

The Effect of Multiple Assessments on Delirium Detection: a Pilot Study*



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ABSTRACT

Background

Delirium is characterized by fluctuating attention or arousal, with high prevalence in the orthopaedic ward. Our aim was to: 1) establish the prevalence of delirium on an orthopaedic ward, and 2) compare delirium prevalence using a single geriatrician assessment vs. multiple 3D-CAM (3-Minute Diagnostic Interview for Confusion Assessment Method) assessments during the day. We hypothesized that multiple assessments would increase the detection rate due to the fluctuating nature of delirium.

Methods

Comparative study conducted at an academic hospital in Hamilton, Ontario. Participants included patients 65 years and older admitted to the orthopaedic ward (n=55). After a geriatrician made the first assessment of delirium by 3D-CAM on each patient, teams with specialized geriatrics training reassessed participants up to four times. Delirium rates based on first assessment were compared to cumulative end-of-day rates to determine if detection increased with multiple assessments.

Results

The prevalence of delirium was 30.9% (17 participants) using multiple assessments. Of these cases, 13 (76.4%) were detected in the initial geriatrician assessment. In patients with hip fractures, 70.6% (12 of 17) were identified as delirious by multiple assessments.

Conclusion

As symptoms fluctuate, multiple daily CAM assessments may increase the identification of delirium in orthopaedic inpatients.

Key words: delirium, 3D-CAM, orthopedic, point-prevalence, multiple observations

INTRODUCTION

Delirium is an acute confusional state that commonly occurs in older patients. It is associated with functional decline, worsening cognitive impairment, institutionalization, and increased mortality.⁽¹⁾ Orthopaedic inpatients are at particularly high risk of developing delirium, with a reported prevalence of 20–50% in patients with hip fracture.^(2–4)

The Confusion Assessment Method (CAM) was adapted into the 3-Minute Diagnostic Interview for CAM-defined delirium (3D-CAM), a validated tool with 95% sensitivity and 94% specificity.^(5,6) The 3D-CAM standardizes the evaluation of acuity and fluctuation of confusion, inattention, disorganized thinking, and altered level of consciousness.

Fluctuation in confusion, attention or arousal over the course of the day is a hallmark of delirium.⁽⁷⁾ Most studies evaluate the prevalence of delirium at a single point during the day.⁽⁸⁾ Given the fluctuating course of delirium, repeating screening multiple times throughout the day may improve the accuracy of prevalence estimates, although there is little published evidence to support this conjecture.^(9,10) Additionally, delirium symptoms may worsen in the evening due to dysregulation of circadian rhythm—a phenomenon similar to “sundowning”.⁽¹¹⁾ Prior studies have not specifically captured delirium after 7:00 p.m.^(12,13)

Delirium prevalence on the orthopaedic wards at our local institutions was unknown at the time of this study. We hypothesized that, given the fluctuating course of delirium, repeating CAM assessments in a single day may improve accuracy of detection. Our primary objective was to identify the prevalence of delirium on the orthopaedic ward. Our secondary objective was to compare the prevalence measured by

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one-time CAM assessment, with the prevalence determined by multiple CAM determinations over a 14-hour period.

METHODS

Study Design and Setting

This study was a pilot efficacy study conducted on a 39-bed orthopaedic ward at an academic teaching hospital in Hamilton, Ontario, Canada. We aimed to perform four 3D-CAM assessments per patient during the days of evaluation (March 23 and September 7, 2017), with a sample size of 39 necessitating two study days.

Participants and Enrollment

We included consenting patients age ≥ 65 admitted to the orthopaedic ward, regardless of diagnosis and operative status. No formal pre-operative delirium screen was completed. Patients with aphasia, a terminal illness or language barrier (not sufficiently proficient in English to carry out a conversation) were excluded from the study. The study was explained to the patient or substitute decision-maker and an information handout was distributed. Verbal consent was obtained prior to each assessment to provide opportunity for patients to refuse assessment.

Individual assessors had access to names of patients for introduction purposes, but other identifiers were anonymized. The principal investigator did not participate in outcome assessments, but had access to the entire list of patients and their corresponding study identification number. The protocol was deemed exempt by the Hamilton Integrated Research and Ethics Board (ID 1840).

