

Child and Adolescent Consultation-Liaison Psychiatry for Medical Students: Common Presentations and Management Strategies

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This document was created to be used as a guide and should not be used as the sole resource of information.

Child/Adolescent Psychiatry Consultation-Liaison (CAP C/L) Basics

<i>Child/Adolescent Psychiatry Consultation-Liaison (CAP C/L) Basics</i>	
What is CAP C/L?	Subspecialty service for psychiatric care to physically ill children and adolescents Consult (C): Provide expertise on medical conditions and medications which cause/exacerbate psychiatric symptoms, psychiatric aspects of medical illness, and delineate developmentally appropriate reactions to illness and other stressors Liaison (L): Collaborate with primary pediatric teams to facilitate proper and effective medical care for patients with psychiatric conditions
Why is CAP C/L Important?	<ul style="list-style-type: none"> • Compared to the general population, children with chronic medical conditions have a higher prevalence of anxiety disorders and a 2-3x higher depression risk. • Patients with comorbid mental health conditions tend to have longer medical and surgical hospitalizations. • Children and adolescents with chronic medical illnesses are at increased risk for chronic and/or persistent mental health issues. • Up to 80% of critically ill children and adolescents experience delirium. • Critical illness has been associated with long term sequelae of trauma- and stressor-related disorders, anxiety, and depression.
CAP Consult Example Workflow	Establish referral question (diagnostic, management, disposition) → obtain multiple sources of information → prepare patient and family for the psychiatric assessment → meet with child and family together → interview patient and family separately → consider standardized screening scales or diagnostic instruments → observe behavior and play → assess developmental status and/or issues → develop biopsychosocial formulation → communicate findings and recommendations to interdisciplinary team, family, and patient
Common Referral Questions & Interventions	<ul style="list-style-type: none"> • Suicide and homicide risk assessment, somatic symptom disorders, illness adjustment disorders with depressed mood and/or anxiety, psychiatric symptoms of medical trauma, psychotropic medication evaluation, mental status changes, delirium, catatonia, agitation/aggression, substance use disorders, eating disorders. Also frequently consulted for coping support, assisting family and medical team interactions, and evaluating treatment adherence concerns • Interventions/Supports: psychiatric evaluation; psychiatric medication management; providing psycho-education to primary team, hospital staff, and family; psychotherapeutic interventions with patients and families; assisting with disposition planning, facilitating communication between family and medical teams; and behavioral interventions • Psychiatric “boarding”: phenomenon where children with acute mental health problems are hospitalized on a general medical or pediatric floor in the absence of an available bed on a behavioral health inpatient unit
Tips	<ul style="list-style-type: none"> • Children are not little adults! Caring for children with mental health concerns requires different strategies for communication, building rapport, and care considerations. • Psychiatric examinations in children are often more nuanced than those for adult patients due to differences in communicative ability, maturity, and cognitive capacity relative to the child’s developmental stage. • An array of family systems are involved in the psychiatric care of a child or adolescent. • Consider including play, drawing, role enactment, and other nonverbal techniques in your diagnostic assessment and as therapeutic strategies. • Note that structural factors (including systemic racism and insurance systems) may significantly influence patient experiences, treatment planning and adherence, and consultation questions.

References: Dulcan 2022, Shaw and DeMaso 2019, Smith et al 2022, Woodruff et al 2021

Pediatric Psychiatric Emergencies	
Key Facts	Most common presentations include <ul style="list-style-type: none"> • Suicidal threats or behavior • Assaultive, destructive, or violent behavior • Acute mental status change • Substance use
Key elements of behavioral health emergency assessments	Evidence-based suicide screen performed with subsequent evidence-based assessment on anyone who presents for a mental health complaint to emergency department (required age 12 and up, although this can be done for lower age or universally) Ask Suicide-Screening Questionnaire (ASQ) Columbia Suicide Severity Rating Scale (C-SSRS) Suicide Assessment Five-Step Evaluation and Triage (SAFE-T) Clarify diagnosis Differentiate between non-suicidal self-injurious behavior and suicide attempt Access to lethal means Social supports Bullying Sexual orientation and gender identity concerns Identify risk and protective factors Level of functioning (school, home) Obtain collateral information (school, parent) Determine most appropriate level of care for treatment

