Original Study

MDS 3.0: Brief Interview for Mental Status

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A B S T R A C T

Objectives: To test the feasibility and validity of the Brief Interview for Mental Status (BIMS) as a performance-based cognitive screener that could be easily completed by nursing home staff. The current study examines the performance of the BIMS as part of the national testing of the Minimum Data Set 3.0 (MDS 3.0) for Nursing Homes.

Methods: The BIMS was tested as part of the national MDS 3.0 evaluation study among 3822 residents scheduled for MDS 2.0 assessments. Residents were from 71 community nursing homes (NHs) in eight states. Residents were randomly included in a feasibility sample (n = 3258) and a validation sample (n = 418). Cognition was assessed with three instruments: the Brief Interview for Mental Status (BIMS), the MDS 2.0 Cognitive Performance Scale (CPS), and the Modified Mini-Mental State Examination (3MS). Trained research nurses administered the 3MS and BIMS to all subjects in the validation study. The CPS score was determined based on the MDS 2.0 completed by nursing home staff who had undergone additional training on cognitive testing. Standard cutoff scores on the 100-point 3MS were used as the gold standard for any cognitive impairment (<78) and for severe impairment (<48). Staff impressions were obtained from anonymous surveys.

Results: The BIMS was attempted and completed in 90% of the 3258 residents in the feasibility sample. BIMS scores covered the full instrument range (0–15). In the validation sample, correlation with the criterion measure (3MS) was higher for BIMS (0.906, P < .0001) than for CPS (0.739, P < .0001); P < .01 for difference. For identifying any impairment, a BIMS score of 12 had sensitivity = 0.83 and specificity = 0.91; for severe impairment, a BIMS score of 7 had sensitivity = 0.83 and specificity = 0.92. The area under the receiver operator characteristics curve, a measure of test accuracy, was higher for BIMS than for CPS for identifying any impairment (AUC = 0.930 and 0.824, respectively) and for identifying severe impairment (AUC = 0.960 and 0.857, respectively). Eighty-eight percent of survey respondents reported that the BIMS provided new insight into residents’ cognitive abilities. The average time for completing the BIMS was 3.2 minutes.

Discussion: The BIMS, a short performance-based cognitive screener expressly designed to facilitate cognitive screening in MDS assessments, was completed in the majority of NH residents scheduled for MDS assessments in a large sample of NHs, demonstrating its feasibility. Compared with MDS 2.0 observational items, the BIMS performance-based assessment approach was more highly correlated with a criterion cognitive screening test and demonstrated greater accuracy. The majority of surveyed staff reported improved assessments with the new approach.

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More than 50% of nursing home (NH) residents are reported to have cognitive impairment. Cognitive impairment is associated with poorer functional outcomes and influences resource and support needs. Changes in cognitive function may indicate an important clinical change related to delirium or significant mood disorder. Reliable and valid screening is therefore important for identifying residents who need further evaluation and modified care planning. For these reasons, the Minimum Data Set (MDS) has traditionally included items focused on cognitive function.

The MDS 2.0 cognitive assessment items have been based on synthesizing staff member's subjective observations of the resident. These items can be used to calculate the Cognitive Performance Scale (CPS) for research or case-mix purposes. Although CPS scores based on research-nurse cognitive assessments have strong to moderate correlation with Mini-mental State Exams (MMSE) scores, the subjective nature of the items increases the risk for misclassification because of variation in staff vigilance or because of assumptions based on resident appearance or age. While MDS 2.0 misclassification may seem insignificant on a population basis, incorrect cognitive screening can have serious implications for care planning at the patient level.

In addition, the cognitive items in MDS 2.0 are unique to the NH setting and do not align with items used or recognized by providers in other settings. A related limitation of the MDS 2.0 cognitive assessment is that derivation of the CPS score requires application of an algorithm; as a result, scores are not typically transparent to facility staff. This effectively limits the assessment's impact on communication across providers.

