

An Early Warning Scoring System (EWSS) Didactic Program for Adult/Gerontology Acute Care Nurse Practitioner (AGACNP) Students

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Purpose

The goal of this quality improvement project was to provide an educational program on an early warning scoring system (EWSS) to students enrolled in the University of South Florida (USF) Adult-Gerontology Acute Care Nurse Practitioner (AGACNP).

Improvements in knowledge of an EWSS tool, confidence in its application, and ability to identify signs of early patient clinical deterioration, as well as attitudes towards its implementation in advanced practice and impact on patient outcomes were then evaluated.

Perceptions and attitudes related to how it will support the APRN, nursing staff, and reduce adverse events were also assessed in a pre- and post- survey structure.

Outcomes

Pre-intervention:

- 16 questions on a five-point Likert Scale concerning participants confidence/attitudes towards an EWSS clinical tool & caring for clinically deteriorating patients
- 5 open-ended questions on clinical experience, prior EWSS knowledge, and potential benefits

Post-intervention:

- 17 questions on a five-point Likert Scale
- 5 open-ended questions concerning EWSS educational session feedback, realized benefits of an EWSS tool, & implications for APP practice

Methods

Design

- Pre- and post-intervention evaluation design
- Survey data collected at baseline regarding knowledge and comfort level in using an early warning system in acute care
- 60-minute Blackboard Collaborate EWSS didactic session with Q&A
- Survey data post EWSS blackboard collaborate session

Sample

- 21 AGACNP students at USF completed the baseline pre-survey.
- 15 AGACNP students attended the blackboard collaborate EWSS didactic session and completed the post-survey

Setting

University of South Florida College of Nursing via blackboard collaborate

Background

Chart 1: The NEWS scoring system

Physiological parameter	Score			Score		
	3	2	1	0	1	2
Respiration rate (per minute)	≥8		9-11	12-20		21-24
SpO ₂ Scale 1 (%)	≤91	92-93	94-95	≥96		
SpO ₂ Scale 2 (%)	≤83	84-85	86-87	88-92	93-94 on oxygen	95-96 on oxygen
Air or oxygen?		Oxygen		Air		
Systolic blood pressure (mmHg)	≤90	91-100	101-110	111-219		≥220
Pulse (per minute)	≤40		41-50	51-90	91-110	111-130
Consciousness				Alert		CVPU
Temperature (°C)	≤35.0		35.1-36.0	36.1-38.0	38.1-39.0	≥39.1

Chart 2: NEWS thresholds and triggers

NEW score	Clinical risk	Response
Aggregate score 0-4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low-medium	Urgent ward-based response*
Aggregate score 5-6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