Reference: Shah et al 2023

Interviewing Children

<i>Developmental Features Affecting the Psychiatric Interview</i>
<ul style="list-style-type: none"> • Engagement/participation may vary with child’s comfort level, which can depend on age, developmental stage, and presence of primary caregiver. • Some children may struggle to generate spontaneous speech (consider closed-ended questions). • Younger or children with developmental delays may use nondiscursive communication (e.g., nonverbal communication or verbal expressions lacking details or formal language). • Children are concrete thinkers (thought is based on what is presently seen, heard, or felt). • Children struggle to accurately perceive chronology and should not be asked “how long?” • Children may tend to respond or act in ways to please adults or authority figures. • Children can be susceptible to leading questions to supply what they perceive that the interviewer “wants to hear.” • Young children struggle with more abstract questions (i.e., “why” questions).
<i>Tips for a Developmentally Informed Interview</i>
<ul style="list-style-type: none"> • Assist the child with communication (consider communication aids when appropriate, including toys, visual feelings chart, dry erase boards, providing choices). • Limit interview length and allow the child to play/eat during the interview. • Provide positive feedback. • Normalize and praise the child’s attempts to answer questions and participate.

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- Adjust language and terminology appropriate to the child’s developmental level (such as “upset,” “scary,” “sad,” “bad,” and “good”).
- Use validation questions to clarify non-verbal or vague responses.
- Formulate short, focused questions to elicit necessary information.
- Understand ideas behind concrete language.
- Avoid leading questions.
- Avoid yes/no and why questions.
- Avoid questions seeking to establish chronology or causality for younger children.
- Use displacement to help children talk about difficult topics (e.g., asking a child’s stuffed animal how they feel about being in the hospital).
- Introduce sensitive topics later in interview.

Reference: adapted from Caplan and Bursch 2013

Psychopharmacology in Child/Adolescent Psychiatry

Note: most psychotropic medications used in clinical practice are not FDA-approved for use in children, and off-label use is guided by data from research in adults.

<i>Psychotropic Classes for Targeted Symptom Approach</i>	
ADHD	Stimulants, alpha-2 agonists, norepinephrine reuptake inhibitors
Acute Agitation	Antipsychotics, benzodiazepines, diphenhydramine, valproic acid
Anxiety	Antidepressants, benzodiazepines, buspirone, gabapentin, clonidine
Delirium	Antipsychotics for agitation interfering with care or distressing perceptual disturbances/thought content; melatonin for sleep, alpha-2 agonists in ICU (i.e., dexmedetomidine)
Depression	SSRIs, SNRIs, atypical antidepressants (mirtazapine)
Fatigue	Psychostimulants, modafinil
Insomnia	Melatonin, diphenhydramine, benzodiazepines, trazodone, amitriptyline, mirtazapine, gabapentin, alpha-2-agonists
Pain	TCAs, SNRIs (e.g., duloxetine or venlafaxine), analgesics, gabapentin
Psychosis	Antipsychotics
Substance withdrawal	Benzodiazepines, buprenorphine, methadone, clonidine, gabapentin

<i>Pharmacologic Considerations</i>	
<ul style="list-style-type: none"> • Weight-based dosing may be used for younger or smaller children/adolescents. • Many agents come in liquid formulations or orally dissolving tabs. • Many stimulants can be opened and not crushed. • Most agents have similar side effect profiles as those seen in adults. • Younger children (<8 years old) may experience more side effects, including activation and irritability. 	

