



Summer 2016

An Effective Cognition Assessment in Ventilated Patients

Gabrielle Lober
Western Michigan University

Rachel Walker
Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/ot_posters



Part of the Occupational Therapy Commons

WMU ScholarWorks Citation

Lober, Gabrielle and Walker, Rachel, "An Effective Cognition Assessment in Ventilated Patients" (2016).
Occupational Therapy Graduate Student Evidenced-Based Research Reviews. 12.
https://scholarworks.wmich.edu/ot_posters/12

This Article is brought to you for free and open access by the Occupational Therapy at ScholarWorks at WMU. It has been accepted for inclusion in Occupational Therapy Graduate Student Evidenced-Based Research Reviews by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.



An Effective Cognition Assessment in Ventilated Patients

Gabrielle Lober, OTS and Rachel Walker, OTS

Case

Ventilated patients have a high prevalence of cognitive dysfunction that often decreases their ability to engage in daily occupations. Occupational therapists have used a variety of strategies and assessments to gain knowledge on a patient's cognitive status. These findings can help therapists develop intervention plans to reach patient goals and improve functional abilities.



1 Ask: Research Question

What is the most effective cognitive screening tool for patients on ventilators or recently post-ventilator dependent?

2a Acquire: Search Terms

Patient/Client group: Ventilator or Post-Ventilator Dependent **I**ntervention: Confusion Assessment Method **C**omparison: All Cognitive Assessments **O**utcome: Accurate Assessment of Cognitive Function

2b Acquire: Selected Articles

Leutz et al. (2010): A prospective cohort study comparing the validity and reliability of the Confusion Assessment Method for the ICU (CAM-ICU), Delirium Detection Score (DDS), and the Nursing Delirium Screening Tool (Nu-DESC), and their ability to detect and assess delirium in intensive care unit patients compared to DSM-IV criteria for diagnosing delirium completed by a delirium expert.

Smith et al. (2016): A prospective, observational cohort study to determine the reliability and validity of an objective and developmentally appropriate assessment for delirium, the Preschool Confusion Assessment Method for the ICU (psCAM-ICU), and delirium's prevalence in preschool-aged children.

Soja et al. (2008): A prospective, observational study that used the Confusion Assessment Method for the Intensive Care Unit as a way to monitor delirium, testing reliability, and monitoring compliance in a trauma setting.

3a Appraise: Study Quality

Leutz et al. (2010): Medium sample size (n=156) and the only study to compare the three assessments in the same patients against "the gold standard." Accounted for repeat-observer and expectation bias, and interrater reliability ($\kappa=.89$). Significant differences between CAM-ICU and DDS in sensitivity ($p<.0001$) and significant differences between CAM-ICU and Nu-DESC in specificity ($p<.0001$). A limitation is that the CAM-ICU requires active cooperation from a patient, which may have effected patient fatigue for the remaining of the assessment. Although the sample size in this study is large, interrater reliability was based on only a quarter to a third of the sample.

Smith et al. (2016): Medium sample size (n=300) and the most recent study examining delirium assessments with the critically ill population. Controlled for exhaustion when assessing reliability, but this controlled process may have skewed interrater reliability ($\kappa=.79$). psCAM-ICU was accurate (.86), had high sensitivity (.75) and high specificity (.91). The short form of the psCAM-ICU, which takes less than two minutes, was accurate (.83), has a higher sensitivity (.78) and maintained a high specificity (.86) compared to the long form. Ventilated participants (n=185) had a higher sensitivity (.81) and specificity (.96) than other participants.

Soja et al. (2008): Large sample size (n=1100) with an expert evaluator during assessment. Strong inter-rater reliability ($\kappa=.89$, $p<.0001$). In mechanical ventilation, $p<.0001$ in reliability. Study limited because all observations were completed by a single expert evaluator. Other limitations include that the CAM-ICU is not validated for trauma patients and the Kappa values may have been estimated incorrectly, due to possible duplicate participants and assessors.

3b Appraise: Study Results The findings of these studies suggest the CAM-ICU is a reliable and valid assessment tool with critical care and trauma patients, including those on mechanical ventilation. The CAM-ICU helps in identifying delirium, and is considered highly sensitive and specific. The CAM-ICU helps to assess fluctuating mental status, inattention, altered levels of consciousness, and disorganized thinking. This tool has strong support from clinicians in trauma settings. The high-inter reliability suggests that the CAM-ICU should be performed with all critical care and trauma patients to implement routine monitoring of cognitive status.

4 Apply: Conclusions for Practice The occupational therapist would find it an effective use of time to administer the CAM-ICU daily, as it takes 2-5 minutes for all ages and populations. The results of these studies aim to show the strong reliability and validity of the tool, and its effectiveness in the ICU. The CAM-ICU provides a simple solution to help monitor cognitive changes in patients, including those on mechanical ventilation. The CAM-ICU should be used instead of other assessments because it has shown to be a more sensitive, reliable, and valid tool when assessing cognition. Assessing cognition early in a patient's health journey helps to plan treatment and allow the patient to return to their most functional level of independence in their daily occupations.

References:

1. Leutz, A., Heyman, A., Radtke, F., Chenitir, C., Neuhaus, U., Nachtigall, I., ... Spies, C. (2010). Different assessment tools for intensive care unit delirium: Which score to use? *Critical Care Medicine*, 38(2), 408-418. doi: 10.1097/CCM.0b013e3181cabb42
2. Smith, H. A., Gangopadhyay, M., Goben, C. M., Jacobowski, N. L., Chestnut, M. H., Savage, S. ... Pandharipande, P. P. (2016). The Preschool Confusion Assessment Method for the ICU: Valid and reliable delirium monitoring for critically ill infants and children. *Critical Care Medicine*, 44(3), 592-600. doi: 10.1097/CCM.0000000000001428
3. Soja, S. L., Pandharipande, P. P., Fleming, S. B., Cotton, B. A., Miller, L. R., Weaver, S. G., ... Ely, E. W. (2008). Implementation, reliability testing, and compliance monitoring of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) in trauma patients. *Intensive Care Medicine*, 34(7), 1263-1268. doi: 10.1007/s00134-008-1031-x

The Confusion Assessment Method (CAM-ICU) is a reliable and valid assessment tool to screen cognition in ventilated patients.

W College of Health and Human Services
Department of Occupational Therapy
WESTERN MICHIGAN UNIVERSITY