STOMP OUT DELIRIUM

Screening:

1. Complete CAPD (delirium screening) once/shift (4am/4pm).
    a. Only exclusion factor RASS score -4 or -5
    b. Refer to Page 2 and 3 for copy of CAPD assessment tool and developmental anchor points for patients under 2 years of age.

2. If patient screens positive (CAPD >/= 9):
    a. PICU physician notified and assesses patient within 2 hours of new positive score.
    b. Review CAPD with nursing staff with particular attention to the developmental anchor points for children < 2 years of age.
    c. If patient still screens positive continue to treatment bundle.

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Figure 1. Cornell Assessment of Pediatric Delirium (CAPD) revised

RASS Score _____ (if -4 or -5 do not proceed)

Please answer the following questions based on your interactions with the patient over the course of your shift:

	Never 4	Rarely 3	Sometimes 2	Often 1	Always 0	Score
1. Does the child make eye contact with the caregiver?						
2. Are the child's actions purposeful?						
3. Is the child aware of his/her surroundings?						
4. Does the child communicate needs and wants?						
	Never 0	**Rarely 1**	**Sometimes 2**	**Often 3**	**Always 4**	
5. Is the child restless?						
6. Is the child inconsolable?						
7. Is the child underactive—very little movement while awake?						
8. Does it take the child a long time to respond to interactions?						
					TOTAL	

Developmental Anchor Points For Youngest Patients

	NB	4 weeks	6 weeks	8 weeks	28 weeks	1 year	2 years
1. Does the child make eye contact with the caregiver?	Fixates on face	Holds gaze briefly Follows 90 degrees	Holds gaze	Follows moving object/caregiver past midline, regards examiner's hand holding object, focused attention	Holds gaze. Prefers primary parent. Looks at speaker	Holds gaze. Prefers primary parent. Looks at speaker	Holds gaze. Prefers primary parent. Looks at speaker
2. Are the child's actions purposeful?	Moves head to side, dominated by primitive reflexes	Reaches (with some discoordination)	Reaches	Symmetric movements, will passively grasp handed object	Reaches with coordinated smooth movement	Reaches and manipulates objects, tries to change position, if mobile may try to get up	Reaches and manipulates objects, tries to change position, if mobile may try to get up and walk
3. Is the child aware of his/her surroundings?	Calm awake time	Awake alert time Turns to primary caretaker's voice May turn to smell of primary care taker	Increasing awake alert time Turns to primary caretaker's voice May turn to smell of primary care taker	Facial brightening or smile in response to nodding head, frown to bell, coos	Strongly prefers mother, then other familiars. Differentiates between novel and familiar objects	Prefers primary parent, then other familiars, upset when separated from preferred care takers. Comforted by familiar objects especially favorite blanket or stuffed animal	Prefers primary parent, then other familiars, upset when separated from preferred care takers. Comforted by familiar objects especially favorite blanket or stuffed animal
4. Does the child communicate needs and wants?	Cries when hungry or uncomfortable	Cries when hungry or uncomfortable	Cries when hungry or uncomfortable	Cries when hungry or uncomfortable	Vocalizes /indicates about needs, eg. hunger, discomfort, curiosity in objects, or surroundings	Uses single words, or signs	3-4 word sentences, or signs. May indicate toilet needs, calls self or me
5. Is the child restless?	No sustained awake alert state	No sustained calm state	No sustained calm state	No sustained calm state	No sustained calm state	No sustained calm state	No sustained calm state
6. Is the child inconsolable?	Not soothed by parental rocking, singing, feeding, comforting actions	Not soothed by parental rocking, singing, feeding, comforting actions	Not soothed by parental rocking, singing, feeding, comforting actions	Not soothed by parental rocking, singing, comforting actions	Not soothed by usual methods eg. singing, holding, talking	Not soothed by usual methods eg. singing, holding, talking, reading	Not soothed by usual methods eg. singing, holding, talking, reading (May tantrum, but can organize)
7. Is the child underactive—very little movement while awake?	Little if any flexed and then relaxed state with primitive reflexes (Child should be sleeping comfortably most of the time)	Little if any reaching, kicking, grasping (still may be somewhat discoordinated)	Little if any reaching, kicking, grasping (may begin to be more coordinated)	Little if any purposive grasping, control of head and arm movements, such as pushing things that are noxious away	Little if any reaching, grasping, moving around in bed, pushing things away	Little if any play, efforts to sit up, pull up, and if mobile crawl or walk around	Little if any more elaborate play, efforts to sit up and move around, and if able to stand, walk, or jump
8. Does it take the child a long time to respond to interactions?	Not making sounds or reflexes active as expected (grasp, suck, moro)	Not making sounds or reflexes active as expected (grasp, suck, moro)	Not kicking or crying with noxious stimuli	Not cooing, smiling, or focusing gaze in response to interactions	Not babbling or smiling/laughing in social interactions (or even actively rejecting an interaction)	Not following simple directions. If verbal, not engaging in simple dialogue with words or jargon	Not following 1-2 step simple commands. If verbal, not engaging in more complex dialogue

