

---

# Management of agitation in children and adolescents in hospital settings

---

*Last updated March 2024*

**Introduction:** When managing agitation in children and adolescents in hospital settings, you're not just focusing on their immediate safety and that of those around them; you're also trying to minimize the potential trauma that can occur in such high-stress environments. In this guide, we'll walk through the core principles for handling these sensitive situations.

## Treatment Principles

- Begin by reducing excessive stimulation: if possible, move kids to a quiet, uncrowded space.
- Speak at the patient's eye level, using clear, simple language.
- Encourage family members to bring comforting items from home.
- Don't underestimate the use of snacks (e.g., goldfish crackers) and other rewards in de-escalation efforts.
- Target the underlying cause of agitation, whether it's due to a psychiatric illness, substance use or withdrawal, developmental delay/autism, or delirium.
- Utilize sitters like ED techs and nursing assistants to engage kids in activities like playing games, which can be calming.
- Communicate regularly with family members and caregivers for a comprehensive understanding of the child's needs, including triggers and calming techniques.
- Set firm limits for unacceptable behaviors and praise appropriate behaviors.
- Keep kids' developmental stages in mind. The younger the kids are, the harder it will be for them to manage their agitation.
- Establish a routine quickly: Use visual schedules or at the least, tell the kids what their day is going to look like. Cards with "if-then" statements are helpful (like "If you take your medicine, then you get your iPad").
- Start treatment promptly, even in the Emergency Department (ED). You might be able to get the child well enough to go home instead of waiting for an inpatient bed.
- Physical restraint: Use only as a last resort when there is an imminent risk of harm, for the shortest duration necessary, and with continuous monitoring. After removal, conduct a debriefing with the child and family.

## Medication Principles

- Whenever possible, use monotherapy -- but combinations of medications may be necessary in some cases, like for severe agitation.
- Check for existing home medications before introducing new ones to avoid additional side effects and drug interactions.
- Diphenhydramine and benzodiazepines are good choices for younger children and those with anxiety or agitation without a clear psychiatric history -- but be careful about using these meds in kids with delirium or developmental delays/autism as they can cause disinhibition.
- Antipsychotics like chlorpromazine, haloperidol, olanzapine, quetiapine, and risperidone are helpful for severe agitation due to their sedating effects. Ziprasidone is problematic since it can prolong QT intervals and needs to be taken with food.
- Remember, children are more prone to side effects like dystonia.

Emergency Department Dosing Recommendations for Children and Adolescents				
Medication	Dose	Peak effect	Max daily dose	Notes
Chlorpromazine	PO/IM 12.5-60mg (IM should be half PO dose) 0.55 mg/kg/dose	PO: 30-60 minutes IM: 15 minutes	<ul style="list-style-type: none"> <li>Child &lt;5 years: 40mg/day</li> <li>Child &gt;5 years: 75 mg/day</li> </ul>	Monitor for hypotension and QT prolongation
Clonidine	PO: 0.05-0.1 mg	30-60 minutes	<ul style="list-style-type: none"> <li>27-40.5 kg: 0.2 mg/day</li> <li>40-45 kg: 0.3 mg/day</li> <li>&gt;45 kg: 0/4 mg/day</li> </ul>	<ul style="list-style-type: none"> <li>Monitor for hypotension &amp; bradycardia</li> <li>Avoid giving with BZD or antipsychotics due to hypotension risk</li> </ul>
Diphenhydramine	PO/IM: 12.5-50mg 1 mg/kg/dose	2 hours	<ul style="list-style-type: none"> <li>Child: 50-100 mg</li> <li>Adolescent: 100-200 mg</li> </ul>	<ul style="list-style-type: none"> <li>Avoid in delirium</li> <li>Can be combined with haloperidol or chlorpromazine if concerns for EPS</li> <li>Can cause disinhibition or delirium in younger or DD youth</li> </ul>
Haloperidol	PO/IM: 0.5-5 mg (IM should be half PO dose)	PO: 2 hours IM: 20 minutes	<ul style="list-style-type: none"> <li>15-40 kg: 6 mg</li> <li>&gt;40kg: 15 mg</li> <li>(depending on prior antipsychotic exposure)</li> </ul>	<ul style="list-style-type: none"> <li>Consider EKG or cardiac monitoring for QT prolongation, esp. if given IV</li> <li>Monitor hypotension</li> <li>Note EPS risk with MDD &gt; 3 mg/day, with IV dosing having very high EPS risk</li> <li>Consider AIMS testing</li> </ul>
Lorazepam	PO/IM/IV/NGT: 0.5-2 mg	IV: 10 minutes	<ul style="list-style-type: none"> <li>Child: 4 mg</li> <li>Adolescent: 6-8 mg</li> </ul>	<ul style="list-style-type: none"> <li>Can cause disinhibition or delirium in</li> </ul>

	Or 0.05 mg-0.1 mg/kg/dose	PO/IM: 1-2 hours	<ul style="list-style-type: none"> <li>(depending on weight and prior exposure)</li> </ul>	<p>younger or DD youth</p> <ul style="list-style-type: none"> <li>Can be given with haloperidol, chlorpromazine, or risperidone</li> <li>Do not give with olanzapine (esp. IM due to risk of respiratory suppression)</li> </ul>
Olanzapine	PO/ODT/IM: 2.5-10 mg (IM should be ¼-1/2 PO dose)	PO: 5 hours (range 1-8 hours) IM: 15-45 minutes	10-20 mg depending on prior antipsychotic exposure	Do not give within one hour of benzodiazepine
Quetiapine	PO: 25-50 mg 1-1.5 mg/kg/dose (or divided)	PO: 30 minutes – 2 hours	>10 years: 600 mg (depending on prior antipsychotic exposure)	<ul style="list-style-type: none"> <li>More sedating at lower doses</li> <li>Monitor for hypotension</li> </ul>
Risperidone	PO/ODT: 0.25-1 mg 0.005-0.01 mg/kg/dose	PO: 1 hour	Child: 1-2 mg Adolescent: 2-3 mg (depending on prior antipsychotic exposure)	<ul style="list-style-type: none"> <li>Can cause akathisia at higher doses</li> <li>Is FDA-approved for autism-related irritability.</li> </ul>

Source: Gerson R et al, West J Emerg Med 2019;20(2):409-418