In the early phases of national efforts to develop MDS 3.0, the MDS 2.0 cognitive items were identified as potentially problematic. Written feedback from providers and content experts included strong objections to the subjective nature of MDS 2.0 cognitive items. Providers especially objected that the “memory OK” items were subjective and ill-defined. A MDS 3.0 validation panel rated the individual MDS 2.0 memory items, when scored by nursing home staff, as having indeterminate validity. In addition, facility nurses expressed discomfort with trying to accurately complete these subjective assessments. Only 29% of the nurses in our baseline survey on attitudes surrounding MDS 2.0 reported that the MDS 2.0 cognitive items were easy to complete accurately.

Because subjective screening is more likely to err in identifying cognitive impairment than objective testing and is more likely to be influenced by unrelated patient characteristics and staff attitudes, objective performance-based testing is the preferred approach for cognitive assessment, reserving subjective assessments for instances when residents cannot communicate. Another primary rationale for performance-based cognitive testing is the key role that structured cognitive assessment plays in identifying delirium. Delirium, an extremely important medical condition, is often missed in NHs as well as in hospital settings. Valid delirium screening protocols rely on a structured, objective cognitive screens to better observe delirium-related behaviors.

For these reasons, we developed a simple performance-based cognitive screen, the Brief Interview for Mental Status (BIMS). Because the number of domains assessed in MDS and staff concerns about burdensome assessment, we aimed to develop a short screen that could be reliably and rapidly administered by staff. Initial testing in 374 Veterans showed that, after eliminating poorly performing judgment and organized thinking items, the BIMS could be used by NH staff and had higher correlations with criterion cognitive screening than was demonstrated by the CPS. These results were consistent whether the BIMS was collected by research or by facility staff. In addition, staff reported increased confidence in the accuracy of their cognitive assessments when using the structured assessment instead of the current MDS 2.0 syntheses of observations. The finding that staff could use structured cognitive assessments opened the door to including in MDS 3.0 cognitive items with greater recognition and credence in other settings, potentially improving communication with providers.

The current study examines the performance of the BIMS as part of the national testing of the Minimum Data Set 3.0 (MDS 3.0) for Nursing Homes. In this national evaluation, we aimed to test the feasibility and validity of the Brief Interview for Mental Status (BIMS) as a performance-based cognitive screener that could be easily completed by nursing home staff in a broader sample of community NHs.

Methods

Sample

Sample selection is detailed in the description of overall MDS 3.0 development and testing. In brief, 3822 residents who were scheduled for MDS 2.0 assessments were assigned to the study based on the type of scheduled assessment, with preference for full and annual assessments. The only exclusion criterion was comatose status. From the larger sample scheduled for MDS assessments, an algorithm was used to randomly assign 3258 scheduled assessments to a feasibility sample (further divided into reliability and facility only samples), 141 to a test of research nurse agreement in collecting 3MS, and 419 residents to the validation sample. Nurses were trained in the randomization process and were provided templates to guide assignment.

We instructed staff members to approach for BIMS testing all the residents who were scheduled for MDS 2.0 assessments during the data collection window and who were capable of any communication. If a resident’s primary mode of communication was writing, assessors were allowed to present the questions on separate sheets of paper or cue cards. For residents interviewed with BIMS, the MDS 2.0 that was collected by NH staff was also obtained. As part of the study, NH staff received training on completing cognitive assessments, including MDS 2.0 cognitive items.

Trained research nurses collected a more detailed cognitive assessment, the 3MS (described further in measures below), in those residents who were assigned to the validation arm of the study. For the residents in the validation sample, one research nurse completed the BIMS and another independently completed the 3MS. The order and assignment of these interviews were intentionally mixed for each research nurse pair.

The RAND institutional review board (IRB) approved the data collection and the data safeguarding plan. The RAND, VA, and Harvard IRBs granted a waiver of informed consent because the evaluation was an activity designed to improve CMS and VA program operations surrounding the MDS assessment. Residents were able to decline to participate in the interviews.