Outcome Assessors and Training

A team of geriatricians, geriatric fellows, clinical nurse specialists, and internal medicine residents with at least one month of specialty training in geriatrics underwent a mandatory training session prior to the study day.⁽¹⁴⁾ During this session, a senior geriatrician outlined how to administer the 3D-CAM with reference to the training manual⁽¹⁵⁾ and standardized Mini-Mental Status Examination (sMMSE).⁽¹⁶⁾

Cognitive Assessments

Initial assessment involved an evaluation carried out by a geriatrician at approximately 0800 hours. The evaluation began with a 3D-CAM, followed by relevant history, chart review, collateral history from nurses or visitors, sMMSE, and medication review. Participants transferred to the ward were continuously enrolled throughout the day.

Subsequently, two smaller teams of assessors remained on the ward to repeat 3D-CAM assessments up to three times between 1000 and 2200 hours. Each assessor was assigned specific patients and was blinded to the results of earlier assessments. Assessors did not see the same patient more than once. We planned to complete four 3D-CAM assessments on each patient.

Response to Identified Delirium

Any patient with one or more positive 3D-CAM assessments was considered a prevalent delirium case. After 2200 hours, a member of the study team informed the most responsible physician of detected delirium to ensure initiation of our institution's delirium management order set. The order set includes investigations for the cause(s) of delirium and recommendations for interventions.

Study Outcomes and Statistical Analysis

The primary outcome was the prevalence of delirium on the orthopaedic ward as measured by one or more positive 3D-CAM assessments. The secondary outcome was the difference in delirium prevalence between single and multiple assessments. Additional secondary outcomes included fluctuations in the four CAM components, and delirium prevalence differences between patients with—and without—fracture. Proportions and means (standard deviations) were presented as descriptive statistics. Comparison of outcomes between single and multiple assessments was calculated using the McNemar's test for paired nominal data. All data were complete, except for one patient who had an initial assessment but no follow-up assessments.

RESULTS

Of the 84 consecutively screened patients, 67 met inclusion criteria based on age (Figure 1). One patient was excluded due to active palliative management, one excluded due to aphasia, and six excluded due to language barrier. Four patients declined involvement, leaving 55 patients enrolled in the study. Ten patients were discharged during the study period. Of the 44 remaining, 23 (52.3%) completed all four assessments. The mean age of participants was 76.7 yrs. and 51% were female (Table 1). Ten patients had previously diagnosed cognitive impairment and nine patients had prior history of delirium.

The prevalence of delirium by multiple observations was 30.9% (n=17). The prevalence with a single 3D-CAM done by a geriatrician was 23.6% (n=13). Compared with the single assessment, multiple assessments throughout the

