The Evaluation of an Education Program for Recognition and Management of Pediatric Patient Deterioration in the Inpatient Acute Care Setting

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Background

- Recognition and management of clinical deterioration are pivotal for patient safety
- Bedside RN proficiency in identifying clinical decline is critical to clinical escalation
- Barriers
  1. Experience-Complexity Gap of RNs
  2. Unbalanced experience of current RN workforce (large new graduate workforce, experienced nurses)

Pediatric Early Warning System

- Utilizes objective data to detect early signs of pediatric patient deterioration
- Considers trends in scoring
- Emphasis on clinical judgment
- Higher the score = higher the risk of deterioration (Score >/= 5 – rapid response should be considered)

Problem, Purpose, and Aim

- **Problem**: Inadequate bedside RN training in the Pediatric Early Warning System (PEWS) heightens the vulnerability of acutely ill pediatric patients, risking increased adverse outcomes.
- **Purpose**: Develop, implement, and evaluate didactic and simulation-based PEWS training for RNs working in acute care pediatric acute care inpatient units.
- **AIM**: Improve nurses' ability to recognize clinical deterioration and activate appropriate responses to mitigate adverse patient outcomes.

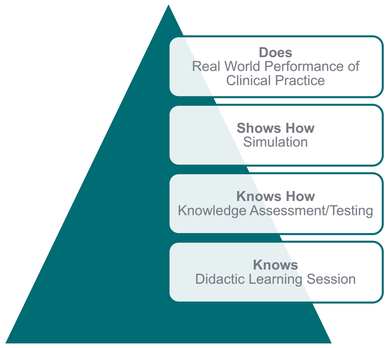
Project Objectives

1. Develop an evidence-based training program focused on systematic assessment and key interventions to enhance pediatric nurses' ability to identify clinical deterioration in children.
2. Evaluate the program's effectiveness using both objective and subjective assessments of theoretical and simulation activities.
3. Assess the program's clinical outcomes by describing and comparing pre- and post-intervention life support and clinical deterioration data, including PEWS scoring to inform the current and future trainings.

Conceptual Framework

Miller's Pyramid of Clinical Competence

Outlines a hierarchical model for the progressive acquisition of clinical skills. This model guides educational approaches, emphasizing competence development from foundational knowledge to expert-level proficiency in healthcare training programs.



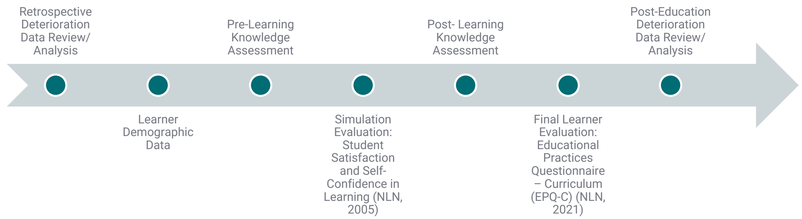
Project Design and Intervention

- Pre- and Post-intervention design
- **Intervention**: didactic + simulation experience
- **Setting**: Single Site (Hospital) – Pediatric Acute Care Units
- **Population**: Pediatric Acute Care Registered Nurses
- **Sampling Strategy**: Convenience
- **IRB**: Exempt Status (QI) – WFUSOM and CUA

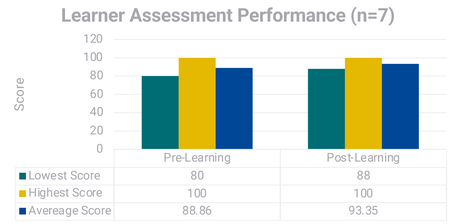
Participant Reach

- Targeted: 93 eligible Pediatric Acute Care Nursing Division registered nurses
- Enrolled: 8 RNs
- Completed training and assessments: 7 RNs
- REACH: 7.5%

Project Timeline



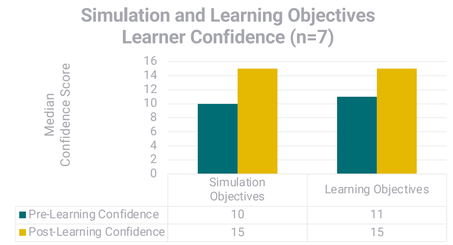
Pre-Learning and Post-Learning Knowledge



Z = -2.028
p = .043
large effect size (r = .54).

Median confidence score rose from the pre-assessment (Md = 90.00) to the post-simulation (Md = 94.12).

Pre-Learning and Post-Learning Simulation



Z = -2.226
p = .026
large effect size (r = .59).

Median confidence score improved from pre-simulation (Md = 10) to post-simulation (Md = 15)

Limitations and Opportunities

Limitations	Opportunities
Small sample size	Scope of education program expansion and modalities of learning expansion
Voluntary participation (selection bias)	Longitudinal follow up of learner and hospital deterioration data
Single center study	Interprofessional involvement

Significance and Impact of Findings

- Training increased nurses' confidence (*p* =.027), knowledge *(p* =.043*)*, and simulation (*p* = .026) in handling pediatric deterioration
- Hospital level data reveals ongoing need to train RNs
- Potential cost savings (avoiding PICU transfer/admission) and improved health outcomes

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