Tool: Certified Nurse Assistant Pain Assessment Tool (CPAT)
Tool developer: Cervo, F., Raggi, R., Bright-Long, L., Wright, W., Rows, et al
Country of origin: USA
Reviewed: 06/08

Conceptualization **Panel rating: 1**	
Purpose	CPAT is an informant based assessment tool that was established for use by certified nursing assistants (CNA) for the assessment of pain in patients who have been diagnosed with severe dementia.
Conceptual basis	Changes in behavior and activity level are potential indicators of pain. Assumptions: 1. With proper education all healthcare providers are able to appropriately assess pain behaviors 2. The CNA will be able to recognize minor changes in behavior more readily than other health care professionals. 3. Caregivers can reliably observe and rate behavior.
Item Generation	Initial tool development was divided into stage 1 and stage 2 Stage 1 The tool was designed for use by CNA direct care providers. Tool development was based on a thorough review of existing relevant medical literature and CNA input and feedback. To determine the association of each item with pain, a gold-standard objective indicator (yes/no) of pain was constructed based on the presence of one or more items from past medical history, and medical diagnosis, and pain medications on the clinical data form. The CNAs were instructed to use the CPAT twice daily, once during the day shift, and again in the evening, for a 6 month period. Tool consists of 41 items in 5 major categories • facial expression (9 items) • behavior (8 items) • mood (6 items) • body language (9 items) • activity level (9 items) Based on the analysis of the 41 item's ability to distinguish pain and no pain, 12 items were found to be statistically significant at $p < .05$ and $OR > 1.5$, and were retained for stage 2. Four of the pain behaviors were found to be statistically associated with the absence of pain (an $OR < 1.0$) and eight behaviors were found to be statistically associated with the presence of pain. All 12 items are included in the final tool as dichotomous scoring of five global areas: facial expression, behavior, mood, body language, and activity level. Stage 2 During this stage, CNAs used the revised 12-item CPAT weekly or when the resident appeared to be in pain. However, no further evaluation of the 12-item tool as was conducted.
Content Validity	Tool development was based on a thorough review of existing relevant medical literature and CNA input and feedback. The CPAT has not been subjected to content validation by independent experts in pain in elders with dementia.

-Panel Commentary	The final tool uses 12 statistically significant items and collapses them into 5 categories including 3 of the 6 categories of pain indicators consistent with AGS pain guidelines: facial expressions, body movements, and verbalizations. However, there was no evidence of content validation by experts. Item reduction from 41 to 12 items was performed with inadequate sample size. More subtle pain behaviors in the AGS guidelines are not addressed: changes in activity patterns or routines, mental status or interpersonal interactions. The approach used as gold standard (past medical history and pain diagnosis and pain medications) has not been validated by previous literature. Of concern in determining pain/no pain groupings is that patients with a painful diagnosis who did not have an order for analgesics would be considered in the no-pain group and would be misclassified for comparison purposes. As with any informant-based tool the wider number of observations included increases its sensitivity but limits its specificity in that it may identify behaviors that may be due to causes other than pain.
Subjects **Panel rating: 1**	
Subjects	Stage 1 Setting: The Long Island State Veterans Home (LISVH) and the John Foley Skilled Nursing Facility (JJF) located in Suffolk County, New York Subjects: n=182 participants with diagnosis of dementia (142 at LISVH, 40 at JJF) Average age: 81 (54-95) Gender: male 130 (71%), female 52 (29%) Cognitive impairment: n=162 -MMSE Score 0-9/30: 76 (47%) -MMSE Score 10-20/30: 67(41%) -MMSE Score ≥ 21/30: 19 (11%) Staff: Certified nursing assistant (CNA) direct care providers Stage 2 Setting: The Long Island State Veterans Home (LISVH) and the John Foley Skilled Nursing Facility (JJF) located in Suffolk County, New York Subjects: 105 completed the study Staff: Certified nursing assistant (CNA) direct care providers
-Panel Commentary	Using 5 subjects as a minimum for this review, a minimum sample of 205 subjects (41 items x 5 subjects) would be needed in stage 1. Thus, the sample size of 182 is insufficient for tool evaluation. There is gender imbalance, but this is expected when working with veteran populations. Age distribution is appropriate. No information on sample diversity is reported. The focus on long term care is clearly identified. Appropriate measurement tools were used to identify patients with dementia. No demographical information was provided in regards to the subjects in stage 2 or staff in either study.
Administration, Scoring, Feasibility **Panel rating: 1**	
Administration, Scoring, Feasibility	Administration CNA's received training on the tool prior to the study. However no details were provided regarding the training format. Scoring The resident was observed for behaviors from each of the 5 categories. An "X" is placed in the appropriate box that shows the presence of pain or absence of pain. Behaviors that are consistent with the presence of pain receive a score of 1 and those behaviors that support an absence of pain receive a score of 0. The total number of "X's" is then counted. The scoring scale ranged from 0-5 and a score of 1 or greater required further action by

