The Cognistat is a sensitive measure for screening and identifying people with cognitive impairment following ABI in acute hospital settings

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CLINICAL SCENARIO: Following acquired brain impairment people may experience cognitive impairment that can impact on their functioning and occupational performance. Occupational therapists' working in acute hospitals are required to quickly conduct assessments, formulate discharge plans and make recommendations regarding a persons occupational performance. The author wanted to investigate a tool that occupational therapists working in the acute hospital setting can use to assess cognition of people following acquired brain impairment.

FOCUSSED CLINICAL QUESTION: What is the most valid, reliable and sensitive measure for use by occupational therapists working in acute care settings to assess cognitive impairments that are likely to affect occupational performance in adults following an acquired brain impairment?

SUMMARY of Search, 'Best' Evidence' appraised, and Key Findings:

- Five studies were located and critiqued. Three studies were appraised.
- No single paper directly answers the research question and no papers specifically considered the acute phase of care.
- Doninger and colleagues (2006) evaluated measurement properties of the Cognistat and found that the Cognistat can differentiate cognitive status in inpatients and community patients with TBI. There is insufficient evidence to support its use in identifying specific cognitive impairments.
- Lannin and Scarcia (2004) evaluated the concurrent and incremental of 5 different cognitive assessments. The Cognistat was the most sensitive tool for detecting cognitive impairment; if used with the CAM, specificity increases.
- Nabors and colleagues (1997) retrospectively examined the concurrent validity of the Cognistat compared with standard neuropsychological measures. Results indicate that the Cognistat is useful in detecting cognitive impairment in the adult TBI population.

CLINICAL BOTTOM LINE: The Cognistat is a sensitive measure of cognition that is quick to administer and enables therapists working in acute hospitals to screen people for cognitive deficits following acquired brain impairment. However, it cannot be used to accurately generate information regarding specific cognitive impairments.

Limitation of this CAT: This critical appraisal has been peer reviewed by one university lecturer as part of an assignment.

SEARCH STRATEGY:

- Preliminary searching revealed limited publications specific to the acute phase of care, therefore the population search terms did not specify the nature of the care setting.
- Preliminary searching revealed that the Neurobehavioral Cognitive Status Examination - NCSE (Cognistat) and the Mini-Mental Status Examination (MMSE) are two instruments commonly used to assess cognition therefore these terms were included in the search strategy.
- The following databases were searched – CINAHL, Medline, PsycINFO, Centre for Clinical Effectiveness, OT-CATs, OTseeker

Terms used to guide Search Strategy:

- Population: brain injury, traumatic brain injury, brain damage, head injuries, acquired brain injury, acquired brain impairment,
- Assessment: cognitive evaluation, cognitive assessment, accuracy, sensitivity, validity, reliability, cognistat, NCSE, MMSE,
- Comparison: cognitive assessments,
- Outcome: cognitive impairment, cognitive ability, ability levels, functional ability, activities of daily living

Table 1: Summary of databases searched and search terms used.

Databases and sites searched	Search Terms	Limits used
Medline	Brain injuries, cerebrovascular disorders, cognition disorders, adults, cognitive assessment, Cognition, functional outcomes, Cognistat, NCSE, MMSE,	
CINAHL	Brain injury, traumatic brain injury, head injury, brain damage, cerebral vascular accident, adult, cognitive evaluation, cognitive assessment, ability level, functional outcomes, Cognistat, NCSE, MMSE	English text only Publications within the last 10 years (1997 to present).
PsycINFO	Head injuries, traumatic brain injury, brain damage, acquired brain impairment, cerebrovascular accident, cognitive impairment, cognitive ability, evaluation, cognition, cognitive assessment, Cognistat, NCSE, MMSE	

INCLUSION and EXCLUSION CRITERIA:

Inclusion:

- Studies that investigated one or more cognitive assessments and reported on their reliability, validity or sensitivity for people with acquired brain impairment.
- Publications available in English.