STOMP OUT DELIRIUM

Prevention:

A. The following Misc Nursing Orders should be ordered on every patient admitted to the PICU/PCICU.

1. Misc Nursing Order (frequency qshift):

   DELIRIUM PRECAUTIONS:

- Lights on and blinds open during the day, lights off with minimal stimulation (no TV, music) at night.
- Complete patient baths and major nursing interventions prior to 10p or after 5am when possible.
- Frequent reorientation of patient to location, date, and time. Have date updated on whiteboard and clock visible to patient.
- Encourage caregiver involvement in care and reorientation of patient.
- Encourage patient up and out of bed if possible, ambulate TID as able.

2. Misc Nursing Order (frequency q12 hours starting at 4am)
   Complete CAPD (delirium screening) once/shift (4am/4pm)

B. All intubated patients should be placed on the sedation protocol. Orderset available in EPIC. Please refer to page 2 and 3 for additional details.

1. Sedation should be goal directed for a targeted RASS (standard 0 - -1)
2. RASS Goals to be discussed daily on rounds and included in the Resident Progress note.

C. PT/OT should be consulted as soon as possible on PICU/PCICU patients to encourage ambulation. Timing of PT/OT consult discussed daily on rounds.

D. Every room should have the following sheets placed in the doors for the parents to be able to read while in the room:

1. What is delirium?
2. Activities you can do with your child while in the PICU.
   a. Encourage families to use the blue tooth accessible printer to print pictures of the child or family members to help with re-orientation. Child Life can help with his as needed.

E. For all patients admitted to the PICU for > 3 days, Child Life will provide a physical copy of the "What is delirium?" sheet and encourage families to talk to their doctor or nurse if they have any questions.

F. The following medications have been linked to pediatric delirium and should ONLY be used when medically necessary:

1. Benzodiazepines
2. Diphenhydramine

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Treatment:

1. If patient screens positive (CAP-D >/= 9):
    a. PICU physician notified and assesses patient within 2 hours of new positive score
    b. Review CAP-D with nursing staff with particular attention to the developmental anchor points for children < 2 years of age.
    c. If patient still screens positive continue to next step

2. Evaluate any primary medical problems that could present as delirium and treat those as able (ex. sepsis, hypoxia, electrolyte abnormalities) and treat those as able.
    a. Refer to pneumonics for more help (I WATCH DEATH, THINK, BRAIN MAPS)
    b. Some things you may consider:
        i. Treat any new problem – hypoxia, hypo or hypertension, low CO, infection, electrolyte disturbances
        ii. Start a schedule (improve day night cycles)
        iii. Improve sleep
        iv. Decrease deliriogenic medications the patient does not need
        v. Consider adding additional mediations (see below)

3. Delirium PRESENT but patient NOT a danger to themselves or staff
    a. Start melatonin nightly (refer to dosing guidelines on page 2 and 3)
    b. Non pharmacologic plans: Refer to prevention bundle
        i. Optimize sleep
        ii. Improve day/cycles (start a schedule, lights on during the day, lights off and quiet at night)
        iii. Ensure child life sees patient
        iv. Encourage parental involvement
        v. Get PT/OT involved to mobilize the patient
        vi. Minimize delirium provoking therapies and medications as able

4. If patient is a harm to themselves or others due to severe agitation OR if patient remains delirious after 48 hours:
    a. Add antipsychotics
        i. 1st line: risperidone (refer to dosing guidelines on page 2 and 3)
        ii. 2nd line or in emergencies: haloperidol (refer to dosing guidelines on page 2 and 3)
    b. Consult Child and Adolescent Psychiatry on ALL patients who are started on anti-psychotics for delirium

*Refer to page 2 and 3 for UNC Children's PICU Delirium Protocol medication guidelines

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UNC Children's PICU Delirium Protocol

Melatonin (1st line)

Dose advancement only after 48 hours of therapy

(UNC Dosage Forms: 3 mg tablet, can be crushed)

Patient Group	Initial Dosing	Dosing Advancement	Monitoring	Tapering/ Discontinuation
Neonates *(< 28 days)*	Not recommended			
Infants *≥ 28 days to 12 mos*	1.5 mg once daily at bedtime	1. 3 mg once daily at bedtime	Should be avoided in patients with autoimmune conditions; if must be used, monitor closely	No tapering needed. May discontinue therapy when warranted.
Children *1-5 years*	3 mg once daily at bedtime	1. 6 mg once daily at bedtime		
Children and Adolescents *> 5 years*	3 mg once daily at bedtime	1. 6 mg once daily at bedtime 2. 9 mg once daily at bedtime		

