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Increasing Nurse Knowledge on the Confusion Assessment Method to Detect Delirium in Adult Critically Ill Patients

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Introduction

Background and Significance

- Intensive care unit (ICU) delirium is a common problem among critically ill patients that presents as an altered level of consciousness with accompanied inattention that lasts hours to days. The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) is a validated tool that is used to detect ICU delirium. It can be performed in less than five minutes. It is highly accurate in detecting delirium. When performed incorrectly, however, it decreases both sensitivity and specificity to <50%.
- Delirium is linked to increased morbidity and mortality, increased risk of physical and cognitive effects, and an increased healthcare cost. Early detection, and thus early treatment, is essential in decreasing poor outcomes.
- Despite these poor outcomes, delirium goes unidentified in 35-75% of patients. Lack of formal education on a designated screening tool shown to contribute to the problem.
- A needs assessment at the chosen study site revealed that nurses were not performing the CAM-ICU properly due to lack of formal education.

Purpose

The purpose of this project is to increase nurses' knowledge of delirium and their ability to detect it using the CAM-ICU assessment tool. This was obtained using the following aim and objectives:

1) Increase the nurses' knowledge of screening for delirium using the CAM-ICU and will be achieved using the following objectives:

- Evaluating nurses' knowledge on delirium and the CAM-ICU with a pre-test and pre-objective assessment of the nurse using the CAM-ICU.
- Educate the nurses about delirium, the risks and the short- and long-term effects on the patient, caregivers, and hospital
- Evaluating nurses' knowledge post-intervention using an immediate post-test and post-intervention objective assessment of the nurse using the CAM-ICU
- Evaluating nurses' satisfaction with the education with a survey

Methodology

Design: Quality improvement, pre-test/post-test

Setting:
- A suburban, Magnet designated, 643-bed, level 1 trauma center in northern New Jersey.
- The unit was a 22-bed Surgical ICU and a 10-bed Medical ICU. The target participants were bedside nurses.

Sample:
- Convenience sample of the 95 nurses that work in the Surgical and Medical ICU.
- 21 nurses were recruited
- $n = 18$

Intervention:
- One-hour interactive virtual education session
- CAM-ICU Worksheet posted in every room and at the nurse's station to aid in performing the assessment.

