Instrument	Sophia Observation Withdrawal Symptoms – Pediatric Delirium
Acronym	SOS-PD
Core Domain	Screening
Area assessed (Number of questions)	22 items overall; 17 represent symptoms of pediatric delirium (PD), 15 represent symptoms of iatrogenic withdrawal syndrome (IWS) that can result from prolonged administration and/or high cumulative doses of benzodiazepines or opioids (10 overlapping items)
Description	Developed to address symptoms in PD and IWS, the SOS-PD is an extended version of the original Sophia Observation Withdrawal Syptoms scale (SOS) that includes scoring components for both IWS and PD. The SOS-PD is designed for fast, observational risk assessment, primarily by nurses, of children ages 0-16 years.
Versions	2 (SOS^{+} and SOS-PD)
Scoring information	Items are rated "yes" if symptom was ever observed in the previous four hours. The maximum score of the PD component is 17 points.
Cognitive testing	None required to rate
Estimated time to rate	2-5 minutes; ratings based on observations made over the course of the preceding four-hour period
Require trained rater	Yes, validated for use by nurses or lay researcher
Administer to	Children in the ICU ages 3 months to 16 years
Special resources required	None
How to obtain	Available from http://www.comfortassessment.nl/web/index.php/instruments/sos-pediatric-delirium-sos-pd/
Licensing Fee*	None
Translations	English, Dutch, German, Japanese, Portuguese, Swedish
Highest COSMIN** rating	In progress
Test Performance Characteristics	**Ista 2018 (n=485 children ages 3 months to 18 years admitted to a PICU [multi-center]; reference standard: delirium diagnosis by child psychiatrist according to DSM-IV criteria)** •Inter-observer reliability: ICC=0.99 [95% CI 0.98-0.99] •Sensitivity: 92.3% •Specificity: 96.5% •Positive Predictive Value: 76.4% •Negative Predictive Value: 99.1% •Construct validity (compared to Cornell Assessment for Pediatric Delirium): Pearson correlation coefficient 0.89 [95% CI 0.82-0.93; P<0.001]

* 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:

Ista E, van Beusekom B, van Rosmalen J, Kneyber MCJ, Lemson J, Brouwers A, Dieleman GC, Dierckx B, de Hoog M, Tibboel D et al: Validation of the SOS-PD scale for assessment of pediatric delirium: a multicenter study. Crit Care 2018, 22(1):309

Ista E, te Beest H, van Rosmalen J, de Hoog M, Tibboel D, van Beusekom B, van Dijk M (2018). Sophia Observation Withdrawal Symptoms-Paediatric Delirium Scale: A tool for early screening of delirium in the PICU. *Australian Critical Care*; article in press, 1-8. doi:10.1016/j.aucc.2017.07.006

†*(SOS)* Ista E, de Hoog M, Tibboel D, Duivenvoorden HJ, van Dijk M (2013) Psychometric evaluation of the Sophia observation withdrawal symptoms scale in critically ill children. Pediatr Crit Care Med 14:761–769

Additional Performance Characteristics

- Inter-observer reliability: ICC=0.90 [95% CI 0.70-0.96]
- Sensitivity: 96.8% [95% CI 80.4-99.5%]
- Specificity: 92.0% [95% CI 59.7-98.9%]
- Construct validity (compared to Cornell Assessment for Pediatric Delirium): Spearman rank correlation coefficient 0.84 [95% CI 0.55-0.97; P<0.001]