



# Executive Summary: Evaluation and Management of Children With Acute Mental Health or Behavioral Problems. Part II: Recognition of Clinically Challenging Mental Health Related Conditions Presenting With Medical or Uncertain Symptoms

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## EXECUTIVE SUMMARY

The number of children and adolescents seen in emergency departments (EDs) and primary care settings for mental health problems has skyrocketed in recent years, with up to 23% of patients in both settings having diagnosable mental health conditions.<sup>1-4</sup> Even when a mental health problem is not the focus of an ED or primary care visit, mental health conditions, both known and occult, may challenge the treating clinician and complicate the patient's care.<sup>4</sup>

Although the American Academy of Pediatrics (AAP) has published a policy statement on mental health competencies and a Mental Health Toolkit for pediatric primary care providers, no such guidelines or resources exist for clinicians who care for pediatric mental health emergencies.<sup>5,6</sup> Many ED and primary care physicians report paucity of training and lack of confidence in caring for pediatric psychiatry patients. The 2 clinical reports support the 2006 joint policy statement of the AAP and the American College of Emergency Physicians on pediatric mental health emergencies,<sup>7</sup> with the goal of addressing the knowledge gaps in this area. Although written primarily from the perspective of ED clinicians, it is intended for all clinicians who care for children and adolescents with acute mental health and behavioral problems. They are organized around the common clinical challenges pediatric caregivers face, both when a child or adolescent presents with a psychiatric chief complaint or emergency (part I) and when a mental health condition may be an unclear or complicating factor in a non-mental health ED presentation (part II). Part I of the clinical reports

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includes discussions of Medical Clearance of Pediatric Psychiatric Patients, Suicide and Suicidal Ideation, Restraint of the Agitated Patient Including Verbal, Chemical, and Physical Restraint, and Coordination of Care With the Medical Home, and it can be accessed online at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-1570](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-1570). This executive summary is an overview of part II of the clinical reports. Full text of the following topics can be accessed online at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573).

Key considerations include the following:

### Somatic Symptom and Related Disorders

- Somatic symptom and related disorders encompass conditions in which physical symptoms are not intentionally produced or associated with material gain.<sup>8</sup> These disorders are common and are significant contributors to health care usage and costs, because they cause significant functional impairment.<sup>9-11</sup>
- Symptoms of pediatric somatic symptom and related disorders often do not meet strict diagnostic criteria and defy categorization.<sup>12,13</sup> Clinical presentations are myriad, most often involving neurologic, pain, autonomic, or gastrointestinal tract symptoms.<sup>14,15</sup> Patients often have vague, poorly described complaints, recent or current stressful events, and symptoms that fluctuate with activity or stress and often have multiple medical visits for these symptoms.<sup>16</sup>
- *Risk factors:* Studies have found higher rates of somatic symptom and related disorders in patients who are adolescent, female, or of minority ethnicities; patients who live in urban areas; patients from nonintact families; patients whose parents have lower education level; patients whose family members

have somatic symptom and related disorders; and patients who have histories of psychological trauma. Comorbid depression and anxiety disorders are common.<sup>8,17</sup>

- *Somatic symptom and related disorders and the ED:* Caring for such patients in the ED can be particularly vexing, because few patients will have received a formal diagnosis, and ED clinicians often do not have access to sufficient clinical information to confirm the diagnosis.<sup>12,13</sup> In addition, diagnosing a “psychosomatic” illness may be stigmatizing to patients and families and may result in them feeling unheard, disrespected, and defensive about their symptoms.<sup>18</sup> Because of diagnostic uncertainty, patients with somatic symptom and related disorders are at risk for extensive, invasive, or potentially harmful testing and interventions in the ED.<sup>19,20</sup>
- *ED management strategies*<sup>8,18,21</sup>: ED clinicians may consider doing the following:
  - i. Reassure the patient and family that the patient’s symptoms are being heard and taken seriously and that testing and treatment that are medically indicated will be performed.
  - ii. Emphasize collaboration between the patient, family, and all caregivers; make referrals as needed; and identify common goals and outcomes. Educating the patient and family about the limitations of the ED setting and what are alternative settings for evaluation and treatment may be beneficial.
  - iii. Introduce the concept of working on improving functioning while also working on symptom resolution.

- iv. Coordinate the patient’s care with the medical home and other involved care providers to help the ED clinician avoid unnecessary testing or intervention and reassure the patient and family.