Measures

BIMS

The BIMS performance-based screen includes temporal orientation and recall items, common elements in frequently used cognitive screening tools. The response scales allow differential scoring for answers to temporal orientation that are “close” to correct answers and partial credit when a resident could recall an item after being prompted or cued. Possible BIMS scores range from 15 (all items correct) to 0 (no items correct). The categories for BIMS cognitive score (intact/borderline, moderate impairment, severe impairment) were based on pilot testing. The national study also collected the MDS 2.0, and we calculated a CPS score based on published
algorithms. Possible CPS scores range from 0 (no impairment) to 6 (severe impairment)

**Criterion Measure**

For our criterion measure of cognitive status, we used the Modified Mini-Mental Status (3MS) exam, which is a modified version of the Mini Mental State exam (MMSE) that has greater reliability and validity than the briefer MMSE. In addition to the items used in the MMSE, the 3MS includes four items that more broadly test cognitive function. The 3MS uses an expanded total score of 100, increased from 30 for the MMSE, increasing the test’s discriminatory capability at different levels of cognitive function.

**Additional Cognitive Items**

We also tested, for possible inclusion in MDS 3.0, a modified set of organized thinking items adopted from the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) at the recommendation of content experts for delirium screening. The national validation test also included a proposed additional item “Procedural memory OK—can perform all or almost all steps in multitask sequence without cues.” Response choices were “0. Memory OK; 1. Memory Problem.”

**Survey**

Nurses who participated in the MDS national study anonymously completed a feedback survey at the end of the national study. Specific BIMS feedback statements in the survey were: (1) “MDS 3.0 items will better allow staff to calculate a score and trigger resident assessment protocols appropriately.” (2) “I prefer the specific interview questions in C2–C5 to the MDS 2.0 staff assessment of cognition.” (3) “The interview items C2–C5 provided me or the facility with new insights into at least one resident’s cognitive abilities.” The structured questionnaire used Likert scale responses to obtain feedback on BIMS.

**Design and Timing of Assessments**

To allow direct comparisons of CPS and BIMS in the same resident, facility nurses were trained to complete MDS 2.0 cognitive items per standard protocol before conducting BIMS cognitive status interviews. This order was determined because we reasoned that the information obtained from the resident during the BIMS interview might influence MDS 2.0 assessments. Since staff were to approach all residents able to communicate at least some of the time and were to record only the resident’s direct response to BIMS items, we reasoned that the resident’s responses would not be influenced by staff assessments in the medical record. As part of facility trainings, the instructions for completing the MDS 2.0 cognitive items were reviewed.

For validation cases, the BIMS and 3MS were collected within 24 hours of each other. To minimize order effects, the order of collection was reversed for approximately half of the sample in each facility. The data collection was timed to start within 24 hours of the assessment reference date for the resident’s MDS 2.0 cognitive assessment. Interviewers were unaware of facility MDS 2.0 scores.

**Analysis**

The ability of residents to complete interviews was calculated as the number of completed interviews (numerator) divided by the number of residents in the sample (denominator).

To obtain time estimates for completing the BIMS, research nurses entered start and stop times in hours and minutes directly on the data collection form. These times were entered into the data set and we calculated the time elapsed.

We calculated 3MS, CPS, and BIMS scoring based on published values and scoring rules. We considered two analyses to test whether MDS 3.0 BIMS or MDS 2.0 CPS better matched the 3MS criterion measure. We examined correlation coefficients comparing 3MS to the BIMS and to CPS scores. We next considered sensitivity and specificity of different BIMS and CPS cutpoints for predicting any cognitive impairment and whether to severe cognitive impairment (defined, based on established cutpoints, as 3MS <78 and 3MS <48, respectively). We also calculated the area under the receiver operating characteristic curve (AUC). The AUC is derived based on sensitivity and specificity rates and provides a single number to reflect the accuracy of a test (in this case the MDS 3.0 BIMS and the MDS 2.0 CPS) relative to a gold or criterion standard (in this case the 3MS). An AUC value of 1 represents a perfect test and a value below 0.5 represents performance at chance levels. The larger the AUC, the more accurate the test is considered to be. Statistical analyses were performed using SAS (SAS Institute, Inc., Cary, NC).

