Introduction:
Delirium in critically ill children has gained attention in the last few years and the incidence seems higher than anticipated before. The Sophia Observation withdrawal Symptoms-Pediatric Delirium (SOS-PD) was developed to combine assessment of delirium with iatrogenic withdrawal syndrome, two conditions with overlapping symptoms. The current study evaluates the measurement properties of the PD component (PD-scale) of the SOS-PD scale.

Methods:
In a multicenter prospective observational study in four Dutch PICUs, patients aged 3 months to 17 years and admitted for more than 48 hours were included. These patients were assessed with the PD-scale three times a day. Criterion validity was established: if the PD total score was 4 or higher the child psychiatrist was consulted to confirm the diagnosis of PD using the Diagnostic and Statistical Manual-IV criteria as the “gold standard”. The child psychiatrist was blinded to outcomes of the PD-scale. In addition, the child psychiatrist assessed a randomly selected group of patients to establish false-negatives. The interrater reliability of the PD-scale between the care-giving nurse and a researcher was calculated with the intraclass correlation coefficient (ICC).

Results:
Four hundred eighty-five patients with a median age of 27.0 months (IQR 8-102) were included. The pediatric delirium scale had an overall sensitivity of 92.2% and a specificity of 96.9% for a cut off score of 4 points. The positive predictive and the negative predictive value were respectively, 76.3% and 99.1%. The ICC of 75 paired nurse-researcher observations was 0.99 (95% CI 0.98-0.99). In total 48 patients were diagnosed with delirium during the PICU stay.

Conclusion:
The PD scale shows a good validity for early screening of PD. So, the PD scale is a valid and reliable tool for nurses to assess delirium in critically ill children.