Exclusion:

- Papers published before 1997. A critical appraisal that compared the Cognistat with the MMSE was located (Abdulwadud, 2002). This appraisal reviewed papers published in 1996 and 1987, thus papers only after this time were considered in this appraisal.
- Studies that did not specifically look at the reliability, validity or sensitivity of the cognitive assessments.
- Studies that describe neuropsychological assessments only.
- Studies that were exclusive to only one or limited areas of cognitive functioning, eg. executive functioning, inattention, perception, post traumatic amnesia.
- Studies exclusive to adults 50 years and above as the population under investigation typically involves people younger than this.
- Studies that did not include people with a traumatic brain injury, as this was one of the target populations of this review.

RESULTS OF SEARCH:

Five relevant papers were located and categorised as shown in Table 2.

Table 2: Summary of Study Designs of Articles retrieved based on Levels of Evidence, Centre for Evidence Based Medicine, (Phillips, Ball, Sackett, Badenoch, Straus, Haynes & Dawes, 2001).

Study Design/ Methodology of Articles Retrieved	Level	Number Located	Author (Year)
Systematic Review of Level 1 studies	1a		
Validating cohort study	1b		
Systematic review of level >2 studies	2a		
Exploratory Cohort study (prospective, retrospective)	2b	3	CINAHL- *Nabors et al., (1997)* Medline – *Wallace et al., (2000)* PsycINFO – *Lannin & Scarcia (2004)*
Systematic review of level 3b and better studies	3a		
Non- consecutive study	3b	2	CINAHL, Medline - *Doninger et al., (2006), Doninger et al., (2000)*
Case-control study	4		
Expert opinion	5		

BEST EVIDENCE:

The following papers were identified as best answering the clinical question and selected for critical appraisal: Doninger and colleagues (2006): Lannin & Scarcia (2004); Nabors and colleagues (1997).

Reasons for selecting these papers were:

- No one paper directly answered the clinical question.
- These three papers provided the highest level of evidence for answering the clinical question and utilised a variety of designs appropriate to determine reliability, validity and sensitivity.
- The study by Lannin and Scarcia (2004) best addresses the clinical question. It compares the reliability, sensitivity and validity of a variety of cognitive assessments used in people following acquired brain impairment. However, it did not directly answer the question as it involved people in the rehabilitation setting.
- The studies by Nabors and colleagues (1997) and Wallace and colleagues (2000) were similar as they both investigated the relationship between the Cognistat and established neuropsychological measures of related constructs in traumatic brain injury sample. The study by Nabors and colleagues (1997) was selected for appraisal as subjects were assessed much closer to time of injury compared with subjects in the study by Wallace and colleagues (2000).
- The study by Doninger and colleagues (2006) was selected as it contained the largest sample size and evaluated measurement properties of the Cognistat. It includes the sample reported in the study by Doninger and colleagues (2000) and thus this later study was not selected on its own.

Critical Appraisal Checklists used:

Fritz, J.M., & Wainner, R.B. (2001). Examining diagnostic tests: an evidence based perspective. *Physical Therapy* 81(9), 1546-64.

Greenhalgh, T. (1997). How to read a paper: Papers that report diagnostic or screening tests. *British Medical Journal,* 315 (7107), 540-543.

Herbert, R., Jamtvedt, G., Mead, J., & Hagen, K.B. (2005). *Practical evidence based physiotherapy.* Elseveir Butterworth Heinemann: London, pp. 116-122.

Jaeschke, R., Guyatt, G.H. & Sackett, D.L. (1994) How to use an article about a diagnostic test. Accessed on 10th October, 2007 from http://www.cche.net/usersguides/diagnosis.asp

SUMMARY OF EVIDENCE:

Table 3: Description and appraisal of study by Doninger and colleagues (2006)

Objective of the Study: To evaluate measurement properties of the Neurobehavioral Cognitive Status Examination (Cognistat). This included the ability to distinguish meaningful levels of cognitive impairment as well as ability to characterise specific types of cognitive impairment for adults with TBI from an inpatient sample compared with those living in the community.

