

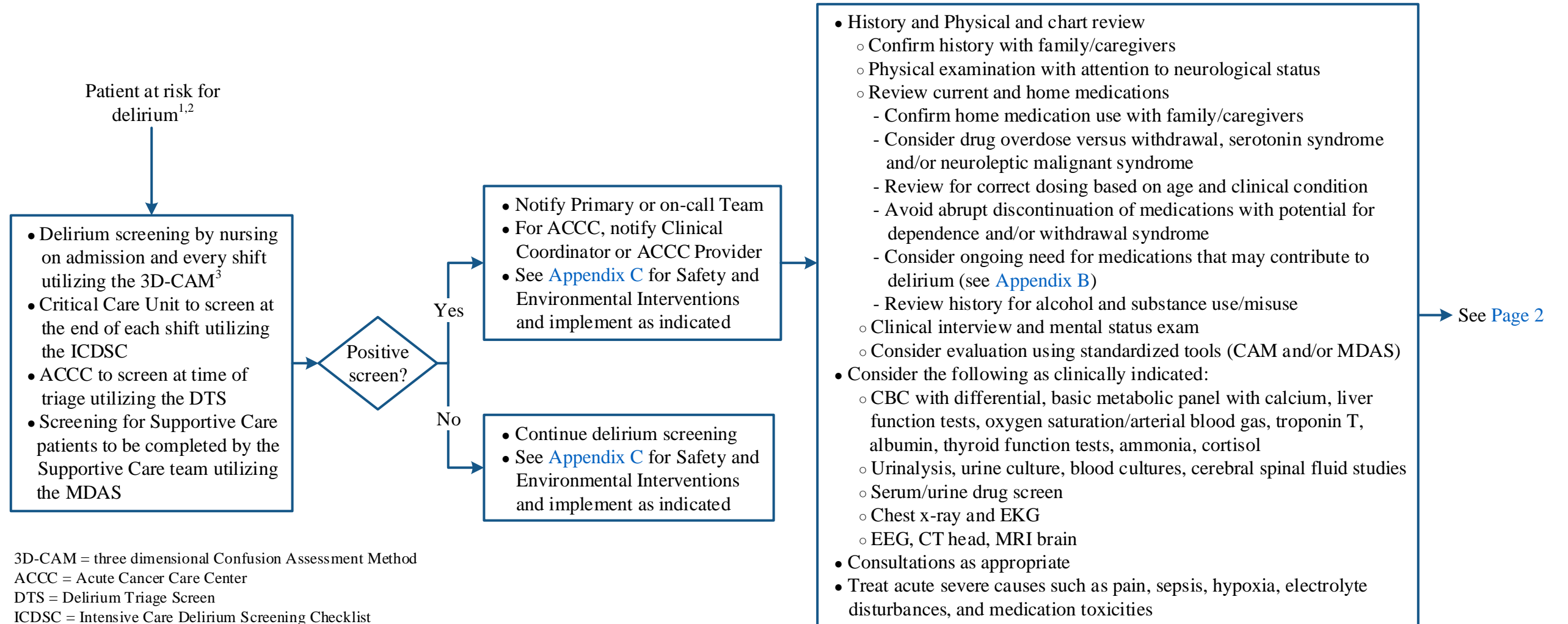
Delirium – Adult Inpatient

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Note: This algorithm is not intended for patients with alcohol withdrawal related delirium.

INITIAL PRESENTATION/ASSESSMENT

CLINICAL EVALUATION



3D-CAM = three dimensional Confusion Assessment Method
 ACCC = Acute Cancer Care Center
 DTS = Delirium Triage Screen
 ICDS = Intensive Care Delirium Screening Checklist
 MDAS = Memorial Delirium Assessment Scale

¹ See [Appendix A](#) for clinical features of delirium
² See [Appendix B](#) for risk factors and contributing factors
³ For P4 pilot only