For participating staff responses to the anonymous survey described above, we recoded the 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) into three categories as follows: strongly agree or agree, neutral, disagree or strongly disagree. Frequency responses were entered into and percents were calculated in excel.

**Results of MDS 3.0 National Testing**

**Ability of Residents to Complete the BIMS**

The interview was attempted in 94% of the 3258 residents in the feasibility sample (reliability and facility samples combined); 3.5% of those who were approached for interview did not complete the interview. Thus, of the overall sample of 3258 residents, 90% completed the BIMS.

**Time to Complete the BIMS**

The average BIMS completion time, based on recorded start and stop times for the validation interviews, was 3.2 minutes (SD 2.0; median = 3.0 minutes; mode = 2.0).

**Staff Feedback on BIMS**

National survey feedback from BIMS users echoed what we heard in the pilot study. Eighty-eight percent reported that the BIMS provided new insights into resident’s cognitive abilities (7% neutral; 4% disagreed/strongly disagreed). Eighty percent strongly agreed or agreed that BIMS would better allow staff to calculate a score and trigger resident assessment protocols (15% neutral, 4% disagreed/strongly disagreed). Seventy-eight percent of the survey respondents strongly agreed or agreed that they preferred the MDS 3.0 interview to the MDS 2.0 assessment approach (9% neutral, 13% disagreed/strongly disagreed).

**Validation Results**

Table 1 shows the age distribution for the 418 residents in the validation analyses. The validation sample included residents with a broad range of cognitive scores. BIMS scores ranged from 0–15. 3MS scores ranged from 0–100. CPS scores ranged from 0 (intact) to 6 (severe impairment). Table 2 shows the distribution of scores for each cognitive assessment.

We examined the strength of the correlation of the 3MS criterion with the BIMS and with the CPS in the validation sample. The correlation coefficient between BIMS and 3MS was 0.906 ($P < .0001$) while the correlation coefficient between CPS and 3MS was $-0.739$ ($P < .0001$). Thus, both were significantly correlated with the criterion...
measure, but the BIMS was more highly correlated \((P < .01\) for difference). To understand whether age influenced the strength of the relationship between the 3MS and the different screeners, we also considered a model that included age. For the model of the association between BIMS score and 3MS, age was not significant \((P = .3623)\). In the model testing the association between CPS and 3MS, age was significant \((P = .0001)\). These findings suggest that age was not important in the association between BIMS and 3MS, while the strength of the association between CPS and 3MS was influenced by the resident’s age.

We next examined sensitivity and specificity for identifying any cognitive impairment (Table 3) and for identifying severe cognitive impairment (Table 4) for both the BIMS and the CPS. Examination of the results in these tables indicates better performance of the BIMS. The AUC for identifying any impairment was .930 for the BIMS and .824 for the CPS. The AUC for identifying moderate/severe impairment was .960 for the BIMS and .857 for the CPS.

### Additional Items Tested

In validation testing, one trained research nurse used staff observation and chart review to code the “Procedural Memory OK” item. The other trained research nurse in the pair independently conducted the 3MS exam that included a 3-step command performance test. As with the overall validation protocol, the trained research nurses alternated the order and assignment for testing based on an algorithm to avoid order effects. Correlation between the items was only modest \((- .32, P < .001)\).