Sample: The sample involved two separate groups of people with TBI. One group consisted of inpatients at a rehabilitation facility whereas the other consisted of community dwelling adults. All subjects had sustained a traumatic brain injury.

The inpatient sample initially included 134 patients who were admitted to the inpatient rehabilitation unit over a 3 year period. 30.6% of subjects had mild brain injuries, 24.6% had moderate brain injuries and 44.8% had severe brain injuries. Exclusion criteria include subjects who did not speak English, those younger than 18 years old and those with severe psychosis. Following implementation of the exclusion criteria, there were 120 subjects remained in the study. Of this remaining 120, 82% were men. Average age of subjects was 37.5 years (SD =12.6 and range 18 to 77). 82% were Caucasian, and 9% African American. Education levels of subjects included 18% who were educated beyond high school, 42% who had a high school education and 39% that had not completed high school.

Selection method is not described apart from stating that subjects were drawn from consecutive admissions and met the inclusion / exclusion criteria.

The second group of subjects considered a previously reported sample (Doninger, Bode, Heinemann & Ambrose, 2000) of 186 adults living in the community. These subjects were participants in another multi centre study and were included with a larger sample. The total number of community subjects with TBI was 296. All of these adults with TBI spoke English and were classified as having a moderate head injury or worse. Of this sample, 78% were men and the average age was 36 years (SD =9.9). 69% were Caucasian and 25% African American. 31% were educated beyond high school, 42% had a high school education and 26% had not completed high school. Selection method for this group is not detailed.

Assessment Tool Investigated
The Neurobehavioral Cognitive Status Examination (Cognistat) is a brief screening assessment designed to measure a variety of cognitive functions including orientation, attention, language (comprehension, sentence repetition and object naming), constructional ability, verbal memory, mental calculations and reasoning (Kiernan, Mueller, Langston & Van Dyke, 1987). The Cognistat uses a screen and metric approach whereby the metric tests are only conducted if the person fails the screening item. Each domain of cognitive function is scored individually and can be categorised in a range from no impairment through to severe impairment. A total score can be calculated, however information regarding how a total score relates to overall level of impairment is not detailed.

Methods

The inpatient sample were administered a routine battery of neuropsychological tests, including the Cognistat. It is noted stated what order these tests were completed or over what particular time frame. Tests were administered on average 29 days post injury with a range from 4 to 244 days (median = 16 days, SD = 29). The outpatient subjects were administered the Cognistat at initiation of case management services, or at study commencement. Testing commenced on average 2496 days post injury with a range from 31 to 15939 (median 1079 days, SD = 3168). A trained psychometrist completed all testing in the standardised manner.

Data were examined using Rating Scale Analysis, a type of Rasch analysis. This is used to evaluate instrument reliability and estimate interval level measures from ordinal data such as that obtained from Cognistat scores (Doninger et al., 2006). Ordinal data are calibrated to construct quantitative interval level data which improves the interpretability of the results and enables accurate comparisons. Rasch analysis is based on the probabilistic model whereby items and subjects are ordered simultaneously, thereby arranging the items according to a difficulty continuum and subjects according to an ability continuum (Avery, Russell, Raina, Walter & Rosenbaum, 2003). This provides a hierarchical structure of items and their difficulties, thereby indicating a person's ability level. It also provides information regarding the underlying trait being examined (Van Alphen, Halfens, Hasman, & Imbos, 1994; Avery et al., 2003).

Results

Several calibrations using various strategies were conducted to construct a single measure targeted for each group.