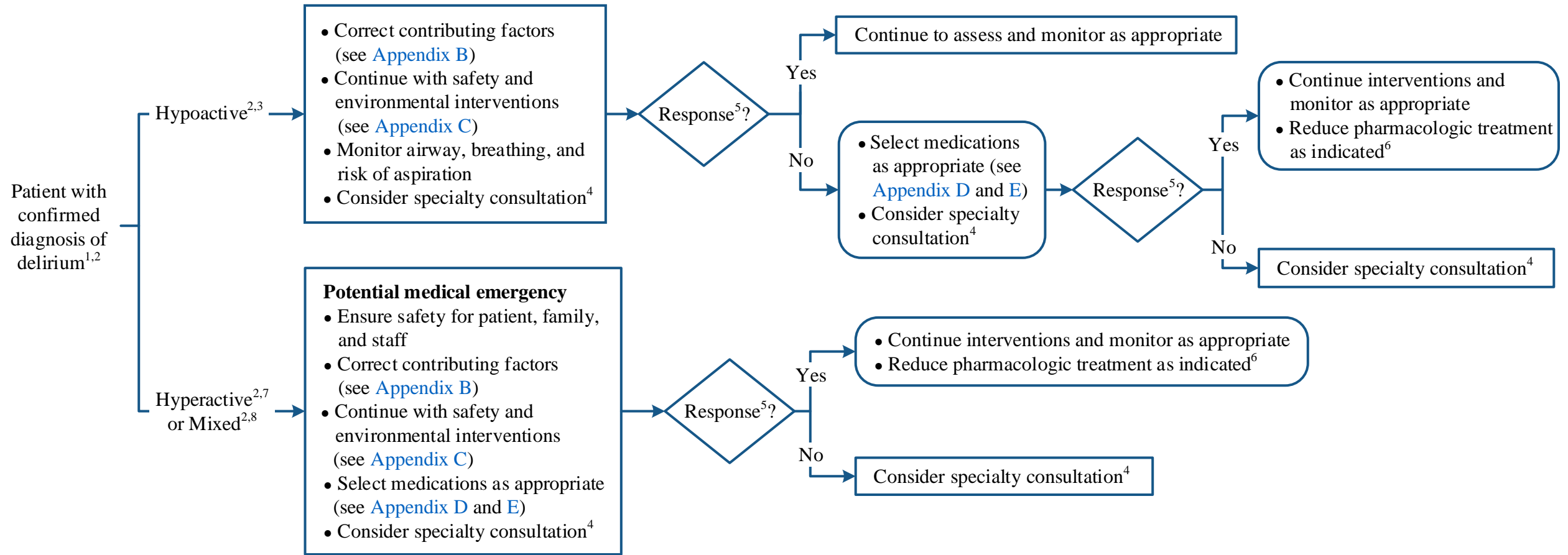
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INTERVENTIONS

EVALUATION AND INTERVENTIONS



¹ Consider Social Work consult to determine Legal Next of Kin and/or Medical Power of Attorney status

² Follow algorithm based on delirium type at time of evaluation

³ Hypoactive clinical features include withdrawal, flat affect, lethargy, and/or diminished responsiveness

⁴ Consider specialty consultation with Pharmacy, Psychiatry, Neurology, Supportive Care and/or Anesthesiology as indicated

⁵ Response to interventions should be based on continuous evaluation over a period of time and not on a single evaluation

⁶ Chronic use of antipsychotic therapy may not be indicated in the absence of underlying psychiatric conditions (e.g., schizophrenia)

⁷ Hyperactive clinical features include hallucinations, agitation, restlessness, combativeness, pulling at catheters and/or tubes

⁸ Mixed clinical features include fluctuations between hyperactive and hypoactive delirium

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APPENDIX A: Clinical Features of Delirium

- Acute onset
- Confusion, disorientation, impaired reality testing
- Inability to pay attention (distractibility)
- Psychomotor agitation or retardation
- Illusions (misperceptions) and hallucinations (usually visual)
- Diurnal variation (worse at night, early AM)
- Sleep-wake cycle disruption
- Fluctuating course, lucid intervals
- Autonomic dysfunction
- Fear and anxiety
- Delusions, especially with paranoid themes

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APPENDIX B: Risk Factors and Contributing Factors for Delirium

