Practitioners' Perception of Implementing the Pediatric Early Warning System (PEWS) in Primary Care

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Purpose

To evaluate the potential use of the PEWS tool, an early warning system predicting pediatric deterioration, in the rural setting

Background

Rural children face higher health-related risk factors compared to urban children:

- 27.6% rural poverty rate versus 17.7% (Rural Health Information Hub, 2016)
- <20.4% without a high school diploma, 13.8% for urban children
- Little or no health insurance
- Geographic isolation, travel distance and transportation problems
- Lack of healthcare access
- Greater infant morbidity and mortality rates: >7 deaths/1000 live births versus 5.7/1000 live births (Meit, 2014)

Pediatric early warning system (PEWS):

- Severity of illness pediatric scoring tool
- Predicts pediatric deterioration: 91% specificity (Parshuram et al., 2011)
- Validated for use in pediatric acute care (Parshuram et al., 2011)
- Limited evidence of PEWS in primary care

Research Question

What are the attitudes and perceptions of rural practitioners in adapting the PEWS tool for use in Arizona rural primary care?

Table 1. PEWS Scoring

Item	Item Sub-score			
	0	1	2	3
Heart Rate bpm	> 100 &< 150	≥ 150 or ≤100	≥ 170 or ≤ 80	≥ 180 or ≤ 70
Systolic Blood Pressure (mmHG)	> 80 and < 100	≥ 100 or ≤ 80	≥ 120 or ≤ 70	≥ 150 or ≤ 60
Capillary Refill	< 3 seconds			≥ 3 seconds
Respiratory rate b/min	> 24 or < 51	≥ 51 or ≤ 24	≥ 71 or ≤ 19	≥ 81 or ≤ 15
Resp Effort	Normal	Mild	Moderate increase	Severe/Apnea
O2 Sat (%)	>94	91-94	<90	<85
O2 therapy	Room air		FiO2<50%	FiO2>50%
Points possible Score >8 is clinical deterioration				26

Adapted from Pashuram et al., (2011)

Methods

Design
- A cross-sectional quantitative descriptive design

Sample & Setting
- Arizona Rural NPs
- Member of statewide AZ NP listserv

Data Collection
- 25 content expert-reviewed survey questions
- Evaluate tool knowledge and perceptions
- Online distribution to statewide NP listserv
- Anonymous

Analysis
- Descriptive Statistics

Ethical Considerations
- UA Institutional Review Board review
- No identifiable information recorded for anonymity

Results

- Socio-demographic Characteristics
  - N = 17; 15% males, 85% females
  - 79% family nurse practitioners; 14% pediatrics, 77% private practitioners, 46% rural practitioners
- Attitudes towards PEWS Tool for Rural Practice

Table 2. Appropriateness of applying the PEWS in primary care

Category	N(%)
Strongly disagree	0(0)
Somewhat disagree	1(8)
Neither agree or disagree	0(0)
Somewhat agree	4(31)
Strongly agree	8(62)

Conclusions: The PEWS:
- Important clinical decision support tool
- Identify at-risk children

Rural Implications of PEWS
- May support clinical decision making
- May improve clinical outcomes
- May Reduce pediatric morbidity and mortality

Recommendations
- Further studies on the impact of the PEWS on rural outcomes
- Caregiver education, policy and advocacy changes