Analysis
- Each of the measured outcomes will be analyzed using the Wilcoxon Rank Sum Test.
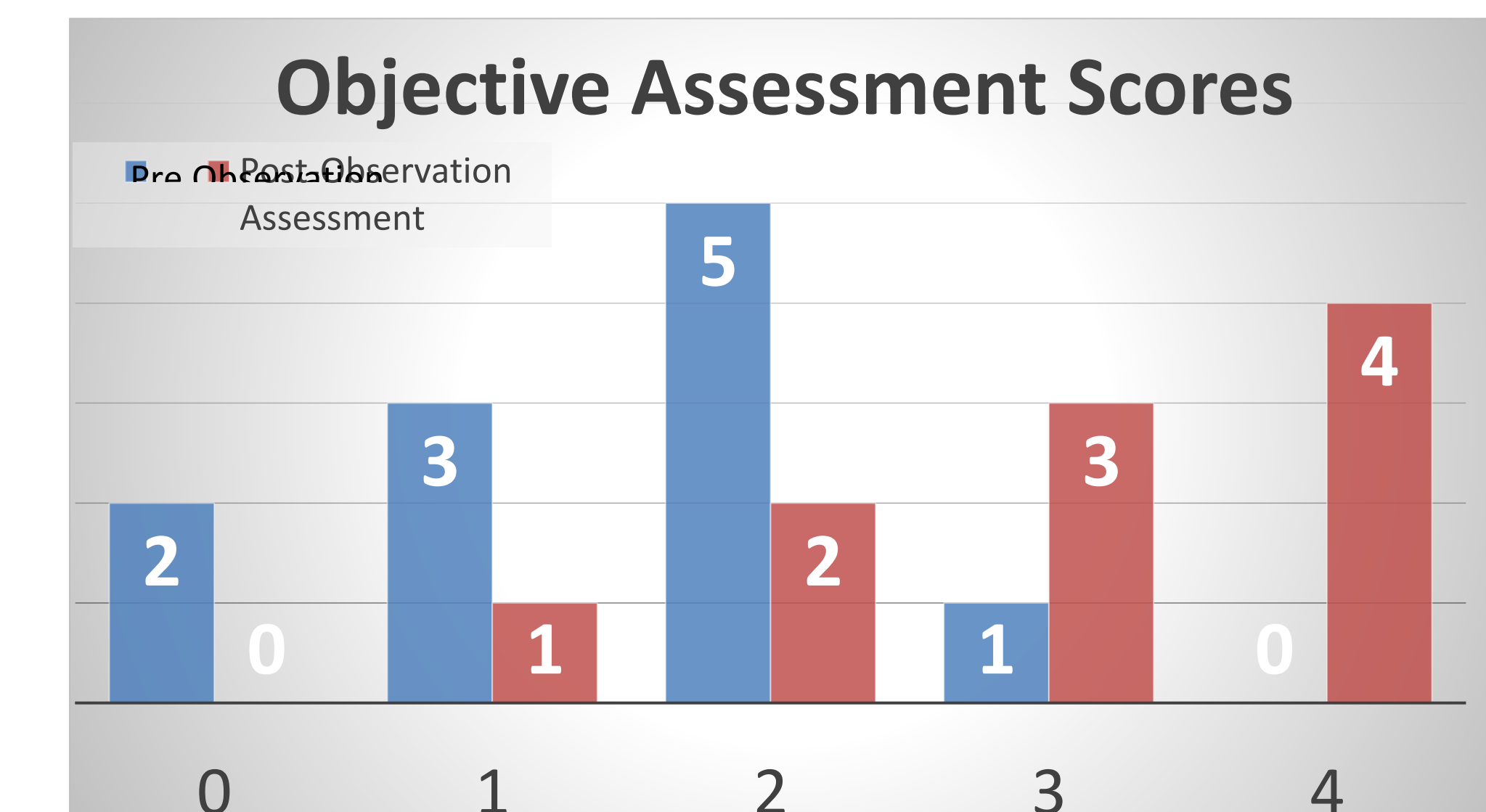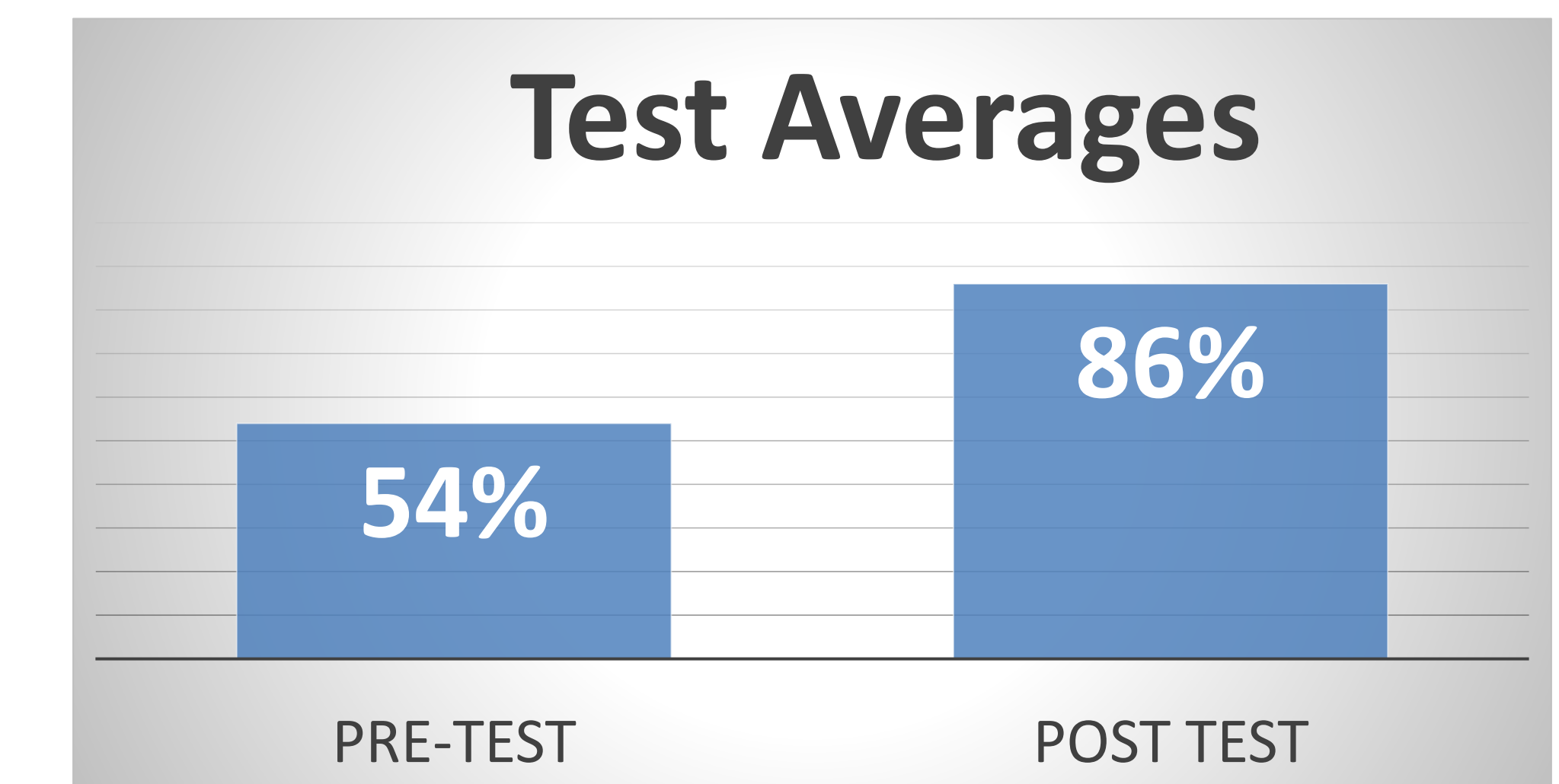
Outcomes Measured:
- Knowledge of CAM-ICU pre- and post-education measured by a 15-question test.
- Ability to perform the CAM-ICU assessment correctly measured by a pre- and post-education objective assessment.

