IMPROVING NURSING ASSESSMENT USING THE RICHMOND AGITATION SEDATION SCALE (RASS)

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SCHOOL of NURSING

BACKGROUND: DELIRIUM

- Delirium is a **significant and common problem** found in critically ill patients (Kotfis et al., 2018; Vasilevskis et al., 2018).
- It is a form of **acute brain dysfunction**; characterized by inattention, fluctuations in thought, varying levels of consciousness, and decreased clarity of cognition (Krewulak et al., 2018; Vasilevskis et al., 2018).
- Estimated delirium prevalence ranges from **60-80% of mechanically ventilated patients and 20–50% of non-ventilated patients** in the ICU (Ely et al., 2001; Krewulak et al., 2018).

- **Nursing practice has the greatest impact on the administration of medications and use of assessment tools** related to Pain, Agitation, Sedation, Delirium, Immobility and Sleep (PADIS) (Waterfield & Barnason, 2020).
- Sedation and analgesia are routinely administered to ICU patients receiving mechanical ventilation to reduce pain and anxiety yet they **contribute to delirium** (Devlin et al., 2018).

CLINICAL & FINANCIAL SIGNIFICANCE

ICU delirium has significant clinical implications

Increased ventilator, ICU, and hospital lengths of stay

Development of long-term sequelae such as post-ICU syndrome, **increased mortality**

(Kotfis et al., 2018).

ICU delirium has significant economic costs

ICU costs related to delirium estimates range from:

$1,529-$14,462 per ICU stay/$806-$24,509 per inpatient stay

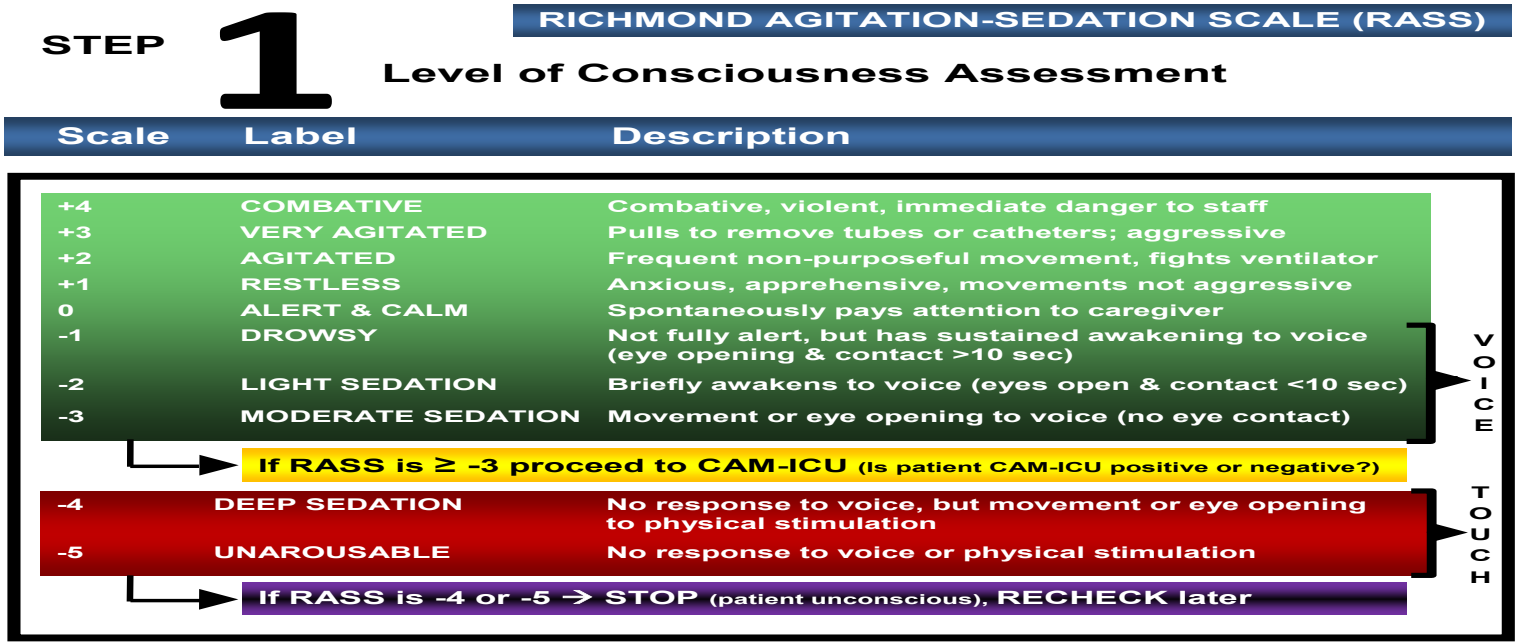
$6.6 billion-82.4 billion annually in United States (2019 data)