Coping and Developmental Considerations

<i>Coping and Adaptation to Illness</i>	
Definitions	<p>Coping: thoughts and behaviors employed in response to a stressor</p> <p>Temperament: innate psychological characteristics and habitual mode of emotional response</p>

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Coping Styles	<ul style="list-style-type: none"> • Primary: problem-focused strategies to directly change the stressor or to modify one’s response to the stress, such as problem-solving, emotional expression, or emotion modulation • Secondary: adapting to the stress through techniques such as reappraisal, positive thinking, distraction, and acceptance (secondary techniques are associated with better adjustment to illness) • Other: avoidance, denial, disengagement (associated with worse adjustment to illness)
Tips	<ul style="list-style-type: none"> • Different stressors can necessitate different techniques. • Issues with coping styles can depend on the phase of illness and its unique psychological and physiological demands, the child’s developmental level, daily role stressors (missed school days, missing social events/engagements), and treatment-specific stressors (e.g., taking medications, treatment adverse effects, procedures)
Role of Parents/Families	<ul style="list-style-type: none"> • It is important to address needs of families/caregivers to facilitate parental and familial coping in addition to coping of the child. • Behaviors encouraged or supported by parents are influential: <ul style="list-style-type: none"> ○ Coping-promoting behaviors (primary or secondary techniques) are associated with improved outcomes. ○ Distress-promoting behaviors (criticizing, apologizing) are associated with worse outcomes. • Family cohesion and effective communication are associated with improved outcomes. • High levels of intra-familial conflict and ineffective communication are associated with worse outcomes. • Maternal levels of anxiety and depression have been shown to be better predictors of a child’s adjustment to medical illness than the severity of illness.

References: Dulcan 2022, Shaw and DeMaso 2019

Developmental Considerations	
Developmental Levels	Preschool: 1-4 years old School-age: 5-12 years old Adolescents: 13-18 years old
A patient’s developmental level affects coping responses, cognitive and intellectual ability to process and benefit from health-related information, and degree of participation in care.	
<ul style="list-style-type: none"> • 2-6 years old: tendency for magical thinking (beliefs that words, emotions, actions, or rituals can influence the external world, lack of understanding of permanence and finality of death) and transductive reasoning (drawing relationship between unrelated events) → idiosyncratic explanations for illness/pain • 7- 10 years old: developing capacity for logical thought • 11 – 14 years old: emergence of abstraction and introspection At any age, stressors (e.g., illness) can cause regression in coping for both children and families.	

References: Dulcan 2022, Shaw and DeMaso 2019

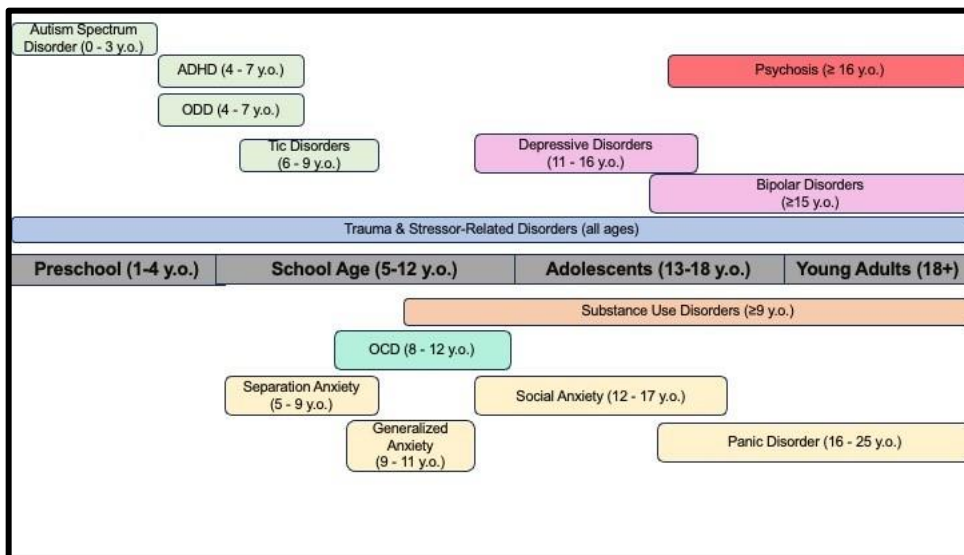


Figure 1: Average Onset of Common Psychiatric Disorders by Childhood Developmental Stage Adapted from Lurie Children’s RAMP (<https://ramp.luriechildrens.org>)