CAM-ICU Worksheet

Feature 1: Acute Onset or Fluctuating Course	Score	Check here if Present
Is the patient different than his/her baseline mental status? OR Has the patient had any fluctuation in mental status in the past 24 hours as evidenced by fluctuation on a sedation/level of consciousness scale (i.e., RASS/SAS), GCS, or previous delirium assessment?	Either question Yes →	☐
Feature 2: Inattention		
Letters Attention Test (See training manual for alternate **Pictures**) Directions: Say to the patient, *"I am going to read you a series of 10 letters. Whenever you hear the letter 'A', indicate by squeezing my hand."* Read letters from the following letter list in a normal tone 3 seconds apart. **S A V E A H A A R T** or **C A S A B L A N C A** or **A B A D B A D A A Y** Errors are counted when patient fails to squeeze on the letter "A" and when the patient squeezes on any letter other than "A."	Number of Errors >2 →	☐
Feature 3: Altered Level of Consciousness		
Present if the Actual RASS score is anything other than alert and calm (zero)	RASS anything other than zero →	☐
Feature 4: Disorganized Thinking		
Yes/No Questions (See training manual for alternate set of questions) 1. Will a stone float on water? 2. Are there fish in the sea? 3. Does one pound weigh more than two pounds? 4. Can you use a hammer to pound a nail? Errors are counted when the patient incorrectly answers a question. **Command** Say to patient: "Hold up this many fingers" (Hold 2 fingers in front of patient) "Now do the same thing with the other hand" (Do not repeat number of fingers) *If the patient is unable to move both arms, for 2nd part of command ask patient to "Add one more finger" An error is counted if patient is unable to complete the entire command.	Combined number of errors >1 →	☐

Overall CAM-ICU	Criteria Met →	☐ CAM-ICU Positive (Delirium Present)
Feature 1 **plus 2** and either **3 or 4** present = CAM-ICU positive	Criteria Not Met →	☐ CAM-ICU Negative (No Delirium)

Results

- Pre- and Post-Tests as well as Pre- and Post-Objective assessments were evaluated using the Wilcoxon Rank Sum Test. Results for both the tests and objective assessments were found to be statistically significant, $p < 0.01$. Breakdown of the average test score and results of the objective assessments scores are shown..

- All 18 participants completed the pre- and post-tests and attended one of the four educational sessions. Due to some limitations, 14 people were part of the pre-objective assessments, and 15 people were part of the post objective assessments. Those who did not complete the objective assessments were not included in the observational assessment graph shown.

Test Averages

PRE-TEST: 54%
POST TEST: 86%

Objective Assessment Scores

Pre Observation Assessment / Post Observation Assessment

	0	1	2	3	4
Pre	2	3	5	1	0
Post	0	1	2	3	4

Discussion

Conclusion

The aim of this study was to increase nurse knowledge and ability to use the CAM-ICU assessment tool to detect delirium. This was done by evaluating baseline knowledge and ability to perform the CAM-ICU with a pre-test and pre-objective assessment of each participant, and then evaluate the change in knowledge and ability to use the CAM-ICU after an educational session and implementation of a CAM-ICU checklist with a post-test and objective assessment. Both the scores on the test and the objective assessment significantly increased after the interventions were implemented.

Implications for Practice

The CAM-ICU is a validated tool that is used for screening for delirium with high specificity and sensitivity. However, the full accuracy of the tool is reliant on the ability of the user. Assuring the person using the screening tool is educated about the tool and able to perform it well is important for delirium to be properly detected or ruled out. This project shows evidence supporting the effectiveness of an educational session and posted worksheet as a reminder as ways to ensure staff knowledge and performance using the tool will increase. By increasing early detection by increasing the nurses' ability to perform the CAM-ICU, delirium intervention can begin earlier, and poor outcomes can be decreased or avoided.

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