The inpatient sample showed a high separation index suggesting that the full Cognistat characterises cognitive status. Easier items were eliminated to create a 25 item instrument. This model showed a reduction in difference between average ability and item difficulty level and distinguished three distinct strata of performance.
In order to provide a profile of cognitive status, calibrations were conducted for the 10 separate cognitive domains assessed in the Cognistat. This showed that the Cognistat was only able to reliability differentiate individuals who scored in the normal range from those who did not.

Calibrations for the community sample showed that low person separation index and associated reliabilities suggesting either a homogenous sample in terms of ability or substantial measurement error thus undermining confidence in stating that people actually differ in regard to performance on the measured attribute (Doninger et al., 2006, p. 283). Furthermore, the skewed distribution of raw scores for the community sample revealed that the Cognistat was unable to detect subtle differences (ie. less sensitive) in high functioning people with TBI.

The hierarchy of item difficulty was similar for both sample groups. Initially calibration of the entire Cognistat showed that the easiest items were basic language skills and the most difficult were memory items, verbal reasoning and constructional ability. Both groups showed relatively high item separation indexes and associated reliabilities indicating that the items measure cognitive level.

Original Authors' Conclusions

The Cognistat was able to reliably differentiate between different levels of cognitive status in people with TBI in both acute and post acute settings. There is insufficient evidence to suggest that the Cognistat is able to generate a profile of cognitive strengths and impairments that may influence rehabilitation and reintegration into the community.

CRITICAL APPRAISAL *(Doninger et al., 2006)*

Sample

Not explicitly stated how subjects were selected thus potentiating selection bias for subjects with particular characteristics or ability level.

Large spread of time post injury, and overlap between the inpatient and community sample, making comparisons between the two groups less accurate.

The classification of brain injury severity was based on the initial 134 subjects that were recruited, however data analysed is for 120 of these subjects that were included in the final sample. Brain injury for this final group is not specified. Furthermore, brain injury severity for the community sample did not specify severity except for stating that it was at least moderate injury as classified by a period of post traumatic amnesia (PTA) greater than 24 hours. This further reduces the accuracy of comparisons between the two groups as well as limiting the ability to generalise to community populations with mild TBI.

Additionally, the cognitive profile of subjects is not explicitly stated, suggesting that subjects were included in the study regardless of cognitive ability. This is a strength suggesting a range of cognitive impairment.

Study Design

This study considers one test only, and thus the evidence provided is not as strong as one that compares two tests or one with a reference standard.

Data Analysis

Measurements used to analyse the data are complex. While some description is provided regarding the measures, the technical jargon utilised makes it difficult for therapists who are not knowledgeable in this area to understand and interpret.

Table 4: Description and appraisal of study by Lannin & Scarcia (2004)

Objective of the Study

To examine the concurrent validity and incremental validity of cognitive screening tests conducted by occupational therapists and neuropsychologists for adults following brain impairment.

Sample

Subjects were referred to the study from the rehabilitation and neurology departments at Townsville Hospital, Queensland, Australia. All subjects displayed cognitive impairment on functional tasks prompting referral for cognitive screening. Initially 23 subjects with acquired brain impairment were consecutively referred to the study. Nine subjects were withdrawn from the study as they were not administered both of the test batteries. Diagnoses of the sample included 6 subjects who had a stroke, 6 with traumatic brain injury (n=6) and 2 following hypoxic brain injury. The sample consisted of 64% males and 36% females with a mean age of 56 years (SD = 15). Mean education level for subjects was 12 years (SD = 3.5). All subjects spoke English and 84% were Caucasian. Subjects excluded from the study included those with visual, language, auditory or motor disturbances; subjects with untreated psychiatric disorders; subjects demonstrating harmful or addictive alcohol use and; subjects taking medication that may impair cognition. Days post diagnosis is not stated.