Differential Diagnoses Based on Behavior Type	
Internalizing	<ul style="list-style-type: none"> • Symptoms causing subjective psychological or emotional distress • Internalizing symptoms can manifest as depression, anxiety, obsessive-compulsive disorder, and psychosis
Externalizing	<ul style="list-style-type: none"> • Symptoms precipitating behavioral and psychomotor phenomena, including hyperactivity, impulsivity, and aggression • Externalizing symptoms can manifest as mania, hypomania, oppositional behaviors, behavior disorders, and substance use

Reference: Cepeda and Gotanco 2016

Aggression, Behavioral Disturbances, and Disruptive Disorders

Aggression in Children	
What is aggression?	<p>Threat of or actual action(s) intended or likely to cause harm to self or others</p> <p>Examples: facial expressions (glaring), posturing, yelling, harsh language, stomping, slamming doors, throwing objects, pushing/shoving, hitting/kicking/biting/pinching/scratching, explicit threats, harmful behaviors with weapons, tantrums, provocative statements/actions</p> <p>Note: “Aggression” and “agitation” may be used interchangeably as synonyms in the hospital setting but are non-specific and should be further described.</p>
Incidence	<ul style="list-style-type: none"> • Very common behavioral concern in preschool age children • Emerges around 8 months, peaks between 2-4 years, then usually diminishes in most children • Approximately 5% of children display persistent or chronic aggression. • Structural factors including medical racism can contribute to the overrepresentation of children of color—especially Black youth—referred for evaluations for aggression.
Adaptive Function	<ul style="list-style-type: none"> • Can help children get what they need or want, defend themselves, and alert adults to urgent needs/problems

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	<ul style="list-style-type: none"> • Can often reflect undiagnosed/undertreated physical symptoms (e.g., pain, constipation in children with ASD)
When is aggression clinically problematic?	<p>When...</p> <ul style="list-style-type: none"> • late preschool-age or older children regularly use aggressive behavior for self-expression • behavior causes injury to self/others or destruction to property • caregivers are afraid of the child or feel unable to maintain their own or their child's safety • there is negative impact on social cohesion with peers and/or family • behaviors impede learning or wellbeing of peers at school • the child is actively threatening or planning harm to others (proactive aggression) • the child is concerned about their ability to maintain safety
What factors are associated with persistence of aggression?	<p>Child factors: male sex, genetic predisposition, lower behavioral inhibition, speech or language delay, poor communicative skills, low frustration/distress tolerance, untreated mental health condition (including learning disorders)</p> <p>Parent factors: maternal depression, harsh parenting, lower education, modeling aggressive behavior</p> <p>Environmental factors: exposure to bullying, abuse, or violence</p>
Aggression & Mental Health	<p>Aggression can be driven by an acute psychiatric condition, including:</p> <ul style="list-style-type: none"> • ADHD: aggression can result from impulsivity or cycles of negative feedback for untreated symptoms. • Anxiety: aggression may help avoid anxiety-inducing situations. • Trauma: aggression may be the result of experiencing traumatic events. • Neurodevelopmental disorders (including autism spectrum disorder): impaired communicative ability to express discomfort, needs, and problems can lead to aggression. • ODD: aggression may be part of a pattern of hostile, vindictive, and defiant behavior towards authority figures. • Delirium: can include aggressive behaviors • Catatonia: aggression can be a symptom of hyperkinetic/excited catatonia.
Clarifying Aggression	<ul style="list-style-type: none"> • What specific behaviors are occurring? • When do the aggressive behaviors occur? • Where and with whom are the behaviors happening? • How often is the child demonstrating aggression? • How severe are the behaviors? Is anyone getting hurt or is property being destroyed? • What have been the consequences or outcomes of the aggressive behaviors? • Are there antecedents to the behaviors? • Are there inciting events, stressors, or changes? • Does anything (e.g., medications, behavioral strategies) help reduce the behaviors?
Alternatives to Aggression	<ul style="list-style-type: none"> • Problem-solving skills involving expressive and receptive language • Impulse control • Utilizing working memory to access previously learned coping skills • Emotion regulation • Social awareness
Medications & Aggression	<p>In certain circumstances, PRN medications can be useful:</p> <p>Delirium: medications can address underlying conditions, sleep disturbances, and physical symptoms (nausea, pain) and can also address dangerous agitation or aggression that incites safety concerns to patient or staff. If possible, avoid anticholinergics, benzodiazepines, and opioids that can worsen delirium, unless delirium is due to alcohol/benzodiazepine withdrawal.</p>