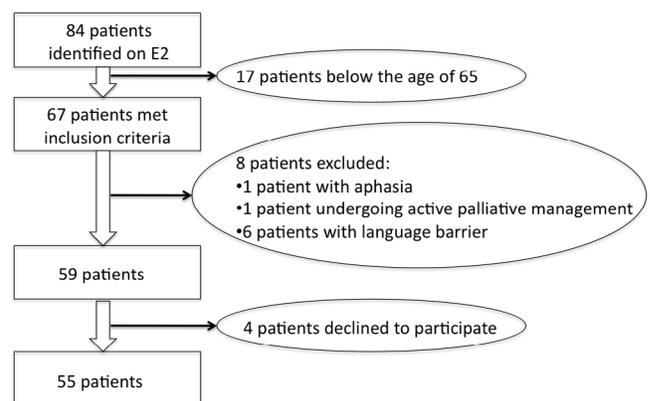


FIGURE 1. Enrollment of Participants

TABLE 1.
Participant characteristics

<i>Participant Characteristic</i>	<i>n=55</i>
Mean Age (SD)	76.7 (7.28)
Gender, n (%)	
Male	27 (49.0)
Female	28 (51.0)
Reason for admission, n (%)	
Hip fracture	17 (31.0)
Other fracture	1 (1.8)
Elective joint replacement	30 (54.5)
Other	7 (12.7)
Level of education, n (%)	
Did not complete high school	21 (38.2)
High School Diploma	13 (23.6)
College/University or higher degree	18 (32.7)
Not Stated	3 (5.5)
ADL dependence (pre-admission), n (%)	
≥1 iADL	19 (34.5)
≥1 bADL	13 (23.6)
Not stated	2 (3.6)
Pre-admission comorbidities, n (%)	
Cognitive impairment	10 (18.1)
Delirium	8 (14.5)
Depression	11 (20.0)
Operative status, n (%)	
Pre-operative	6 (10.9)
Post-operative	44 (80.0)
Non-operative	5 (9.1)
Restraints	20 (36.3)
sMMSE score	
≥ 24/30	40 (72.7)
< 24/30	10 (18.2)
Not done	5 (9.1)
Pre-admission accommodation	
Private residence	45 (81.8)
Retirement home	6 (10.9)
Long-term Care Facility	3 (5.5)
Unknown	1 (1.8)

SD = standard deviation; ADL = activities of daily living; bADLs = basic activities of daily living; iADLs = instrumental activities of daily living; sMMSE = standardized mini-mental status examination.

day identified five more patients with delirium ($p = .133$). Of the 17 patients identified as delirious, nine had hypoactive delirium, one had mixed subtype, and seven demonstrated no motoric subtype.⁽¹⁷⁾ Eight patients remained CAM-positive throughout the day, while nine patients demonstrated changes in their 3D-CAM status (Appendix A). These fluctuations did not display any specific pattern (Table 2). Patients identified as delirious were more likely to have a history of prior dementia (52.9% vs. 2.6%) or delirium (35.3% vs. 7.9%) compared to those without delirium. We were unable to determine the timing of fluctuations because newly admitted patients were continuously enrolled throughout the day.

Over the course of both study days, 17 patients (30.9%) were admitted with a hip fracture. Of these patients, 12 (70.6%) were identified as delirious by at least one 3D-CAM assessment.

DISCUSSION

The prevalence of delirium in our orthopaedic unit (30.9%) is similar to other studies.^(18–20) Multiple assessments throughout the day detected more cases of delirium than a single geriatrician assessment. Although the difference in prevalence was not statistically significant, our finding has important clinical relevance as missed delirium is associated with distress among patients, caregivers, and medical staff, as well as worse outcomes and increased mortality.^(21–23) Each additional case provides an opportunity for early intervention and treatment.

Fluctuations in CAM positivity were noted in both directions (Table 2). This suggests that a proportion of patients not meeting CAM criteria upon assessment but who demonstrate some clinical features may have subsyndromal delirium, which has a worse prognosis compared to those without delirium.⁽²⁴⁾ It is possible that some patients described as “not delirious” in previous studies had subsyndromal delirium, and may have met CAM criteria if tested more frequently. Increased delirium detection with multiple assessments may influence future research studies assessing delirium rates. The optimal frequency of delirium screening is yet to be determined.

Despite our attempt at assessing delirium up to four times during the study period, this was seldom achievable. Feasibility of incorporating multiple assessments in a day may be limited by patient fatigue from multiple assessments, frequent tests and procedures off the ward, increased workload imposed on staff, confidence with administration of the CAM, and applying such tools to patients with aphasia or in the setting of language discordance.⁽²⁵⁾ Although multiple observations would logically increase delirium detection, the pragmatic aspect of this task is less straightforward; hence the need for a pilot study. Our intended future study would apply multiple observations to various hospital units with older adults (e.g., medicine, other surgical units). Since it is impractical to do this to all older patients, there needs to be an improved way to identify those at risk of delirium, and only conduct multiple assessments on those patients.

This study had several strengths. Each investigator was trained and performed the 3D-CAM in a standardized manner. Patients were assessed on at least three occasions each day, more than in most studies.⁽⁸⁾ Each assessor was blinded to the results of prior assessments and to the initial 3D-CAM completed by a geriatrician. The study was conducted over a 14-hour period on each study day.

