**Inclusion Criteria:** Any patient in the Emergency Department or Inpatient Med/Surg Units with **any** of the following:

- Acute mental status change, acute onset hallucinations or delusions, confusion, impaired memory, alteration of attention or arousal, acute catatonia; OR
- Clinical suspicion of delirium based on Vanderbilt Assessment for Delirium in Infants and Children (VADIC) Assessment Tool or Cornell Assessment of Pediatric Delirium (CAPD) Score
- All patients admitted to Medical/Surgical floors will be screened for delirium

**Exclusion Criteria:** Patient located in the NICU, ambulatory and perioperative areas, infusion patients, PICU. If in PICU, follow PICU protocol for screening and prevention.

**Etiologies to consider:**
- CNS infection, fever, sepsis/end organ dysfunction (see Sepsis Pathway), Multi-system Inflammatory Syndrome in Children (see MIS-C Pathway), hypoxemia, hypoglycemia, electrolyte abnormality, CNS abnormality, intoxication, autoimmune encephalitis, SLE, vasculitis, drug withdrawal, metabolic disease, neoplasm

**Phase of Care - Navigation Links**

- Emergency Department
- Inpatient and ED (Zone C) Management
- Inpatient Prevention and Screening
- Inpatient Evaluation and Work Up

**Scoring Tools - Navigation Links**

- Appendix A: Vanderbilt Assessment for Delirium in Infants and Children (VADIC) Assessment Tool
- Appendix B: Cornell Assessment of Pediatric Delirium (CAPD) Score
- Appendix C: Developmental Anchors
CLINICAL PATHWAY: Delirium - Emergency Department Care

Etiologies to consider:
CNS infection, fever, sepsis/end organ dysfunction (see Sepsis Pathway), Multi-system Inflammatory Syndrome in Children (see MIS-C Pathway), hypoxemia, hypoglycemia, electrolyte abnormality, CNS abnormality, intoxication, autoimmune encephalitis, SLE, vasculitis, drug withdrawal, metabolic disease, neoplasm

Specific etiology likely?

YES → Proceed with disease specific management

NO → Consider ED Social Work and/or Psychiatric consult to help determine and support behavioral health needs and establish follow up plan.

≥1 of the following?

YES → Admit to Inpatient (Med/Surg vs PICU based on attending discretion.)

- Ongoing delirium.
- Etiology unclear and symptoms persist.
- Further workup, evaluation, and treatment required.
- Medical etiology identified, admission criteria met for that diagnosis.

If Med/Surg: follow Inpatient Delirium Management, Prevention and Eval/Work Up

- Continue screening, evaluation, and treatment per the Inpatient Prevention and Inpatient Evaluation & Work Up
- Initiate Delirium Management upon admission

Consider following consultations in ED as appropriate (may recommend LP, EEG, Brain MRI, further lab testing)
- Neurology: if concern for seizure, abnormal EEG, movement disorder, abnormal neurological imaging or focal deficit, or other neurologic diagnosis
- Rheumatology: if autoimmune process suspected
- Psychiatry: to assist with recognition/diagnosis of delirium (utilizing the VADIC assessment tool – Appendix A); determine/confirm etiology; assist with pharm + non-pharmacological management
- ID: concern for unidentified or known complicated infectious process

CONTACTS: HAYLEY WOLFGRUBER, MD | HAREEM PARK, MD | ERIC HOPPA, MD | JENNIFER DOWNS, MD

LAST UPDATED: 02.02.21
CLINICAL PATHWAY: Delirium - Inpatient and Zone C Management

Treat suspected etiology
- Treat suspected etiology per primary and consulting teams, as appropriate

Medications & Assessment
- Modify medication list:
  - Re-evaluate/confirm home medications
  - Minimize delirigenic meds
  - Optimize pain control with non-pharmacologic strategies
  - Monitor and prevent withdrawal
  - Assess sedative medication need and effectiveness, wean as able
  - Melatonin for sleep optimization
  - Antipsychotics PRN agitation, in consultation with psychiatry if appropriate