Also consistent with pilot testing, the disorganized thinking items (not part of the BIMS) were less highly rated by staff participating in the evaluation of the MDS 3.0. Sixty-one percent of survey respondents reported that the organized thinking were insulting to residents. In analyses the addition of these items to the BIMS score did not improve the agreement between BIMS and the criterion measure nor were these items significant in a model testing their contribution. Because the primary reason for including these items was to improve screening for delirium, we tested whether responses to these items were associated with identification of delirium using the CAM; they were not \((\chi^2 = .052; P = .82)\).

### Discussion

These results confirm the findings from the earlier pilot testing of the BIMS.\(^2^2\) The BIMS, a structured brief cognitive screener, was completed by 90% of nursing home residents scheduled for MDS 2.0 assessments and was more highly correlated with a criterion measure of cognition than was the CPS calculated from the more subjective MDS 2.0 assessment. The area under the receiver operating characteristics curve, a measure of how well a test captures a criterion measure, was also significantly higher for the BIMS than for the CPS. The average time to complete the BIMS was 3.2 minutes, representing a somewhat low time investment, an important consideration given the overall number of domains addressed in MDS. The BIMS assessment was preferred by the majority of staff and had the added advantage of giving staff members a brief performance test to improve use of standardized assessments for delirium signs and symptoms.

The most likely explanation for this differential performance is that performance based testing avoids the subjectivity of unstructured observational assessment. Our analyses showed that the strength of the association between BIMS and 3MS score was not associated with resident age, unlike the relationship between CPS score and 3MS. This difference may reflect the tendency of some staff to be biased by resident age when scoring the MDS 2.0 items used to calculate the CPS. The influence of staff perceptions may explain why age was a significant predictor in the relationship between the staff assessment of cognition and a criterion screener. Although not part of BIMS, the procedural item that we tested may provide the most direct assessment of cognition and a criterion screener. Although not part of BIMS, the procedural item that we tested may provide the most direct comparison of subjective assessment and performance-based testing. This item compared a synthesis of staff report and chart documentation to the actual performance of a three-step command. These approaches, although associated statistically, had only modest correlation.

Based on the results of this national study, the BIMS was included in the final MDS 3.0 assessment form. Assessors are instructed to attempt the BIMS with all residents who are capable of some communication. The instruction manual provides specific instructions for completing and coding the BIMS, but many of the instructions are on the form (Appendix A) shows the current MDS 3.0 BIMS

### Table 1

<table>
<thead>
<tr>
<th>Age</th>
<th>Percent (%) (n = 418)</th>
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<tr>
<td>&lt;65</td>
<td>15</td>
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<tr>
<td>65–84</td>
<td>43</td>
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<tr>
<td>85+</td>
<td>42</td>
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**Table 2**

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<tr>
<th>Categories</th>
<th>% of Validation Sample in Each Category</th>
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<tr>
<td></td>
<td>BIMS</td>
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<tr>
<td>Intact or borderline/mild impairment</td>
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<tr>
<td>Moderate impairment</td>
<td>26</td>
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<tr>
<td>Severe impairment</td>
<td>27</td>
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**Table 3**

<table>
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<tr>
<th>Age (Years)</th>
<th>Sensitivity</th>
<th>Specificity</th>
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</thead>
<tbody>
<tr>
<td>≤10</td>
<td>.65</td>
<td>.99</td>
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<tr>
<td>≤11</td>
<td>.73</td>
<td>.97</td>
</tr>
<tr>
<td>≤12</td>
<td>.83</td>
<td>.91</td>
</tr>
<tr>
<td>≤13</td>
<td>.90</td>
<td>.84</td>
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<th>CPS score</th>
<th>Sensitivity</th>
<th>Specificity</th>
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<tr>
<td>≥2</td>
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<td>.96</td>
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<tr>
<td>≥3</td>
<td>.59</td>
<td>.88</td>
</tr>
<tr>
<td>≥4</td>
<td>.84</td>
<td>.67</td>
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<tr>
<td>≥5</td>
<td>.93</td>
<td>.49</td>
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**Table 4**