Limitations of this study include limited sample size. The study was completed over two days to increase the sample size. It was challenging to determine if time of day played a role in delirium fluctuation due to variability in time of patient arrival to the ward. Patient discharges and new patient arrivals later in the day limited the number of 3D-CAM assessments performed on each participant, as did patient refusal after

TABLE 2.
Characteristics of patients identified with delirium, fluctuation pattern and motor subtype

<i>Patient Number</i>	<i>Cognitive Impairment</i>	<i>History of Delirium</i>	<i>Fracture</i>	<i>Fluctuation Pattern^a</i>	<i>Motor Subtype</i>
0012	ü	ü	ü	n/a	Hypoactive
0020	ü	ü	ü	n/a	Hypoactive
0023	X	ü	X	+ -	No-type
0027	ü	ü	ü	+ - +	Hypoactive
0028	ü	Unknown	ü	+ + --	No-type
0029	ü	Unknown	X	n/a	Hypoactive
0032	ü	ü	ü	n/a	Hypoactive
0034	X	X	n/a	- - +	Hypoactive
0039	X	ü	ü	- - - +	No-type
0052	X	X	ü	+ - - -	Hypoactive
0053	X	Unknown	ü	n/a	No-type
0055	ü	Unknown	ü	- + - -	No-type
0056	ü	Unknown	ü	n/a	Hypoactive
0058	ü	X	ü	n/a	Mixed
0064	X	X	ü	+ - + -	No-type
0068	X	X	X	- - +	No-type
0071	X	unknown	X	+ - + +	Hypoactive

^a Fluctuation Pattern reflects 3D-CAM positivity or negativity at the time of assessment to a maximum of four assessments.

ü = presence of risk factor; X = absence of risk factor; + = 3D-CAM positive; - = 3D-CAM negative; n/a = patient with no fluctuations (3D-CAM positive throughout the assessment day).

multiple assessments. Fifty-eight per cent of patients did not have a fourth assessment.

CONCLUSION

The prevalence of delirium on the orthopaedic ward at our academic centre is 30.9%. Our data suggest that delirium detection increases with more frequent assessments, and that 3D-CAM outcomes fluctuate in parallel with the natural course of delirium. If delirium in acute care is being missed due to fluctuations, increasing frequency of assessments may improve patient outcomes.

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CONFLICT OF INTEREST DISCLOSURES

The authors declare that no conflicts of interest exist.

REFERENCES

1. Young J, Inouye SK. Delirium in older people. *BMJ*. 2007;334(7598):842–46.
2. Albrecht JS, Marcantonio ER, Roffey DM, *et al.* Stability of postoperative delirium psychomotor subtypes in individuals with hip fracture. *J Am Geriatr Soc* [Internet]. 2015;63(5):970–76. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25943948>
3. Freter S, Dunbar M, Koller K, *et al.* Prevalence and characteristics of pre-operative delirium in hip fracture patients. *Gerontology* [Internet]. 2016;62(4):396–400. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26667308>
4. de Jonghe A, van Munster BC, Goslings JC, *et al.* Effect of melatonin on incidence of delirium among patients with hip fracture: a multicentre, double-blind randomized controlled trial. *CMAJ* [Internet]. 2014 Oct 7 [cited 2014 Nov 10];186(14):E547–56. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4188685&tool=pmcentrez&rendertype=abstract>
5. Inouye SK, van Dyck CH, Alessi CA, *et al.* Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med* [Internet]. 1990 Dec 15 [cited 2014 Nov 10];113(12):941–48. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/2240918>

