

Date/time 1

Date/time 2

Observer

Observer

Sticker with patient's name

Step 1a Withdrawal	1	2	Explanation
Heart rate	..... /min	..... /min	Enter highest rate in past 4 hours if available (electronic patient data management system), otherwise read the monitor or feel pulse.
Breathing rate	..... /min	..... /min	Enter highest rate in past 4 hours if available (electronic patient data management system), otherwise read the monitor or count breathing.
Baseline heart rate	..... /min	..... /min	Baseline is the mean value over the past 24 hours.
Baseline breathing rate	..... /min	..... /min	Baseline value is the mean value over the past 24 hours.

Step 1b Delirium*	1	2	Tick if yes
Parents do not recognize their child's behavior	<input type="checkbox"/> *	<input type="checkbox"/> *	Parents perceive their child's behavior as very different or unrecognizable in comparison with what they are accustomed to when the child is ill or in hospital; "this is not my child".

Step 2	Withdrawal		Delirium		
	1	2	1	2	
Tachycardia	<input type="checkbox"/>	<input type="checkbox"/>			Heart rate exceeds baseline by $\geq 15\%$.
Tachypnea	<input type="checkbox"/>	<input type="checkbox"/>			Breathing rate exceeds baseline by $\geq 15\%$.
Fever	<input type="checkbox"/>	<input type="checkbox"/>			Body temperature exceeded 38.4° C now or in past 4 hours.
Sweating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Without apparent reason.
Agitation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E.g.: irritable, restless, agitated, fumbling (trying to pull out catheters, venous lines, gastric tubes etc.).
Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Child shows anxious facial expression (eyes wide open, raised and tensed eyebrows). Behavior varies from panicky to introvert.
Tremors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Trembling, involuntary sustained rhythmic movements of hands and/or feet.
Motor disturbance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Involuntary movements of arm and/or legs; little muscle twitches.
Muscle tension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clenching wrists and toes and/or hunched shoulders. Or: abnormal tensed position of head, arm and/or legs caused by muscle tension.
Attentiveness			<input type="checkbox"/>	<input type="checkbox"/>	If you (nurses) or parents fail to attract or hold the child's attention. Child is not aware of surroundings; living in "his own world"; Apathy.
Purposeful acting			<input type="checkbox"/>	<input type="checkbox"/>	If child has difficulty in doing things that normally are no problem; e.g. cannot grab pacifier or cuddly toy
Lack of eye contact			<input type="checkbox"/>	<input type="checkbox"/>	No or little eye contact with caregiver or parents.
Inconsolable crying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inconsolable (shown by refusing food, pacifier or not wanting to play). Score silent crying in ventilated children as inconsolable crying.
Grimacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Eyebrows contracted and lowered, nasolabial fold visible.
Sleeplessness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Child doesn't sleep more than one hour at a stretch; catnaps.
Hallucinations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	Child seems to see, hear or feel things that were not there.
Disorientation			<input type="checkbox"/>	<input type="checkbox"/>	Only for children >5 years. Child doesn't know whether it is morning, afternoon or evening, is not aware where it is, does not recognize family or friends.
Speech			<input type="checkbox"/>	<input type="checkbox"/>	If speech is incomprehensible, unclear or child cannot tell a coherent story (not age appropriate).
Acute onset of symptoms			<input type="checkbox"/>	<input type="checkbox"/>	Acute change of symptoms compared to before hospital admission. The occurrence of symptoms strongly varies over the past 24 hours.
Fluctuations			<input type="checkbox"/>	<input type="checkbox"/>	
Vomiting	<input type="checkbox"/>	<input type="checkbox"/>			At least once in past 4 hours.
Diarrhea	<input type="checkbox"/>	<input type="checkbox"/>			At least once in past 4 hours.

Total score

SOS score

PD score*

Withdrawal score (max. is 15) Count ticked boxes

Delirium score (max. is 16/17) Count ticked boxes

* Consult child-psychiatrist if: Step 1b is positive AND/OR Step 2 score is ≥ 4 or symptom with * is positive.

Please turn over for further instructions

Instructions

Instructions withdrawal syndrome (SOS):

Target group:

Children aged up to 16 years who have received benzodiazepines and/or opioids for more than 4 days; start observing from the 5th day.

Exclusion criteria:

- Continuous neuromuscular blocking agents;
- Status epilepticus for which receiving midazolam;
- Severely disturbed behavioral pattern on account of neurological disease.

For assessing abstinence in infants of drug-dependent mothers, we recommend the Neonatal Abstinence Score (NAS) of L.P. Finnegan (1975).

Procedure:

- Observe the child:
 - Once per shift;
 - At suspicion of withdrawal syndrome;
 - 2 hours after an intervention for treatment of withdrawal symptoms.
- Please fill in the form carefully after observation;
- Please score for each item the most extreme/ worst moment during the past 4 hours;
- Check the explanation if a particular item is not clear.

Step 1a Determining baseline values for heart rate and breathing rate:

The baseline value is the mean value over the past 24 hours. Dependent on type of 'patient data management system' it could be automatically generated, otherwise it must be computed by hand.

For example: If the baseline heart rate is 100, compute "baseline exceeded by 15 %" as follows: $100 \times 1.15 = 115$. The highest rate observed in the past 4 hours is 124. This is higher than 115, so tick yes for tachycardia (step 2).

Instructions delirium (PD):

Target group:

Children aged up to 16 years and admitted for 48 hours or more are at risk for developing pediatric delirium. The SOS-PD scale can be used for early screening of delirium. Start observing after 48hrs.

Exclusion criteria:

- Continuous neuromuscular blocking agents;
- Comatose or very deeply sedated and not responding to stimuli. If possible, taper off sedatives and reassess after 4 hours or in the next shift.

Procedure:

- Observe the child:
 - Once per shift;
 - At suspicion of delirium;
 - 2-4 hours after an intervention for treatment of delirium.
- Please fill in the form carefully after observation;
- Please score for each item the most extreme/ worst moment during the past 4 hours;
- Check the explanation if a particular item is not clear.

For clarification and questions please send email to w.ista@erasmusmc.nl