Assessment:
- Consult Physical Therapy
- Involve Child Life
- Consult Psychiatry

Nursing Care
- Monitoring and Safety
  - Vitals per unit policy
  - Continue monitoring for delirium via q 12 hour CAPD (Appendix B)
  - Assess fall and self-harm risk
  - Ensure safe transfers
  - Seizure precautions if necessary
  - Bed rest + compression boots if necessary
  - Reduce or avoid physical restraints
  - Engage and educate parents

- How to optimize
  - Daily schedule for routine treatments/interventions
  - Address patient by name
  - Avoid startling/surprising patient
  - Reassure & reorient frequently
  - Explain treatments in simple language
  - Provide clocks within line of sight
  - Normalize day & night routine
  - Involve Child Life & music therapy
  - Promote regular bowel & bladder function

Symptoms improving?
- NO
  - Broaden differential and obtain further diagnostic testing and consults as indicated
  - Continue to optimize environment and medications
  - Multidisciplinary family meeting as indicated

- YES
  - Continue to optimize environment specifically as noted above
  - Wean antipsychotic medications, in consultation with psychiatry
  - Engage Rehab services as indicated
  - Begin discharge planning
  - Multidisciplinary family meeting as indicated

Discharge Criteria & Plan:
- Etiology of delirium determined with treatment plan in place, OR delirium resolved
- Outpatient treatment plan in place
- Clearance by Physical Therapy
- Safety of ambulation and ongoing care ensured
- Safety of discharge or transfer ensured
- Outpatient Rehab services in place if indicated
- Appropriate PCP and sub-specialty follow-up appointments in place
- Update PCP at the time of discharge
- Ensure family understanding of ongoing plan

CONTACTS: HAYLEY WOLFRUBER, MD | HAREEM PARK, MD | ERIC HOPPA, MD | JENNIFER DOWNS, MD
LAST UPDATED: 02.02.21
©2019 Connecticut Children’s Medical Center. All rights reserved. 19-004
CLINICAL PATHWAY:
Delirium - Inpatient Prevention and Screening

Concurrent implementation of preventive strategies and delirium screening as outlined below

Preventive Strategies

Environmental Considerations:
- Provide orienting environment (proper use of Whiteboard, clearly visible clocks)
- Promote healthy sleep
- Ensure early mobility and exercise; involve PT/OT
- Encourage family and developmentally appropriate engagement
- Please refer to Inpatient Delirium Management

Medication Considerations:
- Re-evaluation/confirmation of home medications
- Assess, prevent and manage pain effectively
- Assess sedative medication need and effectiveness, wean as able
- Monitor and prevent withdrawal
- Minimize polypharmacy and deliriogenic medications as appropriate**

Delirium Screening

RN to perform routine delirium screening using CAPD (Appendix B) q12hr and document in medical record

High clinical suspicion of delirium:
1) CAPD ≥ 9
OR
2) Clinical recognition of delirium via the following features (≥1):
   - Acute mental status change
   - Acute onset of hallucination or delusions
   - Confusion or impaired memory
   - Alterations of attention or arousal
   - New catatonic features

**Deliriogenic Medications:**
- Benzodiazepines and Barbiturates
- Opioids
- Anti-cholinergics (e.g. atropine, diphenhydramine)
- Anti-convulsants (e.g. carbamazepine, phenytoin)
- Anti-depressants (e.g. tricyclics, SSRI)
- Anti-emetics (e.g. promethazine)
- Anti-microbials and anti-virals (e.g. fluoroquinolones)
- Corticosteroids
- H2 receptor blockers (e.g. ranitidine, famotidine)
- Metoclopramide
- Muscle relaxants

No
Continue prevention and ongoing monitoring via CAPD q12hr and standard clinical assessments