6. Marcantonio ER, Ngo LH, O'Connor M, *et al.* 3D-CAM: derivation and validation of a 3-minute diagnostic interview for CAM-defined delirium: a cross-sectional diagnostic test study. *Ann Intern Med* [Internet]. 2014 Oct 21 [cited 2014 Nov 10];161(8):554–61. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25329203>
 7. Inouye SK, Westendorp RGJ, Saczynski JS. Delirium in elderly people. *Lancet* [Internet]. 2014 Mar 8 [cited 2014 Nov 10];383(9920):911–22. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23992774>
 8. Scott JE, Mathias JL, Kneebone AC. Incidence of delirium following total joint replacement in older adults: a meta-analysis. *Gen Hosp Psychiatry* [Internet]. 2015;37(3):223–29. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25774049>
 9. Zou Y, Cole MG, Primeau FJ, *et al.* Detection and diagnosis of delirium in the elderly: psychiatrist diagnosis, confusion assessment method, or consensus diagnosis? *Int Psychogeriatr* [Internet]. 1998;10(3):303–08. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9785149>
 10. Voyer P, Champoux N, Desrosiers J, *et al.* Recognizing acute delirium as part of your routine [RADAR]: a validation study. *BMC Nurs* [Internet]. 2015;14:19. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25844067>
 11. Lammers M, Ahmed AIA. Melatonin for sundown syndrome and delirium in dementia: is it effective? *J Am Geriatr Soc*. 2013;61(6):1045–46.
 12. Jagmin MG. Postoperative mental status in elderly hip fracture patients. *Orthop Nurs*. 1998;17(6):32–42.
 13. Elie M, Rousseau F, Cole M, *et al.* Prevalence and detection of delirium in elderly emergency department patients. *CMAJ*. 2000;163(8):977–81.
 14. Maybrier HR, Mickle AM, Escallier KE, *et al.* Reliability and accuracy of delirium assessments among investigators at multiple international centres. *BMJ Open*. 2018;8(11):e0231137.
 15. Palihnich K, Inouye S, Marcantonio E. *The 3D CAM Training Manual for Research*. Boston, MA: Hospital Elder Life Program; 2014.
 16. Haubois G, Annweiler C, Launay C, *et al.* Development of a short form of Mini-Mental State Examination for the screening of dementia in older adults with a memory complaint: a case control study. *BMC Geriatr*. 2011;11(1):59.
 17. Evensen S, Bourke AK, Lydersen S, *et al.* Motor activity across delirium motor subtypes in geriatric patients assessed using body-worn sensors: a Norwegian cross-sectional study. *BMJ Open*. 2019;9(2):e026401.
 18. Mosk CA, Mus M, Vroemen JP, *et al.* Dementia and delirium, the outcomes in elderly hip fracture patients. *Clin Interv Aging* [Internet]. 2017 [cited 2019 Oct 29];12:421–30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28331300>
 19. Ryan DJ, O'Regan NA, Caoimh RÓ, *et al.* Delirium in an adult acute hospital population: Predictors, prevalence and detection. *BMJ Open*. 2013;3(1).
 20. Bellelli G, Morandi A, Di Santo SG, *et al.* “Delirium Day”: a nationwide point prevalence study of delirium in older hospitalized patients using an easy standardized diagnostic tool. *BMC Med* [Internet]. 2016 Jul 18 [cited 2019 Oct 29];14:106. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27430902>
 21. Sanders AB. Missed delirium in older emergency department patients: a quality-of-care problem. *Ann Emerg Med* [Internet]. 2002 Mar [cited 2019 Oct 29];39(3):338–41. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/11867994>
 22. de la Cruz M, Fan J, Yennu S, *et al.* The frequency of missed delirium in patients referred to palliative care in a comprehensive cancer center. *Support Care Cancer* [Internet]. 2015;23(8):2427–33. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25617070>
 23. Welch C, McCluskey L, Wilson D, *et al.* Delirium is present in older hospital inpatients and associated with adverse outcomes: results of a prospective multi-centre study on World Delirium Awareness Day. *BMC Medicine* [Internet]. 2019;17:229.
 24. Marcantonio E, Ta T, Duthie E, *et al.* Delirium severity and psychomotor types: their relationship with outcomes after hip fracture repair. *J Am Geriatr Soc* [Internet]. 2002;50(5):850–57. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12028171>
 25. Wong EK-C, Lee JY, Surendran AS, *et al.* Nursing perspectives on the confusion assessment method: a qualitative focus group study. *Age Ageing* [Internet]. 2018 [cited 2019 Oct 29];47(6):880–86. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/30052708>
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APPENDICES

APPENDIX A. 3D-CAM assessments by patient outlining positivity of each CAM component

		Sex	3D-CAM 1	3D-CAM 2	3D-CAM 3	3D-CAM 4
0011	85	F	Negative	Negative	Negative	Negative
0012	92	F	Positive ^{a,b,c,d}	Positive ^{a,b,c}	N/A	N/A
0014	73	M	Negative ^b	Negative	Negative ^b	Negative
0016	67	M	Negative ^b	Negative	Negative	Negative
0017	85	F	Negative	Negative	Negative	Negative
0018	86	M	Negative ^b	Negative ^b	Negative	N/A
0020	93	F	Positive ^{a,b,c,d}	Positive ^{a,b,c,d}	Positive ^{a,b,c,d}	Positive ^{a,b,c}
0022	67	F	Negative ^b	Negative	N/A	N/A
0023	82	M	Positive ^{a,b,c}	Negative ^b	N/A	N/A
0024	68	M	Negative	Negative	N/A	N/A
0025	83	M	Negative	Negative ^b	N/A	N/A