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<tr>
<th>Age (Years)</th>
<th>Sensitivity</th>
<th>Specificity</th>
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</thead>
<tbody>
<tr>
<td>≤7</td>
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<td>.92</td>
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<tr>
<td>≤6</td>
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<td>≤5</td>
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<td>.97</td>
</tr>
<tr>
<td>≤4</td>
<td>.61</td>
<td>.98</td>
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</table>

<table>
<thead>
<tr>
<th>CPS score</th>
<th>Sensitivity</th>
<th>Specificity</th>
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</thead>
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<tr>
<td>≥3</td>
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<td>.75</td>
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<tr>
<td>≥4</td>
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<td>≥5</td>
<td>1.0</td>
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items). The instruction manual also notes “scores from a carefully conducted BIMS assessment where residents can hear all questions and the resident is not delirious suggest the following distributions: 13–15: cognitively intact; 8–12: moderately impaired; 0–7: severe impairment.” For residents who cannot communicate, the MDS 3.0 form, consistent with the national test, includes the MDS 2.0 staff items and assessors are instructed to complete these staff items based on staff interviews across all shifts, family interview, chart review, and direct observations and interactions with the resident. These data sources for staff assessment are the same as those included in the MDS 2.0 instruction manual.

It is important to note that, although direct or performance-based testing decreases the chance of incorrect labeling of cognitive ability, the BIMS is not a diagnostic test. Additional evaluation is needed to rule out reversible causes of impairment or to diagnose dementia.20 The BIMS provides information on a resident’s performance in some recognized domains of cognitive performance—attention, temporal orientation, and item recall. As a brief screen for cognitive impairment, it covers only a few cognitive domains and does not test for some forms of cognitive impairment such as impaired executive function or mild neurocognitive impairment (MCI).24 In addition, the BIMS items, may not be sensitive for all forms of dementia. Facilities may elect to employ longer cognitive assessments to achieve more sensitive and specific testing. Nonetheless, for many facilities, the introduction of specific direct items on the form will be a step forward in the use of standardized items and should reduce the proportion of residents whose cognitive abilities are incorrectly characterized.

In our pilot testing and in national testing, we trained staff to complete the BIMS. We also trained on MDS 2.0 cognitive items because of the number of questions we received in pilot trainings. Training for MDS 2.0 cognitive items focused more on defining, based on the MDS 2.0 instruction manual, the variables being reported. For the BIMS, some assessors expressed initial reluctance to conduct direct testing. Our training therefore included a brief rationale for direct testing, review of the items, a modeled BIMS assessment and peer practice. Although either training requires a time investment, in the case of the BIMS, it also gives staff potentially useful assessment skills applicable beyond the mandated MDS assessment. After national testing, we developed the Video on Interviewing Vulnerable Elders (VIVE). VIVE includes a demonstration of how to include residents in structured interviews, including the BIMS. VIVE is publicly available for use in training (Available at: http://pickerinstitute.org/vive-interviewing-vulnerable-elders/ and https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIOMDS30TrainingMaterials.html. Accessed May 15, 2012.).

The direct assessment of a resident’s mental state can provide a more informed understanding of the resident’s function that may be used to enhance future communication and assistance. The BIMS provides an opportunity to observe attention, understand extent of any disorientation and observe whether prompts assist in recall. This understanding could assist in creating a more resident-specific care plan. For example, knowing that a resident can learn new information but has difficulty with retrieval of that information should prompt use of post prompts or other prompts to enhance resident independence. In addition to providing a performance-based test that can be a foundation for improving initial delirium assessment, the BIMS also provides an opportunity for earlier recognition of cognitive changes over time (that may be missed by observation alone) and may herald the onset of delirium caused by an underlying but unrecognized disease process or an adverse medication reaction.

