Nurses New to Paediatric Intensive Care: Knowledge Outcomes of a 12-week Transition to Specialty Practice Program

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ANZICS /ACCCN ASM 2018
Background

• Transition to Specialty Practice Programs (TSPP) in intensive care
  – Prepare nurses new to intensive care to provide safe and competent care to critically ill patients (Dunn, 1992)
    • Range from extended orientation to formal transition programs
    • mostly adult based programs discussed
    • Reported outcomes measures focused on
      – nurse recruitment,
      – retention
      – participant satisfaction
Transition to Paediatric Intensive Care Practice Programs

• Evolved out of recognition that PIC nursing is a specialty in its own right

• Prepare novice PIC nurses, with the knowledge and skills to provide safe and competent care to critically ill children and their families

• Limited evaluation
Current Transition to PIC Program

- Conducted twice a year for 10-15 novice PIC nurses
- 12 –week duration
- Combination of supernumerary time, study days with didactic and practical sessions, extended clinical support
- Time and resource intensive
- Evaluation to date involved participant satisfaction and feedback
- Need to evaluate against key program objectives
Study Aims

• To evaluate the knowledge outcomes of novice PIC nurses following a 12-week transition to PICU program

• Compare the knowledge outcomes of novice PICU nurses, four months after completing a transition program, with a group of experienced PIC nurses
Knowledge

• Key Knowledge is a foundation of competence, problem solving and critical thinking

• Can be measured reliably and objectively

• Knowledge assessment can be linked to key learning outcomes
Knowledge Assessment Tool: Modified PICU-NKST

- Modification of a previously validated Paediatric Intensive Care Unit-Nursing Knowledge and Skill Test (PICU-NKST) (Long et al, 2014)
- 60 item multiple choice quiz
- Covered foundational PIC knowledge and skill
- Took approximately 60 minutes to complete
Study Methods

• Quasi-experimental, time series design
• 3 timeframes for novice nurse testing (n=13)
  – T1: pre-course
  – T2: immediately post course (12 weeks)
  – T3 between seven and eight months
• Experienced PIC nurses (n=25) completed assessment at T3 only
Results: Median Test Scores

<table>
<thead>
<tr>
<th></th>
<th>Novice PICU Nurses</th>
<th>Experienced PICU Nurses</th>
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<tbody>
<tr>
<td><strong>T1</strong> (n=13)</td>
<td>Median 33, (IQR 25.5, 34)</td>
<td>38, (34, 42)</td>
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<tr>
<td><strong>T2</strong> (n=13)</td>
<td>38, (34, 42)</td>
<td>40, (36, 42)</td>
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<tr>
<td><strong>T3</strong> (n=12)</td>
<td>40, (36, 42)</td>
<td>47, (42, 50)</td>
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<td><strong>T3</strong> (n=25)</td>
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- Score of 38 at T2 significantly greater than 33.0 at T1 ($p= 0.001$)
- T2 to T3 not statistically significant but sustained.
- Experienced nurses score at T3 of 47 sig greater than novice nurses score at T3 of 40 ($p < 0.001$)
Results: Knowledge Domains

PICU-NKST60 Knowledge Domains Results

Percentage of Correct Answers

<table>
<thead>
<tr>
<th>Test Timeframes</th>
<th>Respiratory n=8</th>
<th>Ventilation n=17</th>
<th>Cardiac/shock n=17</th>
<th>Inotropes n=10</th>
<th>Pain and sedation n=2</th>
<th>Neuro/metabolic n=6</th>
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<tbody>
<tr>
<td>T1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>T2</td>
<td>80</td>
<td>100</td>
<td>80</td>
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<tr>
<td>T3</td>
<td>80</td>
<td>90</td>
<td>80</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Exp PICU Nurses</td>
<td>80</td>
<td>90</td>
<td>80</td>
<td>80</td>
<td>100</td>
<td>80</td>
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Significance and Implications for Practice

- First study to report knowledge development following a transition to PICU program and demonstrated sustained knowledge growth
- Results have already been used to modify program for Sept 2018
- Opportunities to develop the knowledge assessment to
  - Evaluate future program changes
  - Assess knowledge in new and existing staff
  - Provide direction for focus learning in individuals
Limitations

• Small sample

• Single study site

• Learning effect of repeated MCQ
Conclusions

• PIC specific knowledge significantly increased and maintained in novice PIC nurses following the 12 week transition program

• Experienced PIC nurses demonstrated greater level of knowledge

• Modified knowledge test PICU-NKST60 suitable for measurement of beginning PIC knowledge
Thank you