### Adverse Effects of Psychiatric Medications

- In recent years, the use of medications for mental health conditions, especially antipsychotics, is burgeoning among children and adolescents.<sup>22-25</sup>
- Many medications commonly used as antiemetics or for migraines (eg, prochlorperazine, metoclopramide, and promethazine) are phenothiazines, the same class of medications as first-generation “typical” antipsychotics.<sup>26</sup> In addition, other medications commonly used in pediatrics have serotonergic properties. Therefore, a working knowledge of the adverse effects of these medications may be helpful to ED clinicians.
- Antipsychotics:
  - i. Although antipsychotics exert their effect primarily through the brain’s dopaminergic system, they also affect numerous other neurotransmitter systems. Table 2 in the clinical report (see Table 2 at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573)) lists the common adverse effects, which neurotransmitter system is involved, and which adverse effects are most commonly seen with which antipsychotics.
  - ii. *QT<sub>c</sub> prolongation:* Almost all antipsychotics cause some degree of QT<sub>c</sub> prolongation because of a quinidinelike effect (see Table 4 at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573)).

- pediatrics.org/cgi/doi/10.1542/peds.2016-1573). Risk factors (see Table 3 at www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573) for QT<sub>c</sub> prolongation and sudden death include coadministration of other QT<sub>c</sub>-prolonging medications (see Table 5 at www.pediatrics.org/cgi/doi/10.1542/peds.2016-1570); intravenous administration or high dosage; medically ill patients; electrolyte abnormalities; hepatic, renal, or cardiac impairment; and congenital long QT syndromes.<sup>27-29</sup>
- iii. *Black box warning*: Because of this risk, thioridazine and, more controversially, droperidol carry Food and Drug Administration “black box” warnings.
- iv. *Extrapyramidal symptoms*: Dystonia, akathisia, Parkinsonism, and tardive dyskinesia are typical extrapyramidal symptoms. Acute dystonic reactions, the most commonly encountered extrapyramidal symptoms, often respond to diphenhydramine or benztropine. Laryngeal dystonia is rare but potentially life threatening.<sup>26,28</sup>
- v. *Metabolic syndrome*: Hyperglycemia, hyperlipidemia, and obesity are often associated with atypical antipsychotic use, with variable severity between medications (see Table 2 at www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573).<sup>30</sup>
- vi. *Agranulocytosis*: This rare adverse effect is most commonly associated with clozapine and less commonly with risperidone and olanzapine.<sup>31</sup>
- vii. *Neuroleptic malignant syndrome (NMS)*: NMS is a potentially lethal condition consisting of the tetrad of mental status changes, fever, muscular hypertonicity or rigidity, and autonomic dysfunction caused by central dopamine deficiency and can occur with any antipsychotic.<sup>32,33</sup>
1. NMS occurs idiosyncratically but is most common within 7 days of starting or increasing antipsychotic doses and later (15–30 days) if depot medications have been used.<sup>32,34</sup>
  2. In addition to the classic tetrad, symptoms can include tachycardia, blood pressure instability, diaphoresis, pallor, cardiac dysrhythmia, diaphoresis, sialorrhea, dysphagia, rhabdomyolysis, renal failure, thromboembolic events, hypoventilation, and respiratory failure.<sup>32,35</sup>
  3. NMS is a clinical diagnosis, because there are no pathognomonic clinical or laboratory criteria. Leukocytosis and elevated serum creatine phosphokinase and aldose are commonly observed.<sup>36</sup>
  4. Treatment may include supportive measures, such as removal of the initiating agent, and when indicated may also include intravenous fluids for dehydration and rhabdomyolysis, benzodiazepines for agitation, external cooling measures, and cardiorespiratory support. The smooth muscle relaxant dantrolene may be used to directly treat the abnormal muscle contractions of NMS.<sup>37,38</sup> The utility of central nervous system dopaminergic agents, such as bromocriptine and amantadine, is less clear and controversial.
5. Potential resources for caring for patients with NMS include toxicologists, a poison control center, and the NMS Information Service, which can be accessed through its Web site (<http://www.nmsis.org/index.asp>).<sup>37,38</sup>
- Serotonin syndrome:
    - i. Given the large number of non-mental health medications with serotonergic properties (see Table 6 at www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573) in addition to antidepressants and some antipsychotics, it is not surprising that the incidence of serotonin syndrome is increasing. It can occur in cases of overdose but also in the course of standard use.<sup>39,40</sup> The classic clinical triad consists of mental status changes, autonomic hyperactivity, and neuromuscular abnormalities, although many patients do not exhibit all these clinical characteristics. Given the wide variability in the severity of symptoms and the lack of pathognomonic clinical and laboratory findings, diagnosing serotonin syndrome can be particularly challenging.<sup>40,41</sup>
    - ii. *Signs and symptoms*: Agitated delirium is the most common form of mental status change,

although it also has a wide spectrum of severity, including mild agitation, hypervigilance, slightly pressured speech, and easy startle. Diaphoresis, shivering, mydriasis, increased bowel sounds, and diarrhea are common signs of autonomic dysfunction. Myoclonus is the most common neuromuscular finding, but other abnormalities are possible, including, muscular rigidity, hypertonicity, hyperreflexia, clonus, horizontal ocular clonus, tremor, akathisia, and seizures.<sup>39,42</sup> Laboratory findings can include elevated CPK and hepatic transaminases, metabolic acidosis, renal failure, and disseminated intravascular coagulopathy.