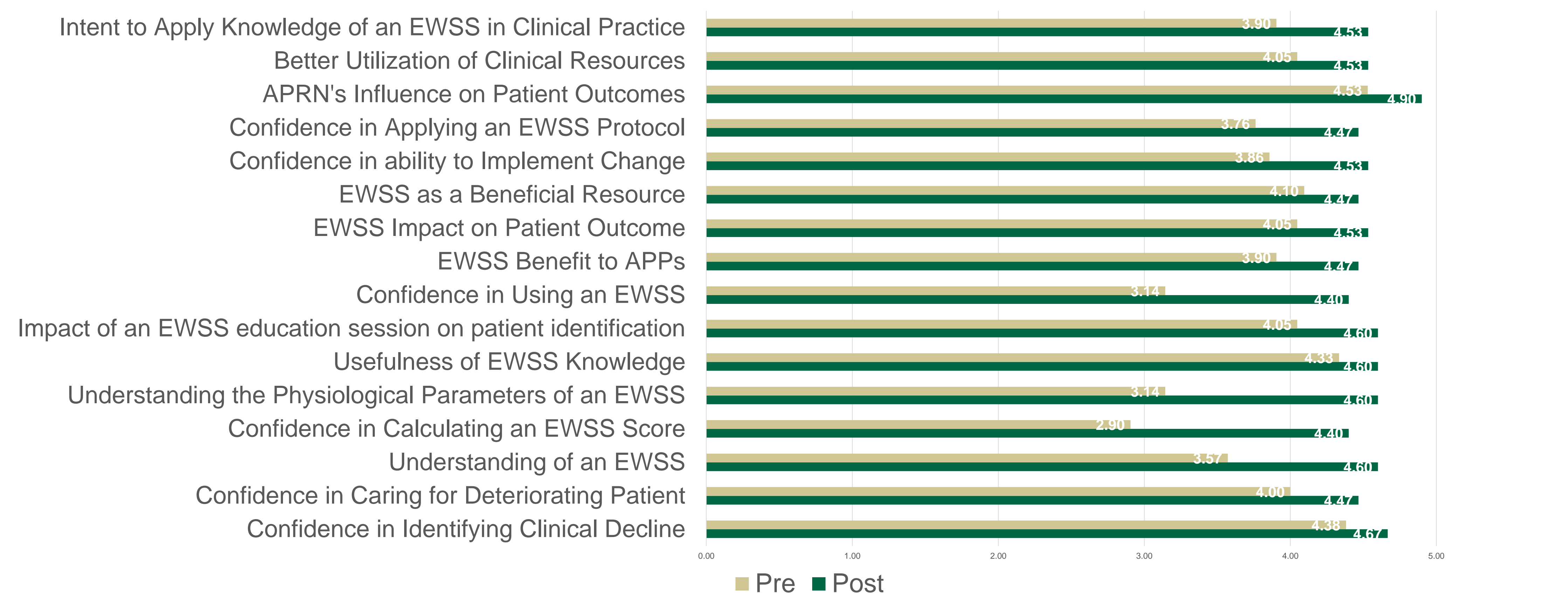
* Response by a clinician or team with competence in the assessment and treatment of acutely ill patients and in recognising when the escalation of care to a critical care team is appropriate.

**The response team must also include staff with critical care skills, including airway management.

- According to the U.S. Department of Health and Human Services (HHS) (2018) & the Office of Inspector General (2010), nearly 13% of hospitalized patients experience an adverse event and almost 45% of these adverse events were distinctly or possibly preventable.
- Several studies demonstrate inpatient cardiac arrest was preceded by many hours of physiological derangement (8-72hrs) (Royal College of Physicians, 2017; Stevens, 2019)
- In 2012, the Royal College of Physicians (RCP) & National Health System (NHS) developed a standardized EWSS, called the National Early Warning Score (NEWS); an updated version, called the National Early Warning Score 2 (NEWS2) was introduced in 2017. (Royal College of Physicians, 2017)
- Studies have shown EWSS protocols and tools to be useful in identifying patients exhibiting physiological alterations that are consistent with clinical deterioration, however their efficacy can be limited by inconsistent application by nurses and providers.
- There is an insufficient amount of literature available toward the attitudes and confidence in the use of EWSS by nursing & advanced practice providers on the perceived benefit to clinical practice.