In pilot testing of the BIMS, we had also tested judgment and disorganized thinking items as potential candidates to add to the assessment. However, facility nurses in our pilot study had difficulty with scoring these items and the items evidenced poor inter-rater reliability for scoring.22 We, therefore, eliminated both sets of items from BIMS scoring. In the national study, we re-tested a modified set of disorganized thinking items. However, consistent with VHA testing, the disorganized thinking items were less highly rated by assessors. Since these items did not contribute to delirium identification, the primary rationale for their inclusion, the difficulty reported by staff confirmed our decision to exclude these items from the MDS.

**Limitations**

As noted above, the BIMS may not detect problems with executive function or earlier, more mild forms of cognitive impairment. In addition, we did not compare the BIMS to a clinical assessment that applied Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) criteria for dementia. However, the BIMS was highly correlated with a criterion cognitive screener, the 3MS that has been validated compared with clinical diagnosis.

**Conclusions**

The BIMS is a performance based cognitive screen that can be quickly completed by nursing home staff in the overwhelming majority of nursing home residents. It is highly correlated with longer cognitive assessment and provides information on cognitive performance that is included in many existing cognitive tests. Residents with incident scores in the moderate or severe range should be evaluated by their primary care provider or mental health specialist for exacerbating causes of cognitive impairment as well as for possible dementing illness. For those residents with scores in the intact/borderline range, providers could perform additional assessments to better characterize cognitive function for those residents in need of a diagnosis.

**References**

## Appendix A

<table>
<thead>
<tr>
<th>Section C</th>
<th>Cognitive Patterns</th>
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</thead>
<tbody>
<tr>
<td><strong>C0100. Should Brief Interview for Mental Status (C0200-C0500) be Conducted?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Attempt to conduct interview with all residents</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Entry Code</strong></td>
<td></td>
</tr>
<tr>
<td>1. Yes ➔ Continue to C0200, Repetition of Three Words</td>
<td></td>
</tr>
<tr>
<td>2. No (resident is rarely/never understood) ➔ Skip to and complete C0700-C11000, Staff Assessment for Mental Status</td>
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### Brief Interview for Mental Status (BIMS)

#### C0200. Repetition of Three Words

**Ask resident:** "I am going to say three words for you to remember. Please repeat the words after I have said all three. The words are: sock, blue, and bed. Now tell me the three words."

**Number of words repeated after first attempt**

- 0. None
- 1. One
- 2. Two
- 3. Three

**After the resident's first attempt, repeat the words using cues ('sock, something to wear; blue, a color; bed, a piece of furniture'). You may repeat the words up to two more times.**

#### C0300. Temporal Orientation (orientation to year, month, and day)

**Ask resident:** "Please tell me what year it is right now."

**Entry Code**

- 0. Missed by > 5 years or no answer
- 1. Missed by 2-5 years
- 2. Missed by 1 year
- 3. Correct

**Ask resident:** "What month are we in right now?"

**Entry Code**

- 0. Missed by > 1 month or no answer
- 1. Missed by 6 days to 1 month
- 2. Accurate within 5 days

**Ask resident:** "What day of the week is today?"

**Entry Code**

- 0. Incorrect or no answer
- 1. Correct

#### C0400. Recall

**Ask resident:** "Let's go back to an earlier question. What were those three words that I asked you to repeat?" If unable to remember a word, give cue (something to wear, a color, a piece of furniture) for that word.

- A. Able to recall "sock"?
  - 0. No - could not recall
  - 1. Yes, after cuing ("something to wear")
  - 2. Yes, no cue required

- B. Able to recall "blue"?
  - 0. No - could not recall
  - 1. Yes, after cuing ("a color")
  - 2. Yes, no cue required

- C. Able to recall "bed"?
  - 0. No - could not recall
  - 1. Yes, after cuing ("a piece of furniture")
  - 2. Yes, no cue required

#### C0500. Summary Score

Add scores for questions C0200-C0400 and fill in total score (00-15)

Enter 99 if the resident was unable to complete the interview.