(Kinchin et al. 2021)

PRACTICE RELEVANCE: RASS

- An accurate assessment using the Richmond Agitation Sedation Scale (RASS) is a **foundational component of accurate delirium assessment** using the Confusion Assessment Method-ICU (CAM-ICU) (Ely et al., 2001).
- The RASS has high reliability/validity in: medical/surgical, ventilated/ nonventilated, sedated/nonsedated adult ICU patients (Sessler et al., 2002).
- An assessment of the patient's sedation state using the **RASS must be completed before assessing delirium** using CAM-ICU
- Patients with a value of −4 or −5 on the RASS cannot proceed to the next portion of the CAM-ICU assessment (Jung et. al, 2013).
- Gaps were identified in the practice site using the RASS, including nurses documenting **lower scores than assessed by the DNP student investigator indicating patients are over sedated** prior to project initiation.

SCORING THE RASS



Sessler, et al., Am J Repir Crit Care Med 2002, 166: 1338-1344 Ely, et al., JAMA 2003; 286, 2983-2991

BRINGING IT ALL TOGETHER

The nursing practice question is, “In adult critical care units, what is the impact of the implementation of RASS standard work on the accuracy of novice nurses’ bedside assessment?”

Themes identified in the literature:

Documentation of nursing assessment skills (2) Team member training (3), Intent to act (1)

Based on analysis of the literature, the best fit project method was continuous quality improvement (CQI).

- CQI was identified as a good fit **as there are existing evidence-based practices in place supporting care of the delirious patient.**
- This include the use of validated tools-RASS, CAM-ICU, and policies to support the care of delirious patients.
- At the practice site, **there is a lack of in person education about delirium** during onboarding of novice nurses and lack of **opportunity to practice use of assessment tools.**

THEORETICAL FRAMEWORK:

Jean Watson's Human Caring Theory:

- Theoretical framework of the organization where the DNP project was conducted.
- Centers the patient as the impetus behind the work that we do.

Watson Caring Science Institute

Watson's original model includes ten caritive factors:

Formation of a humanistic-altruistic system of values

Instillation of faith-hope

Cultivation of sensitivity to oneself and others

Development of a helping-trusting relationship

Promotion and acceptance of the expression of positive and negative feelings

Systematic use of the scientific problem-solving method for decision making

Promotion of interpersonal teaching-learning

Provision for a supportive, protective, and (or) corrective mental, physical, sociocultural, and spiritual environment

Assistance with gratification of human needs,

Allowance for existential-phenomenological forces

(Watson, 2008)

IMPLEMENTATION FRAMEWORK: PDSA

The Institute for Healthcare Improvement Model for Improvement (Institute for Healthcare Improvement (IHI), 2022)

What are we trying to accomplish?

- Implementation of RASS standard work/improve the accuracy of novice nurses bedside assessment

How will we know that a change is an improvement?

- Measurement pre & post using the Nurses Delirium Knowledge Questionnaire & Validation of accuracy using the RASS assessment (Hare et al., 2008, B.Butler, personal correspondence, June 13, 2022, C. Blevins, personal correspondence, June 15, 2022)

What change can we make that will result in improvement?

- Validate/standardize novice critical care nurse training within the care site

(IHI, 2022)

PLAN: EDUCATION MODEL/ ETHICAL CONSIDERATIONS

- Micro-education (ME) is used in healthcare settings and interfaces well with PDSA- based on the acquisition of skills and knowledge in small units
- **Benefits of this strategy include a stepwise approach to improvement** that is best suited to learning
- Can be a useful education strategy to improve performance/increase safety (Gagne et al., 2019)

- Project deemed exempt by organization IRB/QI
- Critically ill patients are fragile, clinical status changes often
- May be decisionally impaired/ **vulnerable population**.
- Discussed in education training sessions (Estela, 2018).