Yes
- Notify provider from primary medical or surgical team.
- Provider to initiate a bedside assessment of patient and proceed to Inpatient Delirium Evaluation

CONTACTS: HAYLEY WOLFRUBER, MD | HAREEM PARK, MD | ERIC HOPPA, MD | JENNIFER DOWNS, MD
LAST UPDATED: 02.02.21
©2019 Connecticut Children's Medical Center. All rights reserved. 19-004
CLINICAL PATHWAY: Delirium – Inpatient Evaluation and Work Up

> PROVIDER BEDSIDE EVALUATION OF PATIENT.
> INITIATION OF INPATIENT DELIRIUM MANAGEMENT WHILE EVALUATION AND WORKUP IS OCCURRING SIMULTANEOUSLY.

**Etiologies to consider:**
- CNS infection, fever, sepsis/end organ dysfunction (see Sepsis Pathway), Multi-system Inflammatory Syndrome in Children (see MIS-C Pathway), hypoxemia, hyperglycemia, electrolyte abnormality, CNS abnormality, intoxication, autoimmune encephalitis, SLE, vasculitis, medication effect, drug withdrawal, metabolic disease, neoplasm

**Primary Workup**

- **Labs:**
  - iStat chem 10, CBC, CRP, ESR, ammonia, PT/PTT/INR, TSH, free T4, VBG or CBG, AST, ALT, EtOH level, ANA
  - Toxicology screen
- **Imaging:**
  - Consider STAT head CT without contrast based on history and physical exam

**Secondary Workup**

- **If febrile:**
  - Blood and urine cultures
  - Strongly consider LP: cell count with differential, protein, glucose, gram stain and culture, HSV PCR, enterovirus PCR, opening pressure. Ask lab to hold 3 mL CSF for further studies.
  - Begin all empiric IV antimicrobials listed below:
    - Ceftriaxone IV 100 mg/kg/day q12hr (max 2,000 mg/dose) x48 hours AND
    - Vancomycin IV x48 hours:
      - <52 weeks PMA/ about <3 mo old: 15 mg/kg q8hr or as determined by pharmacy based on estimated AUC
      - 52 weeks PMA/ about 3 months old – 11 years old: 70 mg/kg/day q6hr
    - Acyclovir 20 mg/kg/dose IV q8hr until HSV studies negative

- **Consider following consultations (who may recommend further work up):**
  - Neurology: (if concern for seizure, abnormal EEG, movement disorder, abnormal neurological imaging or focal deficit, or other neurologic diagnosis)
  - Rheumatology: (if a autoimmune process suspected)
  - Psychiatry: (to assist with recognition/diagnosis of delirium utilizing the Vanderbilt Assessment for Delirium in Infants and Children (VADIC) assessment tool – Appendix A; determine/confirm etiology; assist with pharm + non-pharmacological management; help with ongoing monitoring/response to therapies; for ongoing co-management)
  - If diagnosis or treatment plan involves multidisciplinary approach, strongly consider family meeting.

**Tertiary Workup:**

- Consult Infectious Disease
- Infectious Encephalitis Panel:
  - Blood: Mycoplasma IgM/IgG, bartonella IgM/IgG, lyme IgM/IgG, West Nile IgM/IgG (June-Nov), Anaplasma Phagocytophilum IgG/IgM (June-Nov), Anaplasma (Ehrlichia) blood smear (June-Nov), Rickettsial Disease Panel (June-Nov, travel to endemic area)
  - CSF: (add on to previously obtained CSF), Meningitis/Encephalitis PCR panel (Biofire; if criteria for use met), EBV PCR, Adenovirus PCR, VDRL (at risk patients), Arbovirus Ab panel (June-Nov)
- Respiratory: Viral Respiratory Culture (Dec-May)
- Consider evaluation for Autoimmune Encephalitis
  - Brain MRI
  - Blood: ANA, Anti-ENA, Anti-DNA, Anti-phospholipid antibodies, ANCA, Von Willebrand Factor antigen, ACE level, TPO
  - CSF: (add on to previously obtained CSF) Autoimmune Encephalitis Panel

**Treat suspected etiology as appropriate and continue delirium management Inpatient Delirium Management**

**YES**

**RETURN TO THE BEGINNING**
### Vanderbilt Assessment for Delirium in Infants and Children (VADIC)

**Clinician:** 

**Patient ID:** 

**Age:** 

**Patient Intubated?** □ YES □ NO 

**Date/Time:** 

**Pertinent medication exposure ≤ 24 hrs. prior to assessment (DRUG / DOSE)** 

1. 

