Recognizing Delirium in the PICU: An Evidence-based Practice Improvement Project

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Recognizing Delirium in the PICU: An Evidence-Based Practice Improvement Project

Abigail Begovich, RN & Dr. Tracy Brewer, DNP, RNC-OB, CLC, EBP-C

Background
- Delirium is an acute change from a patient’s baseline mental status, presenting as inattention, disorganized thinking, or altered level of consciousness that fluctuates
  » Can be hypoactive, hyperactive, or mixed
- Evidence shows that:
  » Delirium may increase PICU length of stay and hospital costs
  » Benzodiazepines are significantly associated with delirium
  » Younger patients and severity of illness predictors of delirium
- Prevalence of delirium in PICU 56% in children six months to five years and 35% in children 2-5 years old
  » In 2011, delirium screening was not being completed in 71% of PICUs

Purpose and Goal of Project
- Purpose: To increase the recognition of delirium in the PICU with the use of a standardized delirium screening tool
- Goal: That the recognition and subsequent management of delirium may lead to reduced patient length of stay and hospital costs

Framework & Synthesis of Evidence
- Evidence-Based Practice Improvement Model guided the project
  » P-3-C-O question: “In patients admitted to the pediatric intensive care unit, how does using a standardized tool for delirium screening affect the recognition of delirium?”
  » Evidence critically appraised using JHNEBP Model tools, level, quality grade, and synthesized evidence critically appraised using JHNEBP Model tools, level, quality grade, and synthesized evidence

Practice Recommendations:
1. All PICU patients should be screened for delirium at least once a shift.
2. The Cornell Assessment of Pediatric Delirium (CAPD) should be used to screen PICU patients for delirium.
3. The CAPD score is greater than or equal to 9, a provider should be notified as further evaluation is needed.
   » Aim Statement: Registered nurses will complete the CAPD screening once a shift > 85% of the time over 4 months.

Implementation Process
- Educated PICU nurses, float pool nurses, and providers on delirium, delirium screening tool, and interventions they could use to prevent/manage delirium
- Implemented screening tool first on paper and then transitioned to Electronic Medical Record

Outcomes Measured:
- Demographic Data (age, gender, race, ethnicity)
- Individual CAPD Scores
- Length of Mechanical Ventilation
- Admitting diagnosis
- Interventions started (sleep hygiene, medications, changing CXR times to 0800 instead of 0500)

Results

Demographics

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Gender</td>
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<tr>
<td>Female</td>
<td>46</td>
<td>62%</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>38%</td>
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<tr>
<td>Age</td>
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<tr>
<td>&lt;1 year old</td>
<td>46</td>
<td>28%</td>
</tr>
<tr>
<td>1-5 year old</td>
<td>56</td>
<td>36%</td>
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<tr>
<td>6-10 year old</td>
<td>38</td>
<td>24%</td>
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<td>11 years and older</td>
<td>85</td>
<td>56%</td>
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<tr>
<td>Race</td>
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<tr>
<td>African American</td>
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<tr>
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<tr>
<td>Hispanic/Latino</td>
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<td>7%</td>
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<tr>
<td>Age at Admission</td>
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<td>20%</td>
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</table>

Interrater reliability - 27 patients were independently scored by bedside & charge RN
- Intraclass coefficient: 0.56 (p=0.001)
- Delirium: score >9 for 48 hours or longer
- Length of stay was statistically significant to delirium, p<0.001
- Median of 3 days for patients without delirium versus 17.5 for those with delirium
- Average CAPD score during intubation: M= 11.56 ± 4.86 (SD)
- Average CAPD score after intubation: M= 7.29 ± 6.5 (SD), p=0.000
- No statistical significance for patient’s receiving Midazolam versus not receiving on length of stay, p= 0.58
- Patients less than a year old were 5.8 (95% CI= 1.81, 18.33) times more likely to experience delirium than patients 11 years and older
- Patients categorized as developmentally delayed were 49.3 (95% CI= 9.62, 252.6) times more likely to develop delirium than those not categorized as having developmental delay
- Average CAPD score pre-intervention: M= 13.52 ± 5.61 (SD)
- Average CAPD score post-intervention: M= 11.05 ± 5.57 (SD), p= 0.009

Findings

Clinical Implications
- This QI project was done in 1 PICU over a 4-month period and cannot be generalizable
- Integrating screening tool into EMR increases compliance
- Delirium increased length of stay
- Being under the age of one and being developmentally delayed increase the likelihood of a positive delirium score
- Limitations: Interrater reliability assessed at beginning of the project and projected number of independent assessments not completed; screen could include subjectivity

Acknowledgments
- Special thanks to the RNs, administrative & medical staff at East Tennessee Children’s Hospital for making this project possible.