Assessments Investigated

Assessments were classified according to a neuropsychology test battery (3 tests) and an occupational therapy screening battery (2 tests). The neuropsychology test battery consisted of the Mini Mental Status Examination (MMSE), the Brief Neuropsychology Cognitive Evaluation (BNCE) and the Neurobehavioral Cognitive Status Examination (Cognistat). The MMSE is a brief cognitive screen that assesses orientation, immediate recall, short-term memory, calculation, language and constructional ability (Folstein, Folstein & McHugh, 1975). The BNCE generates a cognitive profile of working memory, gnosis, praxis, language, orientation, attention and executive functions (Tonkonogy, 1997). The Cognistat was described in the previous description of the study by Doninger and colleagues (2006).

The occupational therapy screening battery consisted of the Cognitive Assessment of Minnesota (CAM) and the Barry Rehabilitation Impairment of Screening of Cognition (BRISC). The CAM is a standardised assessment designed for people with neurological impairment and assess attention, memory, visual neglect, temporal awareness, safety and judgement, recall / recognition, auditory memory, sequencing and mathematical ability (Rustad, DeGroot, Jungkunz, Freeberg, Borowick & Wanttie (1993). The BRISC is a screening tool that assesses reading, design copy, verbal concepts, orientation, mental imagery, cognitive functioning, verbal fluency and memory (Barry, Clark, Yaguda, Higgins & Mangel, 1989).

Methods

All subjects were administered all of the assessments discussed above. Tests were administered within 7 days according to no specific order. The article doesn't specify who conducted the assessments, but implies that a neuropsychologist conducted the neuropsychology test battery and an occupational therapist conducted occupational therapy battery.

For each assessment scale scores were computed according to established scoring criteria. Comparison was made between the specific areas assessed by each of the tests and the association between scales that measure similar domains was examined. The scales were also examined for their ability to detect cognitive impairment. Analysis of overall sensitivity of detection rates was also conducted.

Results

All 14 subjects were identified as having cognitive impairment during functional tasks. The CAM correctly identified 7 subjects, BRISC 11, MMSE 0, BNCE 12 and Cognistat 13. Sensitivity was also examined using discordant pair analysis within each battery and across the two batteries – results from this showed the difference in sensitivity was not significant.

Unique test items of money management, social awareness and planning were identified with CAM and consciousness for the Cognistat. Significant correlations for test items of memory, following directions, orientation, calculation and object identification were found between the CAM, BNCE and Cognistat. A correlation between items of attention and constructive praxis was shown between the Cognistat and the BNCE only, and correlations for visual neglect and mental flexibility for the CAM and BRISC.

Internal consistency reliability of all scales ranged from good to excellent. Highest correlations on scores were found between CAM and BNCE results ($r = .68$) and scores on most of the screening measures ranged from $r = .55$ to $r = .68$ and were considered statistically significant.

Results showed a positive relationship between CAM and the battery of assessments administered by psychologists for gross detection of cognition as well as cognitive strengths and weaknesses. While the CAM has greater content validity than the BRISC, it was more likely to duplicate results of neuropsychological test battery.

Original Authors' Conclusions

The use of screening tests by both occupational therapists and neuropsychologists in a rehabilitation hospital results in duplication of assessments. The Cognistat is the most sensitive screening tool to detect cognitive impairment for adults undergoing rehabilitation following brain impairment. By combining the Cognistat with the CAM, specificity of cognitive screening would be improved.

CRITICAL APPRAISAL (Lannin & Scarcia, 2004)**:**

Sample

All subjects referred, displayed cognitive deficits within functional performance. While this provides information regarding sensitivity of a test, it doesn't consider the ability of the tests to exclude people without cognitive impairments as all subjects had cognitive impairment.

Small sample size and lack of information regarding subjects (whether subjects undergoing inpatient or outpatient rehabilitation, severity of cognitive impairment or time post diagnosis) limited the ability to generalise findings to other populations.

Small sample may have reduced the statistical significance of the correlations and caused greater measurement error.

Study Design

All subjects were considered to have a cognitive impairment as measured by functional ability. Measures were compared with one another rather than a simple recognised reference standard (ie. MMSE).