PLAN: SETTING AND TIMELINE

Setting:

ANCC Magnet® designated complex care hospital in Northern Virginia

Who?

Novice critical care nurses (RN fellow/RN grad fellows): 15

Units involved:

12-bed Medical Intensive Care Unit (MICU)

11-bed Surgical Trauma Unit (STICU)

14-bed Intermediate Care Unit (IMC)

Interdisciplinary Team:

Nursing Directors (3), Critical Care Mentor (1), Intensivists/APPs, DNP Student Investigator

July 11 2022: DNP Project Approval

Mid-late July: Submitted to organization's IRB for approval

Aug 1 2022: Presented to organization's research committee-approved

Mid Aug 2022: Develop questionnaire in RedCap/Meeting to discuss implementation plan with the team.

Early Sept 2022: Trialed education session with clinical mentor

9/23-10/21: Conducted Education sessions/RASS Validations

Late Oct 2022: Concluded education sessions

Nov-Dec 2022: Data analysis with statistician support

Jan 2023: Ongoing analysis, writing, development of poster, development of defense presentation

March 2023: Defense

April 2023: Ongoing writing/final work

May 2023: Graduation

DO: BACK TO BASICS EDUCATION

Back to Basics: Delirium Education Sessions

- Conducted Fall 2022
- Pre-education questionnaire/Post-education questionnaire
- Sessions were 1 hour-multimodal: didactic, patient experience and simulation components.
- Used validated tool: Nurses Knowledge Delirium Questionnaire (NKDQ)

(C. Blevins, personal correspondence, June 15, 2022, I.Hinton, personal correspondence, July 5, 2022).

Demographics:

15 total novice critical care nurses (NCCN)

Age ranges: 5 ages 18-24, 5 ages 25-34, 5 ages 35-44.

Gender identity: 14 identified as female, 1 identified as male

Unit: 4 Intermediate Care, 7 Surgical-Trauma ICU, 4 Medical ICU

Highest Degree: 12 Bachelors in Nursing, 3 Associates in Nursing

How long in nursing:

8: 0-1 years

5: 1-5 years

1: 5-10 years

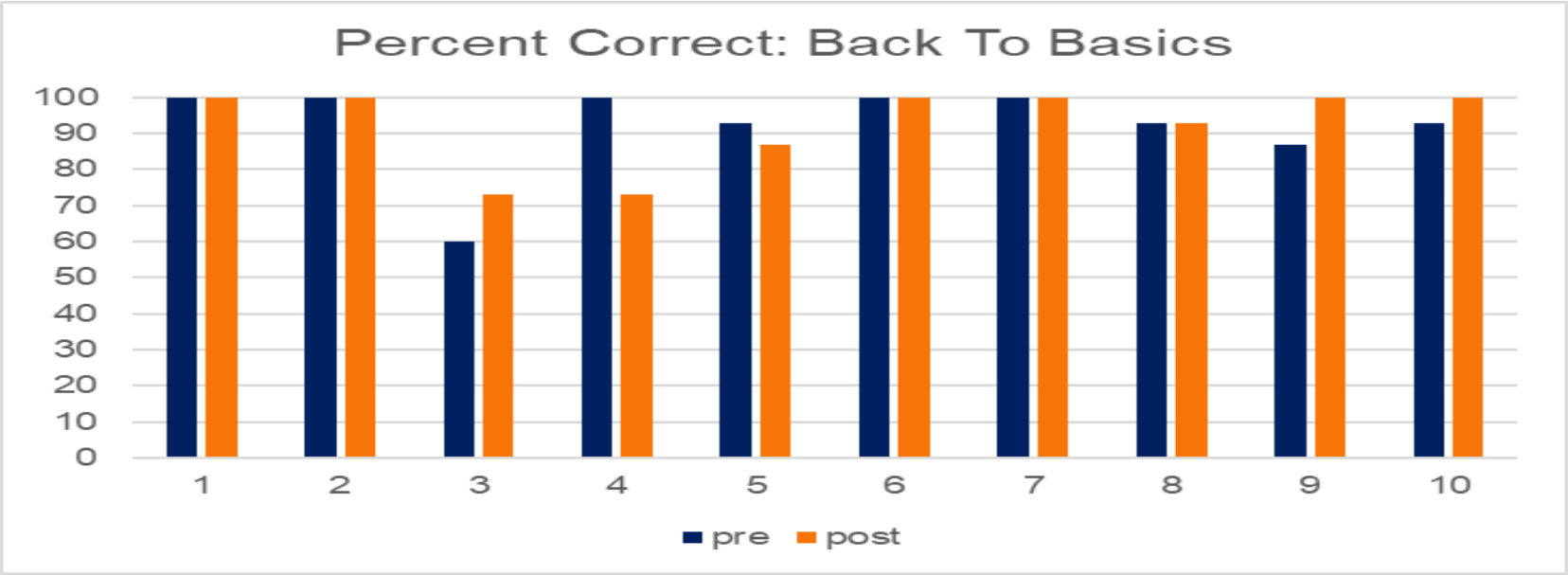
1: 10 or more years

How long in Critical Care:

8: 0-3 months in CC

7: 3-6 months in CC

STUDY: BACK TO BASICS RESULTS



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STUDY: VALIDATION OF SKILLS

- Validation of nursing skill performing the RASS assessment was completed by the DNP student (DSI) investigator and novice critical care nurses (NCCN).
- All 15 students were validated.
- 9 were on night shift
- 6 were on day shift

The DSI conducted the RASS assessment with the student.

Goal of **80%** correctness amongst the validation sessions.

(I.Hinton, personal correspondence, July 5, 2022)

- **Pre** education, validation of skill performing the RASS was assessed at **40%** accuracy (10).
- **Post** education, validation of skill performing the RASS was assessed at **100%** accuracy (15)

Field Notes:

- NCCN reported their assessments **did not match** their experienced peers.
- Patients were noted to be outside the range of 0 to -2 on the RASS scale 46% of sessions.
- As a result, nurses titrated down on their sedation or notified the provider to adjust their order range.

ACT: FINANCIAL IMPLICATIONS

ICU Length of Stay (LOS) was collected prior, during and after the project to evaluate decreased LOS. Patients w/delirium and related diagnoses spend **two days longer in the ICU versus those without.** (K.Petigara, personal communication, June 24, 2022).

		MICU		STICU	
		ALOS	Average Cost per Stay*	ALOS	Average Cost per Stay
Pre-implementation	July/Aug	3.8	$20,900	3.2	$17,600
Implementation	Sept/Oct	4.1	$22,550	3.2	$17,600
Post-implementation	Nov/Dec	3.5	$19,800	3.3	$18,150

*Average cost for ICU day is approx. $5,500

ACT: CLINICAL IMPLICATIONS

- At current, the organization is revising their practices for orienting novice critical care nurses in the ICU.
- This project is anticipated to serve as a foundation for system training and skill validation of novice critical care nurses.

Future plans:

- Development of a onboarding education and practice using assessment tools for novice nurses (in process)
- Creation of a delirium pathway for providers in alignment with medical diagnostics (anticipated third quarter 2023)
- Replication of a similar approach using the CAM-ICU (Spring 2023)

CONCLUSIONS

- The RASS assessment is a foundational component of delirium identification. In almost half of the validation sessions, novice nurses identified sedation needed to be adjusted to meet patient goals.
- This QI project identified that nurses at this practice site did not have a knowledge gap about **delirium-they had an experience gap using delirium assessment tools.** This information may assist in targeting future training to meet clinicians needs.
- Critical Care Onboarding revisions are currently underway and will address the use of delirium assessment tools.
- In 2023, an annual competency has been developed for all ICU nurses throughout the organization reviewing the RASS and CAM-ICU assessments.
- Length of stay decreased for the MICU during the period post project implementation and increased for STICU.
- Ongoing QI efforts related to delirium assessment may improve nursing practice and patient outcomes.

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Questions?

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