	the CNAs. Patients presenting with a high pain score were further evaluated by the nursing staff. Stage 2 CPAT was used by the CNAs as part of their daily practice and a total of 2512 assessments were completed. A pain score of 1 or greater showed that 719 (29%) of the assessments indicated the presence of pain and required further evaluation. Of the 719, a total of 612 pain evaluations were performed and in 76% of the evaluations the CNA solely took action while 22% of the evaluations required nurse intervention. 1793 (71%) of the assessments indicated a pain score of zero showing the absence of pain.
-Panel Commentary	The authors state that the CPAT is uncomplicated and requires minimal training for CNA's to use, however no data is provided to support the time to train or administer. Authors report that the use of the CPAT was integrated into the daily routine of the CNA's in the nursing homes suggesting that it is easily understood and user friendly. However, there is a lack of clarity regarding the actions that the CNA's were instructed to take based on the tool score. There is also no information available regarding the time of administration to complete the tool or perceptions of feasibility or clinical utility.
Reliability **Panel rating: 0**	
Internal consistency	No data
Inter-rater reliability	No data
Test-retest reliability	No data
-Panel commentary	Evidence of tool reliability was not reported. Substantiation of reliability is necessary in future research.
Validity: Criterion or construct **Panel rating: 1**	
Construct validity/ **Criterion related validity**	Stage 1 Based on the gold standard the tool was evaluated for its ability to differentiate between patients with and without pain. During stage 1, direct care providers were instructed to use the pain assessment tool twice daily. Items were consider statistically significant if a p value of <.05 or an OR > 1.5 was found. Of the 41 items 12 items were found to be statistically significant. Four pain behaviors were found to be statistically associated with the absence of pain (an OR < 1.0) and eight found to be statistically associated with the presence of pain. Results: Statistically Significant Items for the Presence of Pain OR 95% CI P value Scared 2.61 0.61-0.97 0.63 Fearful 2.67 1.12-4.58 0.0228 Calling Out 2.69 1.39-5.21 0.0033 Moaning 2.94 1.67-5.16 0.0002 Whiny 1.98 1.14-3.43 0.0158 Tense 1.69 1.07- 2.65 0.0238 Rigid 2.53 1.21-5.29 0.0139 Hand Wringing 2.27 1.05-4.87 0.0364 Statistically Significant Items for the Absence of Pain OR 95% CI P value Relaxed 0.77 0.61-0.97 0.30 Normal 0.83 0.47-0.88 0.0059 Calling Out 0.72 0.54-0.95 0.0204

	Moaning 0.57 0.41-0.81 0.0017 The remaining items were used as the final version of the CPAT; however there was no further evaluation of the revised tool properties. Stage 2 During stage 2 CNAs were instructed to use the CPAT weekly or when a resident appeared to be in pain. In stage 2 the author's report using a pain score of 1 or greater in the sample of 105 patients with dementia; however no evaluation of validity was provided.
-Panel commentary	Establishment of construct validity was based on the gold standard which is questionable because of the potential for misclassification. For the revised CPAT there was no further testing of the retained items to support validity other than the use of the tool by CNAs as part of their daily practice.
Summary of panel evaluation of pain assessment tool	
The tool is conceptually supported. However, there is no evidence of reliability; validity support is limited. Based on the gold standard that is used there is a potential for misclassification of patient's who are in pain, but not receiving analgesia. More information is needed as to the specific actions the CNAs were instructed to take without nursing assistance if pain were found to be present. Although CPAT appeared to be useful clinically in recognizing pain, the evidence for supporting tool reliability and validity require future study and is insufficient. There is a need to verify content validity using expert consultation and AGS guidelines. The tool does not add discriminate capability over already existing tools using AGS behaviors. The authors report that studies are underway to more formally measure reliability and validity of the CPAT (Dr. Frank Cervo, personal communication, July 2008).	

Sources of evidence

Cervo, F. A., Raggi, R. P., Bright-Long, L. E., Wright, W. K., Rows, G., Torres, A. E., et al. (2007). Use of the certified nursing assistant pain assessment tool (CPAT) in nursing home residents with dementia. *American Journal of Alzheimer's Disease and Other Dementias, 22*(2), 112-119.

Key to panel rating

3= Available evidence is strong
2= Available evidence supports need for further testing
1= Available evidence is insufficient and/or tool revisions are needed
0= Evidence is absent

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