Patient Characteristics <ul style="list-style-type: none"> • Age > 70 years • Sensory impairment 	Pain Management <ul style="list-style-type: none"> • Unrelieved pain
Metabolic Disturbance <ul style="list-style-type: none"> • Hypoxia • Hypercapnia • Hypo or Hyperglycemia • Hypo or Hypernatremia • Hypercalcemia • Impaired liver function and/or kidney function 	Cancer Therapies <ul style="list-style-type: none"> • Chemotherapy agents (e.g., ifosfamide, methotrexate, cytosine arabinoside) • Biotherapy agents (e.g., interleukin-2 (IL-2), interferon-alpha, blinatumomab) • Chimeric antigen receptor (CAR) T-cell therapy • Supportive therapy agents (e.g., opioids, benzodiazepines, corticosteroids)
Drugs¹ <ul style="list-style-type: none"> • Polypharmacy • Medications with anticholinergic effects^{2,3} (e.g., scopolamine, promethazine, prochlorperazine, diphenhydramine, hydroxyzine, oxybutynin, hycoscyamine, tricyclic antidepressants) • Opioids • Benzodiazepines • Zolpidem, eszopiclone, zaleplon • Cyclobenzaprine, baclofen • Anticonvulsants (e.g., phenytoin, phenobarbital, levetiracetam) • Corticosteroids (e.g., methylprednisolone, prednisone) • Histamine-type 2 receptor antagonist (e.g., famotidine) • Digoxin (particularly with elevated blood levels) • Anti-Parkinson agents <ul style="list-style-type: none"> ◦ Anticholinergics³ (e.g., cogentin) ◦ Adjunctive agents (e.g., amantadine, selegiline) ◦ Dopamine agonists (e.g., bromocriptine, ropinirole) ◦ Carbidopa/levodopa • Sympathomimetics (e.g., methylphenidate, amphetamine, dextroamphetamine) • Select antimicrobials including beta-lactams (penicillins, cephalosporins, carbapenems), fluoroquinolones (e.g., ciprofloxacin), and voriconazole 	Disease/condition Related <ul style="list-style-type: none"> • Direct and indirect effects of primary brain tumors • Central nervous system metastasis • Paraneoplastic syndromes (rarely) • Terminal stages of disease/end of life • Alcohol or drug (e.g., opioids, benzodiazepines) intoxication or withdrawal • History of alcohol or substance misuse • Hypertensive crisis • Posterior reversible encephalopathy syndrome (PRES) • History of cognitive impairment including dementia • Depression • Frailty • Infection
	Other <ul style="list-style-type: none"> • Use of restraints • Use of indwelling urinary catheters • Recent discharge from acute hospital • Patient with recent history or undergoing anesthesia/surgery

¹ Consider Pharmacy consult for medication review

² List is not all inclusive

³ Seek specialty consultation in patients with toxicity

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APPENDIX C: Safety and Environmental Interventions

Category	Interventions
Prevent accidental self harm	<ul style="list-style-type: none"> • Implement Comprehensive Managed Fall Protection Program as per policy • Implement strategies to prevent self removal of lines, tubes, and drains. See interventions for close observation and physical environment. • Avoid catheterizations • Remove lines, tubes, and drains as soon as indicated • Physical restraints if other measures are unsuccessful
Close observation	<ul style="list-style-type: none"> • Family • Nurse • Sitter
Physical agitation and physiological instability	<ul style="list-style-type: none"> • Reassess for consideration of transfer to next level of care
Physical environment	<ul style="list-style-type: none"> • Adequate, but not excessive, sensory stimulation • Sleep promotion strategies <ul style="list-style-type: none"> ◦ Minimize disruption of sleep-wake cycle ◦ Avoid long periods of daytime sleep • Lights on during day • Maximize mobility • Frequent reorientation (use of clocks, calendars, and updates on whiteboard) • Address sensory deficits (<i>e.g.</i>, eyeglasses, other vision aids such as magnifiers and special lighting, hearing aids, amplifying devices) • Address language barriers as indicated through the use of Language Assistance program and provision of language specific patient education materials • Night: low level background light and sound (music or television) maintained • Family presence
Provide reassurance and education to patient and caregivers	<ul style="list-style-type: none"> • Communicate and educate about delirium and delirium management • Encourage family members to take breaks

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APPENDIX D: Medications for Management of Delirium For All Inpatient Care Areas

Note: Oral formulations should be avoided in patients who cannot safely swallow or who are at risk for aspiration