It is unclear as to whether subjects completed the Cognistat according to the standardised way, or whether the full metric version was administered.

As patients had been referred for the study it is assumed that therapists were aware that the person had some type of cognitive deficit. This may cause bias in the way that examiners interpret the test as they knew the person had exhibited functional cognitive problems.

It is not specified who conducted the various assessments and whether the authors were involved in the testing. If this is the case, then there is potential bias with the results as the authors knew all subjects demonstrated functional impairments.

No information provided whether therapist was blinded to study aims purpose and subjects results on the previously conducted assessments.

Each subject completed 5 cognitive assessments over a 7 day period. It is not known whether more than 1 test was conducted in the same day, however given this relatively short period of time, performance on tests may have been altered by fatigue levels. Additionally, it is not known whether subjects were provided with summative feedback to incorrect answers. If this was the case this may have impacted on their performance for similar constructs on the subsequent assessments.

Table 5: Description and appraisal of study by Nabors and colleagues (2000)

Objective of Study:

To measure the clinical utility of the Cognistat and compare the concurrent validity of the Cognistat with established neuropsychological measures of related constructs in an adult TBI population.

Sample:

This retrospective study involved adults admitted to a tertiary care rehabilitation hospital who had been referred for neuropsychological evaluation. Participants were included in the study if they had completed a Cognistat and had a diagnosis of TBI. Those patients' showings signs of PTA were excluded. The sample consisted 45 participants, 78% were male and 22% female. 82% were African American. Mean education was 10.4 years (SD = 3). Of the sample, 47% had mild injuries, 18% had moderate injuries, 29% had severe injuries and severity was unknown for 4%. Aetiology of injury included: 22 motor vehicle / pedestrian motor vehicle accidents, 3 gunshot wounds, 13 assaults and 6 falls. Subjects were tested on average 34.7 days post injury (SD = 25.3).

Assessment used:

The Cognistat was compared with the following neuropsychological measures; Token Test, California Verbal Learning Test (CVLT), Logical Memory from the WMS-R, Block Design from the WAIS – R, Trail Making Test, and the Wisconsin Card Sorting Test (WSCT)

Methods:

Cognistat and other neuropsychological measures were conducted after the person had been cleared from Post Traumatic Amnesia. Cognistat was always administered prior to the neuropsychological evaluations. Pearson zero-order correlations were calculated between the Cognistat subtests and standard neuropsychological measures.

Due to level of cognitive impairment not all of the subjects received all of the neuropsychological evaluation. Specifically, 37 subjects received the Token test, 21 received the CVLT, 24 received the logical memory (delayed recall) test, 29 received the Block Design test, 39 received the Trail Making Test and 21 received the WSCT.

Results:

Profile of TBI scores on the Cognistat was calculated and means (m) and ranges (r) are detailed below. Orientation - m = 9.64, r = 7-12. Attention - m = 6.18, r = 4 – 8. Comprehension - m = 5.49, r = 5 – 6. Repetition - m = 10.49, r = 8-12. Naming, m = 6.58, r = 5 – 8. Construction - m = 2.56, r = 1 – 4. Memory - m = 5.64, r = 3 – 9. Calculation - m = 2.41, r = 2 – 3. Similarities - m = 3.91, r = 2 – 5. Judgmentm = 3.79, r = 3 – 5.

Subjects scored mild to severely impaired for construction, memory and similarities subtests, and between average range and mildly impaired for orientation, repetition, calculations and judgment subtests.

Cognistat total score was shown to be related to education level. Further analysis of Cognistat subtests showed that education level correlated to scores on the orientation, naming, memory, calculation and construction subtests.

Cognistat total score was not significantly relate to injury severity. The article comments that this is not consistent with previous results and that this may be due to small sample size and restricted range of injury severity.