2. 

3. 

4. 

5. 

6. 

**LEVEL OF CONSCIOUSNESS (check one)** 

Combative □ YES 

**Mental Status** 

State of current mental status – **Check one option** 

- □ At Baseline 
- □ Acute Change 
- □ Chronic Change 

Agitated □ YES 

Restless □ YES 

Alert and Calm □ YES 

**PERCEPTION** 

Drowsy: Not fully alert but easily demonstrates sustained awakening with stimulation only from voice □ YES 

- Hallucinations: □ auditory □ visual 
- □ N/A □ NO □ YES 

Lethargy: Aroused to voice but difficult to maintain the aroused state □ YES 

- Hyperacusis present? Comments: 
- □ N/A □ NO □ YES 

Obtundation: Responds to stimulation other than pain. May briefly open eyes or have movement, doesn’t interact with person or environment □ YES 

- Atypical response to normal stimuli? (stuffed animals, familiar toys) 
- □ N/A □ NO □ YES 

Stupor: Responsive only to pain □ YES 

- Unable to sooth when fearful stimuli removed? 
- □ N/A □ NO □ YES 

Coma: Unresponsive to pain □ YES 

- Comments: 

**ATTENTION and COGNITION** 

**DECREASED ability to:** 

- Focus attention: □ NO □ YES 
- Sustain attention: □ NO □ YES 
- Shift attention: □ NO □ YES 

**ORIENTATION:** 

- □ Person 
- □ Place 
- □ N/A 

Comments:
**CLINICAL PATHWAY:**
Delirium Emergency Department and Inpatient
Appendix A: Vanderbilt Assessment for Delirium in Infants and Children (VADIC)

THIS PATHWAY SERVES AS A GUIDE AND DOES NOT REPLACE CLINICAL JUDGMENT.

<table>
<thead>
<tr>
<th>SLEEP-WAKE CYCLE</th>
<th>AFFECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Nap Patterns (Q2-4h infants, Q6th toddlers, QD preschool):</td>
<td>Excessive energy for age and context/environment?</td>
</tr>
<tr>
<td>Nocturnal Disturbance (initial, middle, terminal insomnia, phase shift)</td>
<td>Irritability or anger</td>
</tr>
<tr>
<td>Day-Night Reversal (more difficult to recognize in infants)</td>
<td>Inconsolability</td>
</tr>
<tr>
<td>□ NO □ YES</td>
<td>□ NO □ YES</td>
</tr>
<tr>
<td>□ NO □ YES</td>
<td>□ NO □ YES</td>
</tr>
<tr>
<td>□ NO □ YES</td>
<td>□ NO □ YES</td>
</tr>
</tbody>
</table>

Confounders present? □ Anxiety □ Pain □ Volitional □ None

**LANGUAGE and THOUGHT**

□ Not Present (immature development or developmental delay)
□ Present

Receptive Language:
- One - Step Command □ NO □ YES
- Two - Step Command □ NO □ YES
- Three - Step Command □ NO □ YES

Does not follow commands (check reason below):
□ Unable due to immaturity/illness (intubated)
□ Inappropriately not following commands

Describe baseline speech and language per parent/huare if available:
- □ Appropriate
- □ Decreased amount
- □ Decreased spontaneity
- □ Increased latency
- □ Change from baseline
- □ Circumstantial
- □ Tangential
- □ Obstructed due to disease or device

**IS ACUTE DELIRIUM PRESENT?**

□ UTA When LOC severely depressed, unable to directly clinically assess patient AND prior clinical assessment not available.

