

Instrument	The Neelon and Champagne Confusion Scale NOTE: This card is populated with information from the instrument's original validation study only.		
Acronym	NEECHAM		
Primary use	Delirium Screening		
Area assessed (Number of questions)	9 items divided into 3 subscales		
	Processing subscale: Attention; Command; Orientation	Behavior subscale: Appearance; Motor; Verbal	Physiological Control subscale: Vital Functions; Oxygen Saturation; Contenance
Description	A delirium screening scale based on nurses' interactions with a patient within a 24-hour time period; the NEECHAM can be used every shift within a 24-hour time period. The NEECHAM assesses a patient's ability to normally process information in addition to assessing any cognitive changes or symptoms of acute confusion.		
Versions	1		
Scoring information	Rate each item on a scale of 0-2, 0-4, or 0-5. Items are summed for 3 subsection scores: processing (0-14), behavior (0-10), and physiological control (0-6), with a total score ranging 0-30. Scores from 30-27=non-delirious, 26-25=at risk, 24-20=early to mild confusion, 19-0=moderate to severe confusion.		
Cognitive testing	Formal cognitive testing not required or included; optional to assist in rating processing subscale items		
Estimated time to rate	8-10 mins to rate (includes measuring vital signs)		
Require trained rater	Yes – clinician or trained lay rater		
Administer to	Patient, in-person		
How to obtain	Available for download: https://nursing.unc.edu/files/2018/05/NEECHAM-Scale01with-copyrt.pdf [instrument] https://nursing.unc.edu/files/2018/05/Instru97-18.pdf [scoring instructions]		
Licensing Fee*	None		
Translations	Finnish, Flemish, Swedish, Spanish, Portuguese, Japanese		
Highest COSMIN** rating	Overall: 5/6 [†]		
Test Performance Characteristics	Neelon 1996 [Both samples included patients aged 65 and older on the same two general medicine units; Sample 1: N=168; Sample 2: N=258] <ul style="list-style-type: none"> •Reliability (Cronbach's alpha coefficient=0.90; inter-rater reliability Pearson r=0.91) COSMIN: GOOD •Concurrent Validity (Correlation with Mini-Mental State Examination [MMSE] [r=0.87]; diagnosis by DSM-III-R [r=-0.70 Sample 1; -0.54 Sample 2])(Negative correlation with sum DSM-III-R positive items [r=-0.91 Sample 1; -0.86 Sample 2]) COSMIN: GOOD •Construct Validity (Correlation with Instrumental Activities of Daily Living [IADLs] [r=0.47 Sample 1, r=0.64 Sample 2]; PADLs [r=0.59 Sample 2]; Barthel Index [r=0.70 Sample 1]) COSMIN: GOOD 		

* Fees and licensing information is effective as of 2018, but is subject to change over time

** COSMIN is used to rate a study's evaluation of a survey or test's measurement properties. COSMIN does NOT rate the instrument itself, but helps readers understand if they can have confidence in the results of studies evaluating measurement properties of surveys and tests. For example, a rigorous study evaluating a test with poor measurement properties will receive a "good" COSMIN rating, while a poorly-conducted study evaluating a test with good measurement properties will receive a "poor" COSMIN rating. Small sample size can impact all COSMIN ratings. You must consider both the COSMIN rating and the results of studies provided when forming your opinion about that test. *COSMIN ratings shown are based solely on the instrument's original validation study.*

Reference:

Neelon, V.J., Champagne, M.T., Carlson, J.R., Funk, S.G. (1996). The NEECHAM Confusion Scale: Construction, Validation, and Clinical Testing. *Nursing Research*, 45(6):324-30. PMID:8941300

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†COSMIN breakdown: internal consistency: GOOD, inter-rater reliability: GOOD, construct validity: GOOD, content validity: GOOD, external validation: GOOD, effect indicators: POOR

Reviews:

Adamis, D., Sharma, N., Whelan, P.J.P., Macdonald, A.J.D. (2010). Delirium scales: A review of current evidence. *Aging & Mental Health*, 14(5):543-55. doi:10.1080/13607860903421011

Carvalho, J.P.L.M., de Almeida, A.R.P., Gusmao-Flores, D. (2013). Delirium rating scales in critically ill patients: a systematic literature review. *Rev Bras Ter Intensiva*, 25(2):148-54. doi:10.5935/0103-507x.20130026

LaMantia, M.A., Messina, F.C., Hobgood, C.D., Miller, D.K. (2014). Screening for Delirium in the Emergency Department: A Systematic Review. *Annals of Emergency Medicine*, 63(5):551-60. doi:10.1016/j.annemergmed.2013.11.010

Mariz, J., Castanho, T.C., Teixeira, J., Sousa, N., Santos, N.C. (2016). Delirium Diagnostic and Screening Instruments in the Emergency Department: An Up-to-Date Systematic Review. *Geriatrics*, 1,22. doi:10.3390/geriatrics1030022

Neto, A.S., Nassar, A.P. Jr., Cardoso, S.O., Manetta, J.A., Pereira, V.G.M., Esposito, D.C., Damasceno, M.C.T., Sooter, A.J. (2012). Delirium screening in critically ill patients: A systematic review and meta-analysis. *Crit Care Med*, 40(6): 1946-1951. doi:10.1097/CCM.0b013e31824e16c9

Smith, T., Hameed, Y., Cross, J., Sahota, O., Fox, C. (2013). Assessment of people with cognitive impairment and hip fracture: a systematic review and meta-analysis. *Arch Gerontol Geriatr*, 57(2):117-26. doi:10.1016/j.archger.2013.04.009

Van den Boogaard, M., Pickkers, P., Schoonhoven, L. (2010). Assessment of delirium in ICU patients: a literature review. *Netherlands J of Crit Care*, 14(1):10-15.

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