

Performance of the Modified Confusion Assessment Method for the Emergency Department (mCAM-ED)

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Background

- Delirium is highly prevalent in older ED patients and is associated with unfavorable outcomes.
 - The mCAM-ED is an adaption of the original Confusion Assessment Method for use by ED clinicians. Its feasibility was confirmed at the ED bedside in a previous study.
- In this prospective study we aimed to test performance criteria of the mCAM-ED against a gold standard.

Methods

- Consecutive sampling of ED patients aged ≥ 65 during an 11 day period (24/7)
- mCAM-ED assessment by trained nurses
- Assessment according to DSM-IV and DSM-5 criteria by geriatricians, blinded to mCAM-ED results
- Calculation of performance criteria and corresponding 95% confidence intervals

Table 1. Diagnostic Performance of the mCAM-ED using DSM-IV criteria as gold standard (n=286, prevalence of delirium: 7.0%)

	mCAM-ED		total
	Delirium	No delirium	
DSM-IV Delirium	18	2	20
No delirium	6	260	266
Sensitivity	0.90, 95% CI (0.70;0.97)		
Specificity	0.98, 95% CI (0.95;0.99)		
Positive predictive value	0.75, 95% CI (0.55;0.88)		
Negative predictive value	0.99, 95% CI (0.97;1.00)		
Positive likelihood ratio	39.90, 95% CI (17.85; 89.20)		
Negative likelihood ratio	0.10, 95% CI (0.03;0.38)		

Results

- In total 416 patients were eligible (aged 65 or older), of which 286 patients (DSM-IV sample), and 289 patients (DSM-5 sample), respectively, were included into the analysis. The difference between the two mostly overlapping samples is due to incomplete data in the DSM-IV or DSM-5 assessments.
- Median age was 80.0, 58.7% were female.
- Performance criteria are displayed in table 1 & 2.
- In 84% The Month Backward Test took less than 30 seconds
- The complete mCAM-ED assessment took 3.3 minutes in patients without, and 6.2 minutes in patients with cognitive impairment (delirium and/or dementia).

Conclusion

- This is the first study that used a consecutive sample of older ED patients to evaluate the performance of a delirium assessment tool.
- The mCAM-ED proved to have good performance criteria.

Table 2. Diagnostic Performance of the mCAM-ED using DSM-5 criteria as gold standard (n=289, prevalence of delirium 7.3%).

	mCAM-ED		total
	Delirium	No delirium	
DSM-5 Delirium	18	3	21
No delirium	6	262	268
Sensitivity	0.86, 95% CI (0.65; 0.95)		
Specificity	0.98, 95% CI (0.95; 0.99)		
Positive predictive value	0.75, 95% CI (0.55; 0.88)		
Negative predictive value	0.99, 95% CI (0.97; 1.00)		
Positive likelihood ratio	38.29, 95% CI (17.03; 86.08)		
Negative likelihood ratio	0.15, 95% CI (0.05; 0.42)		

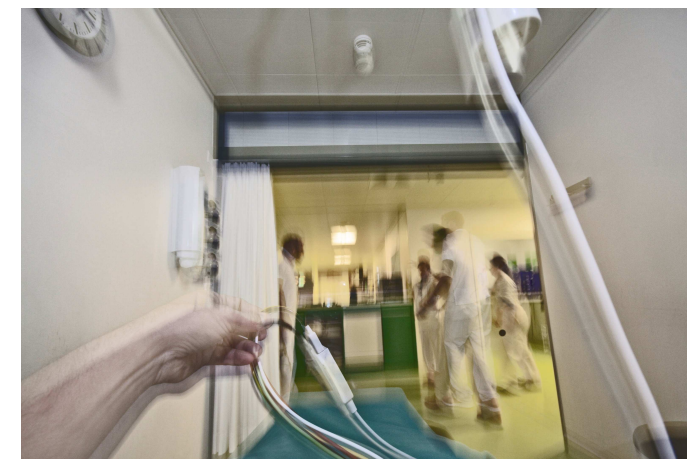
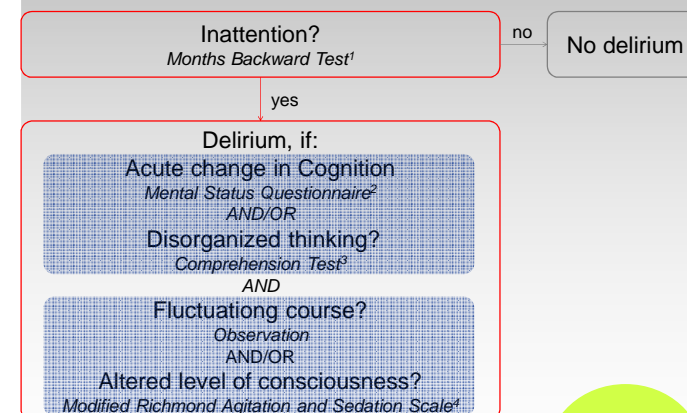


Foto: Basil Emmel

The mCAM-ED

Adapted from Inouye et al. (1990) Ann Intern Med, 113(12)



¹ Meagher, et al. (2015) World J Psychiatry,5(3)

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⁴ Chester, et al. (2012) Journal of Hospital Medicine, 7(5)

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