I-Pass in the NICU: Operationalizing and Sustaining Improved Handoffs

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Christopher P. Landrigan MD, MPH is Research Director of the Inpatient Pediatrics Service at Boston Children’s Hospital, Director of the Sleep and Patient Safety Program at Brigham and Women’s Hospital, and Associate Professor of Pediatrics and Medicine at Harvard Medical School. Chris did his internship, residency, and fellowship at Boston Children’s from 1995-2000, and has been working at Boston Children’s Hospital ever since, as a pediatric hospitalist and patient safety researcher. In addition, Chris was the founding chair and is currently an Executive Council Member of the Pediatric Research in Inpatient Settings (PRIS) Network, a collaboration of over 100 pediatric hospitals, which has conducted a series of major multi-center research and improvement projects in pediatric hospitals. Chris has led numerous landmark studies on the epidemiology of medical errors and adverse events, and interventions designed to reduce their incidence. His most important work has been focused on developing reliable patient safety measurement tools, and improving the organization of residency programs and academic medical centers. His work on the relationship between resident work hours, sleep, and patient safety contributed to national changes in resident work hour standards. More recently, concerned with improving communication in hospitals, he led the development of I-PASS, a multi-faceted teamwork and handoff improvement program. He has authored over 100 publications in the medical literature, including more than a dozen in the New England Journal of Medicine and JAMA. He has received numerous awards for his research, teaching, leadership, and innovation.

Annual Quality Congress Breakout Session, Sunday, October 4, 2015
I-Pass in the NICU: Operationalizing and Sustaining Improved Handoffs

Objective:
Evaluate key strategies to overcome the complex process of structuring, attaining and sustaining safe handoffs in the NICU setting using principles of standardization.
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Challenges of Improving Handoffs

Handoffs are
• Non-standardized processes currently
• Not formally taught
• Variable
  – Institution to institution
  – Within institutions
• Implementing a change in handoff practice is a transformational change


Disclosure

• Virgin Pulse – a consultancy to develop a sleep health program.
• Through the I-PASS Institute I have consulted with multiple academic organizations.

I-PASS Educational Framework

Developed by Jennifer K. O’Toole and the I-PASS Study Group

Goals and Objectives

• Developed an extensive list of educational goals and objectives
• Refined these goals and objectives over time
• Revisited often during the development of education activities
  – Iterative process of improvement and refinement of curriculum
• Integrated principles of adult learning theory

Educational Strategies I-PASS Curricular Components

• Core Resident Workshop
• Handoff Simulation Exercises
• Computer Module
• Faculty Observation Tools
• Faculty Development Materials
• Campaign Toolkit
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Overview of 3-hour Workshop

2-Hour Session of Didactic and Interactive Exercises
- TeamSTEPPS™ training
- Communication skills
- Briefs, debriefs, huddles
- Learning styles exercise
- Handoff skills training
- Verbal Mnemonic
- Written Handoff Document

Followed by 1-Hour Handoff Simulation Exercise
- 3 Role Play Scenarios that will allow residents the opportunity to be
  - Giver
  - Receiver
  - Observer
- 1 Role Play Scenario
  - Developing a Shared Mental Model

Development of I-PASS Mnemonic

<table>
<thead>
<tr>
<th>I</th>
<th>Illness Severity</th>
<th>- Stable, “watcher,” unstable</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Patient Summary</td>
<td>- Summary statement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Events leading up to admission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hospital course</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ongoing assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Plan</td>
</tr>
<tr>
<td>A</td>
<td>Action List</td>
<td>- To do list</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Timeline and ownership</td>
</tr>
<tr>
<td>S</td>
<td>Situation Awareness and Contingency Planning</td>
<td>- Know what’s going on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Plan for what might happen</td>
</tr>
<tr>
<td>S</td>
<td>Synthesis by Receiver</td>
<td>- Receiver summarizes what was heard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Asks questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Restates key action/to do items</td>
</tr>
</tbody>
</table>

Starmer AJ. Pediatrics 2012; 129(2): 201-204.

Illness Severity – A Continuum

- Watcher: any clinician’s “gut feeling” that a patient is at risk of deterioration or “close to the edge”

Sections of a Patient Summary

- Summary statement
- Events leading up to admission
- Hospital course
- Ongoing assessment
  - Organized by problems/diagnoses
- Plan
  - Organized by problems/diagnoses

Patient Summary

- Event Leading Up to Admission
- Hospital Course
- Ongoing Assessment by Problems/Diagnoses
- Plan by Problems/Diagnoses

Sections of a Patient Summary

- Summary statement
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High Quality Patient Summaries
- Create a shared mental model
- Facilitate the transfer of information and responsibility
- Transmit information concisely
- Describe unique features of the patient’s presentation
- Use semantic qualifiers

Semantic Qualifiers
- Dichotomous qualifiers along an axis
  - Provide clarity
  - Enable clear communication of representative clinical features
- Examples