□ NO If NO consider → Subsyndromal delirium(SS) (Delirium probable but NOT all criteria met ) : □ NO □ YES

□ YES If YES then choose type → □ HYPOACTIVE □ HYPERACTIVE □ MIXED Drug Withdrawal? □ N/A □ NO □ YES

**24-HOUR assessment → IS DELIRIUM PRESENT? □ PRESENT □ ABSENT □ SUBSYNDROMAL □ UTA**

- □ 1. Acute change Mental Status
- □ 2. Fluctuating Course
- □ 3. Inattention present
- □ 4. Inconsolability
- □ 5. Change in Cognition
- □ 6. Change in Language/Thought
- □ 7. Change in Affect
- □ 8. Change in Sleep/Wake Cycle

DELIRIUM = 1+2+3+5+7 AND 4 OR 6 OR 8

©2019 Connecticut Children’s Medical Center. All rights reserved. 19-004
**Appendix B: Cornell Assessment of Pediatric Delirium (CAPD) Score**

Please see **Appendix C – Developmental Anchors**, to reference normative behaviors based on age and developmental level.
**CLINICAL PATHWAY:**
Delirium Emergency Department and Inpatient

**Appendix C: Developmental Anchors**

<table>
<thead>
<tr>
<th>1. Does the child make eye contact with the caregiver?</th>
<th>NB</th>
<th>4 weeks</th>
<th>6 weeks</th>
<th>8 weeks</th>
<th>28 weeks</th>
<th>1 year</th>
<th>2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixates on face</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holds gaze briefly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follows 90 degrees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2. Are the child’s actions purposeful?             |    |         |         |         |          |        |        |
| Moves head to side, dominated by primitive reflexes |    |         |         |         |          |        |        |
| Reaches (with some disincoordination)              |    |         |         |         |          |        |        |

| 3. Is the child aware of his/her surroundings?    |    |         |         |         |          |        |        |
| Calm awake time                                   |    |         |         |         |          |        |        |
| Awake alert time                                   |    |         |         |         |          |        |        |
| May turn to smell of primary care taker            |    |         |         |         |          |        |        |

| 4. Does the child communicate needs and wants?    |    |         |         |         |          |        |        |
| Crises when hungry or uncomfortable               |    |         |         |         |          |        |        |
| Crises when hungry or uncomfortable               |    |         |         |         |          |        |        |
| Uses single words or signs                        |    |         |         |         |          |        |        |

| 5. Is the child restless?                         |    |         |         |         |          |        |        |
| No sustained awake alert state                    |    |         |         |         |          |        |        |
| No sustained calm state                           |    |         |         |         |          |        |        |

| 6. Is the child inconsolable?                     |    |         |         |         |          |        |        |
| Not soothed by parental rocking, singing, comforting actions |    |         |         |         |          |        |        |

| 7. Is the child underactive—very little movement while awake? |    |         |         |         |          |        |        |
| Little if any flexed and then relaxed with primitive reflexes |    |         |         |         |          |        |        |
| Little if any reaching, kicking, grasping (still may be somewhat disincoordination) |    |         |         |         |          |        |        |
| Little if any reaching, kicking, grasping (may begin to be more coordinated) |    |         |         |         |          |        |        |
| Little if any purposeful grasping, control of head and arm movements, such as pushing things that are noxious away |    |         |         |         |          |        |        |

| 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 kicking or crying with noxious stimuli         |    |         |         |         |          |        |        |

**CONTACTS:** HAYLEY WOLFGRUBER, MD | HAREEM PARK, MD | ERIC HOPPA, MD | JENNIFER DOWNS, MD

LAST UPDATED: 02.02.21

©2019 Connecticut Children’s Medical Center. All rights reserved. 19-004