Risperidone (2nd line)

Dose advancement only after 48 hours of therapy

(UNC Dosage Forms: 0.25-4 mg tablets (can be crushed), 0.25-2 mg oral disintegrating tablet, 1 mg/mL oral liquid)

Patient Group	Initial Dosing	Dosing Advancement	Monitoring	Tapering/Discontinuation
Neonates *<28 days*	Not recommended			
Infants *Term 28 days – 12 months*	0.05 mg once daily at bedtime	1. 0.1 mg once daily at bedtime 2. 0.1 mg twice daily	Initiation and Each Dose Increase • EKG for prolonged QTc • Blood glucose (hyperglycemia) • Blood pressure (hypotension) • LFTs (transaminitis) • Monitor for extrapyramidal symptoms and parkinsonism For Maintenance Regimens (>1 Week) • EKG weekly • CBC with diff weekly (anemia, neutropenia) • LFTs weekly	If < 1 Week of Therapy Reduce dose by 50% every 24 hours as tolerated until back to initiation dose, then discontinue If 1 Week – 1 Month of Therapy Reduce dose by 50% every 72 hours as tolerated until back to initiation dose, then discontinue If > 1 Month of Therapy Discuss with pediatric psychiatry for monitoring and assistance with weaning. Could consider reducing dose by 50% once weekly until back to initiation dose, then discontinue.
Children *1-5 years*	0.1 mg once daily at bedtime	1. 0.2 mg once daily at bedtime		
Children and Adolescents *> 5 years*	0.2 mg once daily at bedtime	1. 0.3 mg one daily at bedtime 2. 0.5 mg once daily at bedtime 3. Increase by 0.5 mg incrementally to a max (note: can give in divided daily doses): a. 2.5 mg/day if ≤ 45 kg b. 3 mg/day if > 45 kg		

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Haloperidol (3rd line/acute/non-enteral option)
Dose advancement only after 24 hours of therapy
(UNC IV/IM Dosage Forms: 5 mg/mL injectable, 50 mg/mL intramuscular, enteral dosage forms: 0.25-10mg tablets, 2mg/mL oral liquid)

Patient Group	Initial Dosing (PO, IV, IM)	Dosing Advancement	Monitoring	Tapering/ Discontinuation
Neonates and Infants *<3 months*	Not recommended			
Infants *≥ 3 mos to 12 mos*	Acute (only if needed): 0.05-0.1 mg/kg/**DOSE x 1** Maintenance: 0.05 mg/kg/**DAY** in 2-3 divided doses	1. 0.1 mg/kg/**DAY** in 2-3 divided doses 2. 0.15 mg/kg/DAY in 2-3 divided doses	Initiation and Each Dose Increase • EKG for prolonged QTc • BMP (hyponatremia) • Blood glucose (hyperglycemia) • Blood pressure (hypotension) • LFTs (transaminitis) • Monitor for extrapyramidal symptoms and parkinsonism For Maintenance Regimens (>1 Week) • EKG weekly • CBC with diff weekly (anemia, neutropenia) • BMP weekly • LFTs weekly	If < 1 Week of Therapy Reduce dose by 50% every 24 hours as tolerated until back to initiation dose, then discontinue If 1 Week – 1 Month of Therapy Reduce dose by 50% every 72 hours as tolerated until back to initiation dose, then discontinue If > 1 Month of Therapy Consider pediatric psychiatry consult for continued monitoring and assistance. Could consider reducing dose by 50% once weekly until back to initiation dose, then discontinue.
Children *1-5 years*	Acute (only if needed): 0.05-0.1 mg/kg/**DOSE x 1** Maintenance: 0.05 mg/kg/**DAY** divided every 6-8 hours	1. 0.1 mg/kg/**DAY** divided every 6-8 hours 2. 0.15 mg/kg/**DAY** divided every 6-8 hours		
Adolescents *> 5 years and ≤ 40 kg*	Acute (only if needed): 0.05-0.1 mg/kg/**DOSE x 1** Maintenance: 0.05 mg/kg/**DAY** divided every 6-8 hours	1. 0.1 mg/kg/DAY divided every 6-8 hours 2. 0.2 mg/kg/**DAY** divided every 6-8 hours 3. 0.1 mg/kg/DAY incrementally to a max of 0.5 mg/kg/**DAY**		
Adolescents *> 40 kg*	Acute (only if needed): - Mild: 0.5-2.5 mg **DOSE x 1** - Moderate: 2.5-5 mg **DOSE x 1** - Severe: 5 mg **DOSE x 1** Maintenance: 1 mg/**DOSE** every 6-8 hours	1. 2 mg/**DOSE** every 6-8 hours 2. 3 mg/**DOSE** every 6-8 hours 3. 5 mg/**DOSE** every 6-8 hours		