<table>
<thead>
<tr>
<th>Onset</th>
<th>Acute, sub-acute, chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Proximal, distal</td>
</tr>
<tr>
<td>Course</td>
<td>Intermittent, progressive</td>
</tr>
<tr>
<td>Severity</td>
<td>Mild, moderate, severe</td>
</tr>
<tr>
<td>Quality</td>
<td>Burning, dull, sharp</td>
</tr>
<tr>
<td>Context</td>
<td>Nocturnal, at rest</td>
</tr>
<tr>
<td>Patient Characteristics</td>
<td>Female, infant, adolescent</td>
</tr>
</tbody>
</table>

Action List

- Check respiratory exam now
- Monitor respiratory exam Q2h overnight
- Check pain scores Q4h
- Check ins and outs at midnight
- Follow up 6PM electrolytes
- Follow up blood culture results

Situation Awareness

Team level
- “Know what is going on around you”
  - Status of patients
  - Team members
  - Environment
  - Progress toward team goals

Patient level
- “Know what’s going on with your patient”
  - Status of patient’s disease process
  - Team members’ roles in patient’s care
  - Environmental factors
  - Progress toward goals of hospitalization
Contingency Planning
- Problem solving before things go wrong
  - “If this happens, then...”

Synthesis by Receiver
- Provides an opportunity for receiver to
  - Clarify elements of handoff
  - Ensure there is a clear understanding
  - Have an active role in handoff process
- Varies in length and content
  - More complex, sicker patients require more detail
  - At times may focus more on action items, contingency planning

Challenges of Implementation
Handoffs are
- Non-standardized processes currently
- Not formally taught
- Variable
  - Institution to institution
  - Within institutions
- Implementing a change in handoff practice is a transformation change

Faculty Training Workshop
- 1-hour workshop
  - Brief introduction to I-PASS study
  - Review of I-PASS handoff techniques
  - Introduction to the observation tools
  - Video simulations of resident handoffs to allow practice with use of observation tools

Faculty Champions Guide
- Reference for faculty
- Contents
  - Background/curricular goals
  - Resident workshop
  - Resident observations
  - Using observation tools
  - Benefits for faculty
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Faculty Roles in Implementation

Potential Faculty Roles

- I-PASS Workshop Leader/Facilitator: Facilitate the 2-hour interactive didactic training
- Handoff Simulation Small Group Facilitators: Facilitate the hour-long handoff simulations with small groups of residents that occur at the end of the workshop
- "Live" Handoff Faculty Observers: Observe live handoffs with residents after the RHB has been implemented and provide feedback on faculty observation forms
- I-PASS Campaign: Marketing as well as "Just in Time" refreshers for the residents

Why Should Faculty “Buy-in”?

- Improve faculty handoff skills
- Improve resident handoff process
- Obtain CME Credit
- Obtain MOC Part 4 credit?

Implementation of Curriculum Institutional Campaign

- Logo
- Pocket Cards
- Posters
- Computer screen-surrounds
- Flip charts
  - Tips of the day
  - Fortune cookies with I-PASS tips inside

5 Key Steps for Successful I-PASS Implementation Efforts

1. Establish Institutional Support and Ensure Team Organization
2. Assess the Local Environment
3. Determine Improvement Scope
4. Develop a Communication Plan
5. Ensure Ongoing Data Collection and Iterative Improvement Cycles

Step 1: Institutional Support and Team Organization

- Sponsorship and support from the institution are critical
  - Chief medical, safety and/or quality officers
  - Training program directors
  - Division and Department Chairs
- Commitment from an Executive Sponsor will ensure goals of implementation align with the institution’s strategic goals
- Implementation Champions also needed
  - Well respected clinicians who are opinion leaders

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Step 2: Needs Assessment
- Completion of a needs assessment activity offers insight into current practices and critical areas of vulnerability
- Best conducted as a collaborative effort including Front-line providers, Faculty, nurses and other key stakeholders
- Documentation of discussion strongly encouraged

Original I-PASS Needs Assessment
- Surveyed 9 sites regarding
  - Current handoff practices
  - Handoff tools
  - Handoff education and resources
- Found great variability
  - 2 sites had multiple team members present
  - 5 used standardized computerized documents that auto-imported data from EMR
  - 1 used a standardized verbal mnemonic
  - 2 had protected time for handoffs
  - No program had a formal curriculum

Step 3: Determine Scope
- Define short-term and long-term scope of efforts
- Recommendation: start small!
  - Small scale local wins are more likely to spread
  - Serial testing and learning on a small scale makes broad scale implementation more manageable
- Select areas/clinicians in the short-term that are on board and include early adopters

Step 4: Develop a Communication Plan
- Timely and effective communication critical
  - Raise awareness about anticipated changes
  - Assists adopters transition from awareness to conscious decision to change behaviors
  - Ensure all stakeholders aware of key timelines, particularly if impacts workflow

Step 5: Ensure Ongoing Data Collection
- Data collection, analysis, and feedback to team members is essential
- Performance measures should
  - Map back to aims of implementation
  - Address areas of critical vulnerability and challenges
  - Track performance longitudinally
  - Actually be collected!
  - Logistics, accountability, and process are critical

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Celebrate Success!

Better handoffs. Safer care.

All handoff materials are available at www.ipasshandoffstudy.com

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