

## Group 3: CAT Assignment (Critically Appraised Topic)

Title: “The effectiveness of the Memory Orientation Screening Test (MOST) for potential dementia patients”

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### 1. Clinical Question: What is a rapid and accurate screening test to diagnose dementia?

PICO Parts:

P – Dementia

I – Screening Test

C – None

O – Rapid and accurate diagnosis of dementia

### 2. Search Strategy:

- 32 studies initially identified
- This specific study was chosen because it most clearly answered my question regarding dementia and included all of my PICO components.

a. Database(s) searched: PubMed

b. Keyword Search Terms used: none

c. MeSH Search Terms used: DEMENTIA (MeSH Major Topic) AND MASS SCREENING (MeSH Major Topic) AND DIAGNOSE (MeSH Term)

d. Limits: Clinical Trial, English, Humans

### 3. Methods Description (setting, population, sample size, study design):

- **Setting-** No specific location given but data was gathered between 2001-2004 and 2005-2009
- **Population-** Elderly population at risk of developing dementia
- **Sample Size-** One thousand seven hundred fifty-two patient records, gathered from neuropsychological (NP) evaluation records (N=1474) and geriatric psychiatry (GP) practices (N=278) were evaluated to gather scores and data regarding the MMSE, MOST, and Mini-Cog assessments. Test items were used early in the experiment on 584 cases. To validate the instruments, a second group of 702 cases were gathered and analyzed. For test-retest analysis, 224 cases were evaluated at a 6- or 12-month (median 7 months) intervals. Lastly test-retest reliability was analyzed by evaluating 175 cases. The significance, sensitivity, specificity, test-retest reliability, and other utility factors for the MOST, MMSE, and Mini-Cog were acquired.
- **Study Design-** Case-control

4. Methods Interpretation (Validity):

- a. Was there an independent “blind” comparison with a reference standard?
  - No, there was a lack of blinding applied. However, the 3 screening tests all had high convergent validity with  $P < .001$ . ROC analyses on validation yield AUC of 95% CI (.87-.94) for MOST with a sensitivity of .85 and specificity of .76. MMSE yielded an AUC of 95% CI (.82-.90) with .70 sensitivity and .80 specificity. Mini-Cog had a AUC 95% CI (.80-.89) with specificity of .87 and sensitivity of .67.
- b. Did the sample include an appropriate spectrum of patients to whom the diagnostic/screening test will be applied in clinical practice?
  - Yes, the sample demographic and health characteristics of the study cases were all pertinent for elderly male/females at risk for developing dementia. Selection bias was eliminated because there was no difference in characteristics between the 3 groups who received the various cognitive assessments to screen and diagnose dementia.
- c. Did the results of the diagnostic/screening test being evaluated influence the decision to perform the reference standard?
  - No. For comparison, however, all three screening assessments were performed and the various utility features (sensitivity, specificity, validity, etc.) of each were analyzed.
- d. Were the methods for performing the diagnostic/screening test described in sufficient detail to permit replication?
  - Yes, the statistical methods, tests, and research design are all present to permit replication. In the study described, there is no need for preparation of the patient, and each of the 3 tests performed have standardized methods for implementation. Furthermore, the interpretation of the results matches the analysis and conclusion.

5. Results:

- All 3 cognitive tests used to detect dementia are standard practices and used regularly. This study proves, using a well targeted population demographic at risk for dementia, that the MOST cognitive assessment is faster, more accurate, and more sensitive at screening for dementia than MMSE and the Mini-Cog assessments. The AUC of the MOST assessment is significantly higher than that of the MMSE and Mini-Cog.

6. Translational applications (How does this study apply to your patients?):

- The study was adequately valid and shows statistically significant differences between the 3 different cognitive assessments. This study has important translational applications to my patients because it has informed me to use the MOST assessment when screening for dementia in my clinic. This assessment is faster, more accurate, and more sensitive than the other commonly used assessments in the field. This will help me diagnose dementia faster and help my patients start treatment earlier, thereby leading to a better prognosis in my patients. I do recommend that other clinics replicate this study to verify the value of the MOST assessment.

7. Reference: Clionsky M, Clionsky E. Development and validation of the Memory Orientation Screening Test (MOST<sup>TM</sup>): a better screening test for dementia. *Am J Alzheimers Dis Other Demen.* 2010; 25(8):650-656. doi: 10.1177/1533317510386216