- iii. *Diagnosis:* Differentiating serotonin syndrome from other medication-induced syndromes can be challenging. Table 7 in the clinical report ([www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573)) details both the similar and differentiating features of these syndromes. In addition to the aforementioned laboratory abnormalities, other diagnostic testing may include a complete blood cell count, serum electrolytes, arterial blood gas, urinalysis, toxicology screens, electrocardiogram, electroencephalogram, and brain imaging studies.
- iv. *Treatment:* Similar to NMS, treatment of serotonin syndrome most often includes supportive measures. For severe cases, centrally acting serotonin agents may be considered, including cyproheptadine

and chlorpromazine. Some experts prefer cyproheptadine, because chlorpromazine may cause hypotension and increase muscle rigidity, decrease seizure threshold, and worsen NMS (eg, in diagnostically challenging cases when the diagnosis is unclear and the patient has NMS, not serotonin syndrome).<sup>42,43</sup> Toxicologists, poison control centers, and the NMS Information Service, as mentioned previously in the NMS section, may be helpful resources in caring for these patients. Evaluation and observation in the ED and additional outpatient management may be considered in mild cases.

#### **Children With Special Needs: Caring for Patients With Autism Spectrum Disorders and Developmental Disorders**

- In recent years, there has been a sharp increase in the incidence of autism spectrum disorders, with corresponding interest and growth in treatment strategies. Most studies have methodological or generalizability limitations. Therefore, the following strategies are based primarily on expert, consensus opinion.
- *Resources:* Often, the most important autism spectrum disorder or developmental delay (ASD-DD) “expert” to consult is the child’s parent. Parents of children with ASD-DD often know what strategies work with their child (eg, which words, actions, stimuli, calm and help their child) and which have the opposite effect. They can also be an “interpreter” for ED clinicians, deciphering the significance of their child’s actions and behaviors and facilitating communication with their child. Spending some time asking the parents about their child can be

a very productive, efficient method for tailoring effective ED care for patients with ASD-DD. A wide range of ED professionals can assist with or champion ASD-DD-sensitive care, including physicians, nurses, nursing assistants, nurse practitioners or physician assistants, social workers, and child life specialists. Non-ED resources that may be helpful include developmental-behavioral pediatricians, child psychologist and psychiatrists, special education teachers, speech-language therapists, and occupational therapists.

- *Strategies:* A variety of environmental modifications, communication adjuncts, and distraction techniques may assist in caring for children with ASD-DD (see Table 8 at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-1573)). A quiet, darkened room may be soothing to a child with an ASD-DD. These children often communicate with a visual communication system (VCS).<sup>44</sup> If they do not have their usual VCS, a wide variety of free and commercial products are available. Digital photography is an alternative, inexpensive method of creating a custom VCS for the ED. Transition planning and desensitization strategies may help children with ASD-DD acclimate to the ED and the care they will receive. Distraction techniques that may be useful include physical activity, electronic games, and tactile stimulation.
- *Medications:* There are no rigorous, evidence-based recommendations for which medications to use for children with ASD-DD. Although there are no known contraindications, other than the patient’s past response to medications, atypical, idiosyncratic responses to medications may be common with these patients. Consultation with an ASD-DD

expert before starting medication may be helpful. Many suggest starting with lower medication dosages and closely monitoring the patient's response.<sup>45</sup>

### Mental Health Screening

- **Advantages of the ED:** Many children and adolescents who visit EDs are at high risk of mental health problems that may not be addressed in other settings.<sup>46,47</sup> For example, they may not attend school or have a medical home, effectively making the ED the sole safety net for these patients.<sup>48,49</sup>
- **Feasibility and acceptability of ED mental health screening:** Many rapid and efficient mental health screening tools have been tested in the ED, including for depression, suicide, anxiety, and posttraumatic stress.<sup>50-53</sup> Studies have found these screening tools to have high feasibility (eg, they can be completed in a few seconds to a few minutes) and acceptability by patients, their families, and ED clinicians.<sup>54-58</sup> Electronic screening tools have been developed, are being tested, and may be advantageous to the ED setting.<sup>59-61</sup>

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### ABBREVIATIONS

AAP: American Academy of Pediatrics  
ASD-DD: autism spectrum disorder or developmental delay  
ED: emergency department  
NMS: neuroleptic malignant syndrome  
VCS: visual communication system

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