Anesthesia, Respiratory Therapy, and Critical Care within our institution. We have utilized in-situ mock codes using a high-fidelity simulator. The PFCCS course (created by the Society of Critical Care Medicine) is given biannually by critical care faculty at our institution. The major barrier encountered has been the balance between service and education, as home-call is divided by two residents for 24/7 coverage of PICU transports. | 1. Reduced continuity clinic to 1/2 day/week during this rotation  
   2. Residents self-schedule; schedule monitored by chief residents for duty hour violations  
   3. Communicated the need for flexibility with Anesthesia and other faculty  
   4. Implemented mandatory “follow up” to referring providers as an opportunity for community medical education and direct feedback. |

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Modified from Niebuhr & D’Alessandro. Planning for Online Teaching-Learning Activities. Workshop at PAS Vancouver, 2010
## Educational Opportunities

<table>
<thead>
<tr>
<th>QI</th>
<th>Sim</th>
<th>Skills</th>
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<tr>
<td>Instruction in Model for Improvement</td>
<td>Attend all mock codes during block (8/month)</td>
<td>Attend Departmental QI meetings</td>
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<tr>
<td>Design a QI project and implement 1 PDSA cycle</td>
<td>Design and teach a mock code with debriefing</td>
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<td>Attend morning report</td>
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<td>Join PICU rounds</td>
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<table>
<thead>
<tr>
<th>Didactics</th>
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<tr>
<td>PFCCS certification</td>
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<tr>
<td>Modes of ventilation with RT</td>
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<tr>
<td>Transport-related readings</td>
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<tr>
<td>Attend morning report</td>
<td></td>
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<tr>
<td>Join PICU rounds</td>
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| OR Tuesdays: Develop proficiency in BMV and IVs with Anesthesia | |
| Transport skills session: BMV, IO placement, needle decompression, trach change | |

## Service Obligations

### Call
- Call divided equally between rotating residents
- Day call: Available within 15 min M-F (6a-4p)
- Night/Weekend call: Available within 45 min M-F (4p-8a), Sat/Sun (24h)

### Communication
- Maintain updated log book of activities and transports
- Ensure referring provider follow-up forms are completed

### Mentorship
- “Buddy call” - PGY 3 mentors first two transports with PGY 2

## Results and Feedback

**New Innovations (averaged score/5):**

1. Met Goals and Objectives of Rotation 4.44/5
2. Fostered development of relevant knowledge 4.51/5
3. Fostered development of physical exam skills 4.2/5
4. Fostered formulation of differential diagnosis 4.21/5
5. Increased ability to manage relevant problems 4.54/5
6. Increased understanding of when to refer patients 4.4/5
7. Good balance between education and service 4.12/5

“Great addition to our curriculum!”

“This was an exceptional good rotation. Support from faculty was first-rate, and the learning was also significant...”

“I was able to reinforce a lot of knowledge and experience from last year...”

“SIM sessions were very helpful and prepared me for real life scenarios in practice.”

“Education was greatly enhanced by PFCCS, simulation and QI project. I hope the rotation continues to be an option for residents.”

## Future Directions

- Our institution is developing a dedicated pediatric transport team that will be able to function without direct physician accompaniment.

- Trainees will be used during transition period to help train Transport RNs in the team leader role

- Once RNs are fully integrated, rotation will likely transition into an elective
  - Restricted to PGY3s or PGY2s after completion of PICU rotation
  - Consider integrating EM residents and PEM fellows
  - Residents pursuing critical care, emergency medicine, cardiology, neonatology, and hospital medicine will be encouraged to participate as part the Critical Care Track of the Individualized Curriculum