DE FREITAS: MULTIPLE ASSESSMENTS FOR DELIRIUM

APPENDIX A. Continued

		<i>Sex</i>	<i>3D-CAM 1</i>	<i>3D-CAM 2</i>	<i>3D-CAM 3</i>	<i>3D-CAM 4</i>
0027	85	F	Positive ^{a,b,c,d}	Negative ^b	Positive ^{a,b,c,d}	N/A
0028	80	M	Positive ^{a,b,c}	Positive ^{a,b,c}	Negative ^{b,c}	Negative ^{a,b}
0029	81	M	Positive ^{a,b,c}	Positive ^{a,b,c,d}	Positive ^{a,b,c}	N/A
0030	69	M	Negative	N/A	N/A	N/A
0031	72	F	Negative	Intra-operative	Negative	N/A
0032	77	F	Positive ^{a,b,c,d}	Positive ^{a,b,c,d}	N/A	N/A
0033	81	F	Negative	N/A	Negative	N/A
0034	72	M	Negative ^{b,c}	Negative ^{a,b}	Positive ^{a,b,d}	N/A
0035	73	F	Negative	Negative ^b	N/A	N/A
0037	74	M	Negative	Negative	Negative	N/A
0038	89	M	Negative ^b	Negative ^{a,b}	Negative ^b	N/A
0039	77	F	Negative ^b	Negative ^b	Negative ^b	Positive ^{a,b,c}
0040	84	M	Negative	Negative	Negative	Negative
0042	75	M	Negative ^{b,c}	Negative ^b	Negative ^{b,c}	Negative ^b
0044	73	M	Negative	Negative	Negative ^b	N/A
0045	68	M	Negative ^{b,c}	Negative ^{b,c}	N/A	N/A
0046	74	F	N/A	Negative	N/A	N/A
0047	80	M	Negative	Negative ^a	N/A	N/A
0048	70	M	Negative	Negative	Negative	Negative
0049	73	F	Negative	Negative	N/A	N/A
0051	73	F	Negative	Negative	Negative	Negative
0052	90	F	Positive (All)	Negative ^{a,b}	Negative ^{a,b}	Negative ^{a,b}
0053	65	F	Positive ^{a,b,c}	Positive ^{a,b,c}	Positive ^{a,b,c}	N/A
0054	77	M	Negative ^b	N/A	N/A	N/A
0055	91	F	Negative ^{b,c}	Positive ^{a,b,c,d}	Negative ^{b,c}	Negative ^{b,c}
0056	83	M	Positive ^{a,b,c,d}	Positive ^{a,b,c}	Positive ^{a,b,c}	N/A
0058	84	F	Positive ^{a,b,c,d}	Positive ^{a,b,c,e}	Positive ^{a,b,c}	Positive ^{a,b,c}
0059	66	F	Negative	Negative	Negative	Negative
0060	81	F	Negative ^b	Negative	N/A	N/A
0061	72	M	Negative ^b	Negative ^b	Negative ^b	Negative ^b
0062	78	M	Negative	N/A	N/A	N/A
0064	82	F	Positive ^{a,b,c}	Negative	Positive ^{a,b,c}	Negative ^b
0065	70	M	Negative	Negative	Negative	Negative
0066	72	F	Negative	Negative	Negative ^b	Negative ^b
0067	68	F	Negative	Negative	Negative	Negative ^b
0068	73	M	Negative	Negative	Positive ^{a,b,c}	N/A
0070	76	F	Negative	Negative	Negative ^b	Negative
0071	81	F	Positive ^{a,b,c}	Negative ^{a,b}	Positive ^{a,b,c}	Positive ^{a,b,c}
0072	71	M	Negative	Negative	Negative	N/A
0073	69	F	Negative	Negative	N/A	N/A
0075	71	F	Negative	Negative	N/A	N/A
0076	79	F	Negative	Negative ^{b,c}	Negative ^c	N/A
0077	72	F	Negative	Negative	N/A	N/A
0078	72	M	Negative	Negative	Negative	Negative

^aAcute onset and/or fluctuations; ^binattention; ^cdisorganized thinking; ^daltered level of consciousness.