Therapeutic Class	Medication	Typical Initial Dose	Recommended Maximum Dose	Onset of Action	Comments/Cautions/Adverse Reactions
Typical Antipsychotics	Haloperidol (Haldol®)	<p>IV: Age ≥ 65 years: 0.5-2 mg every 6 hours PRN Age < 65 years: 2-5 mg every 6 hours PRN</p> <p>PO: Age ≥ 65 years: 0.5-2 mg every 12 hours PRN Age < 65 years: 2-5 mg every 12 hours PRN</p> <p>Loading regimen for hyperactive delirium: Age ≥ 65 years: 0.5 mg IV Age < 65 years: 2 mg IV Repeat dose every 20-30 minutes until patient is calm, then schedule 25% of total loading dose IV every 6 hours</p>	<p>IV: 30 mg/day</p> <p>PO: 30 mg/day</p>	<p>IV: ≤ 20 minutes</p> <p>PO: 1-2 hour(s)</p>	<ul style="list-style-type: none"> • Likely of greatest utility in acute management of hyperactive delirium (<i>i.e.</i>, establishing initial control and PRN for breakthrough agitation) • QTc prolongation (dose dependent)/risk of torsades de pointes: <ul style="list-style-type: none"> ◦ Obtain 12-lead EKG at baseline and consider repeating every 48-72 hours ◦ Caution with QTc > 450 ms or increase by 25% or more from baseline ◦ Not recommended if QTc > 500 ms • Extrapyrimal reactions (acute dystonia, akathisia, parkinsonism, tardive dyskinesia) – higher incidence relative to atypical antipsychotics • Hypotension, particularly with IV administration • Neuroleptic malignant syndrome has been reported with antipsychotic administration (manifests as hyperpyrexia, muscle rigidity, autonomic instability) • May lower seizure threshold
Atypical Antipsychotics	Quetiapine (Seroquel®)	<p>PO: 25-50 mg every 12 hours</p> <p>Hepatic impairment: 12.5 mg every 12 hours</p> <p>Age > 60 years: 12.5-25 mg every 12 hours</p>	400 mg/day	1.5 hours	<ul style="list-style-type: none"> • Likely of greatest benefit as maintenance therapy for hyperactive/mixed delirium; can be considered for hypoactive delirium unresponsive to non-pharmacologic management • May cause hyperglycemia; cases of diabetic ketoacidosis and hyperosmolar coma have been reported • Orthostatic hypotension, especially upon initiation and titration of therapy • QTc prolongation (dose dependent)/risk of torsades de pointes; <ul style="list-style-type: none"> ◦ Obtain 12-lead EKG at baseline and consider repeating every 48-72 hours ◦ Caution with QTc > 450 ms or increases by 25% or more from baseline ◦ Not recommended if QTc > 500 ms • Neuroleptic malignant syndrome has been reported with antipsychotic administration (manifests as hyperpyrexia, muscle rigidity, autonomic instability) • May lower seizure threshold • Extrapyrimal reactions may occur, but are less common than with typical antipsychotics • Metabolized by CYP450 enzyme system; caution with concomitant use of CYP450 inhibitors and inducers • IM administration contraindicated in patients with thrombocytopenia
	Olanzapine (Zyprexa®; Zyprexa Zydis®)	<p>PO/ODT: 2.5-5 mg nightly</p> <p>Age > 60 years: 2.5 mg nightly</p> <p>Parenteral formulation non-formulary</p>	20 mg/day	6 hours	
	Ziprasidone (Geodon®)	<p>PO: 20 mg every 12 hours</p> <p>IM: 10 mg every 2 hours PRN or 20 mg every 4 hours PRN</p>	<p>PO: 160 mg/day</p> <p>IM: 40 mg/day</p>	<p>PO: 6-8 hours</p> <p>IM: ≤ 60 minutes</p>	

ODT = oral disintegrating tablet

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APPENDIX E: Medications for Management of Delirium in Critical Care Unit Only

Therapeutic Class	Medication	Typical Initial Infusion Rate	Recommended Maximum Infusion Rate	Onset of Action	Comments/Cautions/Adverse Reactions
Alpha Agonist	Dexmedetomidine (Precedex®)	IV infusion: 0.2 mcg/kg/hour	1.4 mcg/kg/hour	Immediate	<ul style="list-style-type: none"> • Refer to Critical Care Sedation for Mechanically Ventilated Adult Patients order set for treatment of delirium in mechanically ventilated patients • Refer to ICU Dexmedetomidine for Non-Mechanically Ventilated Patients order panel for treatment of delirium in non-mechanically ventilated patients • Caution with use of > 0.7 mcg/kg/hour in non-mechanically ventilated patients • Bradycardia, hypotension • Do not use if heart rate < 60 bpm or MAP < 65 mmHg

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