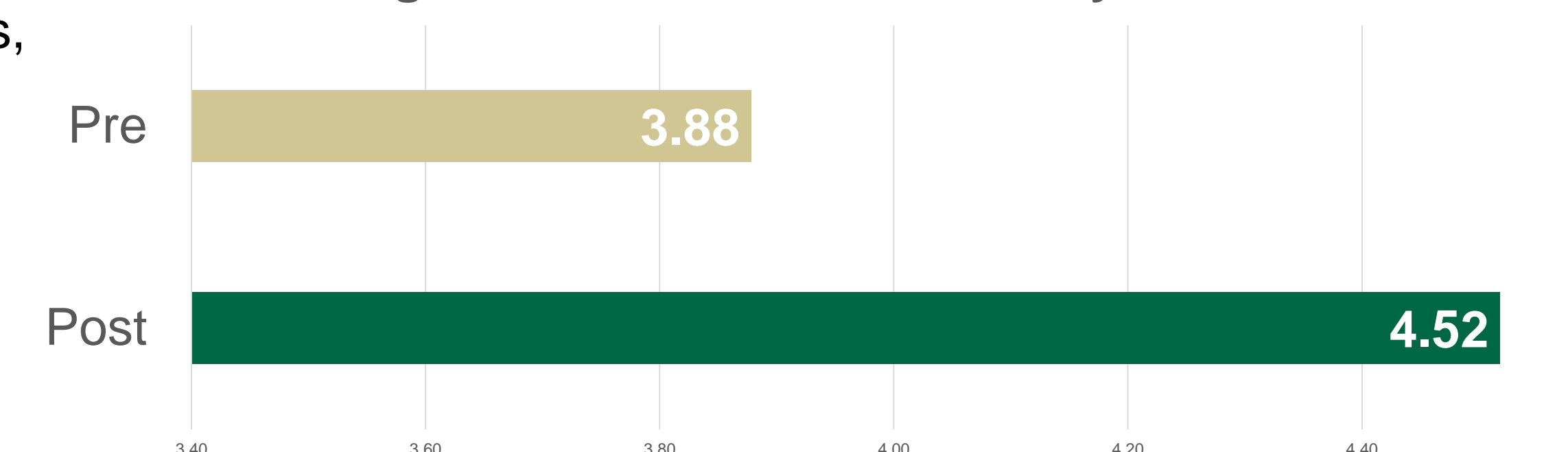
Results

Figure 1. Mean scores of pre- and post-intervention outcome measures



- Favorable attitudes of an EWSS as a beneficial resource to Advanced Practice, its influence on improving patient outcomes, & the intent to apply it to future practice
- Common themes of the post-survey open-ended questions:
 - The EWSS was easy to understand, calculate, and use
 - Knowledge of the EWSS will help identify early patient deterioration

Figure 2. Pooled Overall Survey Results



Discussion

The use of an EWSS is not used in every institution, however the concepts included in the scoring system can be adapted for the AGACNP as they are confronted with the patient who is exhibiting signs of clinical deterioration.

An EWSS is a useful clinical severity index tool that is calculated using less clinical variables than other severity assessment tools (i.e. APACHE-IV & SOFA), as well as being an effective screening tool for early clinical decline outside of the intensive care unit (ICU).

Implications for Practice:

- Education increased participant's confidence in their ability to identify and care for a clinically deteriorating patient
- Participants viewed an EWSS tool as a beneficial resource to APP practice that would improve patient outcomes
- Largest improvements were in participants confidence in utilizing an EWSS, knowledge of an EWSS, and calculating a score

Next Step:

- An EWSS can be a useful tool for future APRN practice & can be utilized by the APRN to identify patients at risk for clinical decline and across various levels of care in the hospital setting.
- APRNs can disseminate knowledge of an EWSS to improve clinical pathways and protocols in the hospital setting

References

- Royal College of Physicians. (2017). *National Early Warning Score (NEWS) 2: Standardising the assessment of acute-illness severity in the NHS*. Updated report of a working party. London: RCP.
- Stevens, J. P. (2019). Rapid response systems. In T. W. Post (Ed.), *UpToDate*. Waltham, MA.
- U.S. Department of Health and Human Services (HHS). (2018). Adverse events, near misses, and errors. Retrieved from Agency for Healthcare Research and Quality (AHRQ) website: <https://psnet.ahrq.gov/primers/primer/34/Adverse-Events-Near-Misses-and-Errors>
- U.S. Department of Health and Human Services Office of Inspector General. (2010). *Adverse events in hospitals: National incidence among medicare beneficiaries* (Report No. OEI-06-09-00090) (D. R. Levinson, Author).

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