The following subtests were significantly correlated with the relevant neuropsychological evaluations: Cognistat Attention subtest with Trail Making Test ($r = -.33$; $P<.05$); Cognistat Comprehension subtest with the Token Test ($r = .30$, $P<.05$) Cognistat Memory subtest with the CVLT ($r = .68$; $P<.001$) and the WMS-R Logical Memory II ($r =.43$; $P<.005$). Cognistat Construction Subtest with the WAIS-R Block Design ($r=.54$; $P<.005$).

There was no significant correlation for reasoning subtests on the Cognistat and preservative responses from the WCST.

Original Authors' Conclusions

Cognistat 'holds promise as an efficient, cost effective measure', (Nabors et al., 1997, p. 83). Cognistat is useful in detecting cognitive impairment in the adult TBI population and results of many of the subtests relate to results on standard neuropsychological measures.

CRITICAL APPRAISAL (Nabors et al., 2000)

Sample

Small sample size limiting ability to generalise results and potentially reducing the statistical significance.

Sample included large proportion of people with mild brain injuries and with mild cognitive deficits, thereby limiting ability to generalise to a population with a variety of cognitive deficits.

Not clear as to how subjects were selected

Study Design

Not stated whether examiners were blinded to results of other Cognistat when they conducted the other neuropsychological tests.

Retrospective design meant that not all patients were administered all tests of the reference standard thus reducing the sample size and accuracy for some cognitive domains.

Results

Results provided regarding injury severity and level of education do not relate to the objectives of the study.

The authors note that the use of screen scores instead of metric scores may reduce sensitivity and lower correlations between the tests. Previous research suggesting that by relying purely on the screen may result in an overestimation of the patients' abilities is cited.

IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH:

The Cognistat has been shown to be a sensitive measure of cognition that can classify cognitive impairment for patients with acquired brain impairment. The studies appraised predominantly investigated patients in the rehabilitation phase. However, the variety of injury severity and time since injury of the three studies, combined with the lack of studies specifically considering cognitive assessment in the acute phase, enables findings of these studies to be generalised to the acute population. Furthermore, the Cognistat is quick to administer, requires little training and thus is a sensitive and useful tool that busy clinicians working in acute settings can use to identify cognitive impairment.

The Cognistat is easily available through websites costing approximately approximately AUS $250 plus postage. It is becoming more widely used in Australia and is used at major acute hospitals in Melbourne, Victoria. By including it in the undergraduate occupational therapy curriculum it is expected that it's use would further increase.

It is unclear as to whether the screen version alone of the Cognistat is accurate in determining persons' cognitive abilities (Oehlert, Hass, Freeman, Williams, Ryan & Sumerall, 1996). Further research regarding this is required particularly in the acute acquired brain impairment population. In the meantime, therapists should consider using the full screen approach where appropriate, particularly for the construction subtest, where the screen version considers visual memory and the metric section assess visuospatial construction (Nabors et al., 1997).

The screen takes approximately 10 minutes to administer and the full metric version takes 20 – 30 minutes depending on severity of cognitive impairment. Scoring takes approximately 5 minutes.

Occupational therapists working in the acute setting need to determine prognostic information so that the indication for further assessment / intervention is identified and referrals can be made. A tool that is sensitive is useful for predicting prognosis (Derrer, Howieson, Mueller, Camicoli, Sexton & Kaye, 2001), further reinforcing the appropriateness of the Cognistat in the acute setting.

Caution should be taken when using the Cognistat to identify specific areas of cognitive impairments such as verbal memory or mental calculations. If cognitive impairment is identified through the Cognistat, then further assessment of cognition and the impact on function is required.

Future research with larger samples of more rigorous study design specific to the acute population is needed. Additionally, it would be useful to investigate the relationship between results on cognitive screens in the acute phase with future occupational performance tasks to further ascertain its prognostic abilities.

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Articles critically appraised (best contributing to answering clinical question)

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Related articles (met inclusion / exclusion criteria, not critically appraised)

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