Screening Children for Early-Deterioration: Using the Pediatric Observation Priority Scoring Tool

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BACKGROUND / SIGNIFICANCE

- Pediatric sepsis is a large healthcare concern.
- Screening children in the outpatient setting can identify sepsis concerns sooner and escalate needed level of care appropriately.
- Increased healthcare costs and resources.
- Poor patient outcomes can be avoided if sepsis is caught early.

PROBLEM

- Lack of early recognition and treatment of pediatric sepsis is a common problem across US healthcare settings.
- Project healthcare system identified sentinel events with a root cause stemming from lack of early-deterioration detection in pediatric patients in the outpatient setting.
- Current policy does not include a standardized method to evaluate pediatric early-deterioration in the outpatient setting.

PURPOSE STATEMENT

Develop and implement a standardized approach to help detect early-deterioration in pediatric patients within the outpatient setting.

OBJECTIVES

- Develop and implement a screening process for early-deterioration evaluation in patients ages 0-12 years in the pediatric pilot clinic.
- Using the POPS tool, screen >80% of all pediatric patients seen in the pediatric pilot clinic over a 9-week period.
- Determine the relationship between the POPS score, and its sub-categories (sats, vital signs, breathing, AVPU, gut feeling and chronic disease), and referrals to the UC/ED within 12 hours after assessment.
- Survey Nursing Staff on satisfaction and efficiency of POPS scoring process and determine the acceptability of nursing staff in using the POPS tool.

METHODS

- **Setting/Population:** Top pediatric clinic within a large northwestern healthcare system.
- **Project Population:** Children 0-12 years seen in the pilot clinic.
  - **Screening exceptions:** Non-provider vaccine visits and weight-checks.
- **Clinic Staff:** 7 RNs administered the screening tool.
- **Stakeholders:** Pediatric providers, patients and their parents, RNs, and pediatric outpatient service line administration.
- **Data collection:** Implemented POPS tool, collected data for 9 weeks. RNs escalated clinical concerns to provider and documented interventions using current process.

PDSA Cycle

PLAN: Standardized pediatric screening for early-deterioration in the outpatient setting.
DO: Implement POPS tool and score all eligible patients in a 9-week period.
STUDY: Evaluate all encounters of children and their POPS score who presented to the UC/ED within 12 hours of being seen at pilot clinic.
ACT: Stakeholders convene to decide how data should be flagged when presenting to the clinic. Create threshold POPS scores and guidelines for care escalation as a triage tool in the outpatient setting.

Educational Roll Out

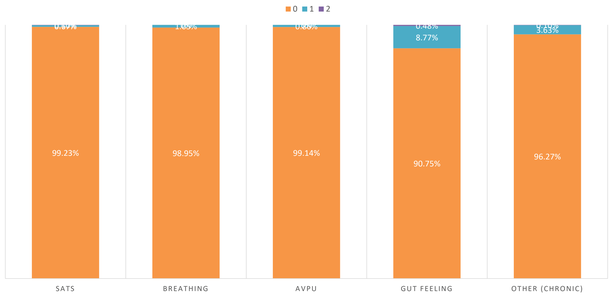
Laminated visual reminders to fill out POPS tool at all computers in exam rooms and nurse's stations. Step-by-step instructions were laminated and handed out at each nurse's station.

(Roland et al., 2016)

RESULTS

- A total of 2,260 patients were seen during the pilot period and 1,013 (45%) were fully screened with the POPS tool
- Average age was 3.70 years (range = 0 to 12 years)
- POPS scores ranged from 0 to 9 (n=1,013) with an average score less than 1 (M=0.90, SD=1.03)
- Largest proportion of abnormal scores in the subjective "gut feeling" category
- 15 children presented to ED/UC facility within the data collection period.
  - Only 3 presented within 12 hours of their clinic visit check in time.
  - None of the children who presented to the ED/UC had score above 4.
- 3 RNs (43%) completed the post pilot survey. Overall usefulness of the tool: M=3.33 (1=not useful to 5=extremely useful). Overall satisfaction: M=3.33 (1=extremely dissatisfied to 5=extremely satisfied).

PROPORTION OF CHILDREN SCORING 0, 1, OR 2 ON EACH POPS COMPONENT



Gut Feeling Score Differences and Hours After Clinic Check-in for ED/UC Admission				
Score	ED/UC Admission n=	No ED/UC Admission n=	Total n (%)	Mean Hours after Clinic Check-In for ED/UC Admission
0	11	941	952 (1)	84.37 (3.52 days)
1 or 2	4	93	97 (4)	46.25 (1.92 days)
	Total = 15	Total = 1034	X^2 (1, N=1049) = 5.50, p=0.02	t(13)=1.17, p=0.13

DISCUSSION

- Only 45% of eligible children were scored with a POPS score.
  - *Extra task for staff, primitive EHR integration.*
- Average POPS score was <1
  - *Healthy population, POPS conducted in well-child visits and at start of respiratory season; no relationship with this population and acute decompensation in the outpatient setting.*
- Nurse "Gut Feeling" was the component with the most variability
  - *Clinical and statistical significance related to presentation to ED/UC; likely related to pediatric nursing expertise in this specific clinic*
- No statistical significance related to "Gut Feeling" and time of presentation to ED/UC, but does show clinical relevance
  - *Children with "Gut Feeling" score of 1-2 presented to the UC/ED twice as fast as those with a score of 0*
- 43% of nursing staff completed post-pilot survey. Usefulness: 3.33/5
  - *Respondents felt the tool was cumbersome and needs optimization before fully integrating into the EHR.*

LIMITATIONS

- Sub-optimal EHR integration (e.g., vital signs flowing to flowsheet instead of manual input)
- Data collection timeframe may not have been ideal to show optimal variability in scores
- Nurses lacked commitment/buy-in
- Float nursing staff were not trained to administer POPS scoring

PRACTICE IMPLICATIONS/ FUTURE WORK

- EHR to better suit nursing workflow
- Health system buy-in to broaden scoring to all outpatient pediatric patient clinics

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KEY LITERATURE

- Roland, D., Lewis, G., Fielding, P., Hakim, C., Watts, A., & Davies, F. (2016). The paediatric observation priority score: A system to aid detection of serious illness and assist in safe discharge. *Open Journal of Emergency Medicine, 4*, 38-44. doi: 10.4236/ojem.2016.42006
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