	<p>Substance intoxication/withdrawal: clinically dictated by particular substance involved; for unknown ingestion, can utilize lorazepam</p> <p>Neurodevelopmental disorder-related: these youth are highly susceptible to adverse drug effects (particularly to benzodiazepines and antipsychotics); aggression is often due to physical or sensory discomfort; consider extra dose of regular psychotropic medication instead of new PRN; avoid IM medications unless absolutely necessary for safety.</p> <p>Catatonia: For aggression that occurs in the context of hyperkinetic/excited catatonia, utilize benzodiazepines and avoid antipsychotics given that D2 antagonism can exacerbate symptoms of catatonia.</p>
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References: Adapted from Lurie Children’s RAMP (<https://ramp.luriechildrens.org>); Gerson et al 2019

Disorders with Disruptive Behaviors

<i>Disruptive, Impulse-Control, and Conduct Disorders</i>	
Intermittent Explosive Disorder (IED)	<ul style="list-style-type: none"> • Recurrent behavioral outbursts representing a failure to control aggressive impulses • Aggression can be verbal and/or physical. • Magnitude of outburst is out of proportion to provoking stimulus. • Outbursts are generally short, impulsive, and not premeditated. • Most common onset in late childhood or adolescence
Oppositional Defiant Disorder (ODD)	<ul style="list-style-type: none"> • Frequent and ongoing pattern of anger, irritability, arguing and defiance toward authority figures • Symptoms in following categories: anger/irritability, argumentativeness/defiance, vindictiveness • More common in male preadolescents, equal male: female in adolescence and adulthood <p>Clinical subgroups:</p> <ol style="list-style-type: none"> 1. Angry/Irritable Mood: angry outbursts, temper tantrums; at risk of developing anxiety and depression 2. Argumentative/Defiant Behavior and Vindictiveness: defiant and disobedient; at risk of developing conduct disorder
Conduct Disorder (CD)	<ul style="list-style-type: none"> • Repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated • Diagnosis requires symptoms in the following categories: aggression, destruction of property, theft/deceit, serious rules violations • More common in male adolescents
Disruptive Mood Dysregulation Disorder (DMDD)	<ul style="list-style-type: none"> • Severe temper tantrums that are disproportionate to the situation and inconsistent with the child’s developmental level • Chronic irritability between temper outbursts that is persistent for most of the day • Cannot coexist with IED, bipolar disorder, or ODD • Occurs before age 10 • Children with DMDD will often develop anxiety or depressive disorders as adults
Notes	<ul style="list-style-type: none"> • Most children with ODD or CD do not display antisocial behavior • Irritability without accompanying mood symptoms is more suggestive of a behavior disorder than a mood disorder. • Patients with ODD, CD, IED, and limited impulse control are at higher risk for suicide.

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	<ul style="list-style-type: none"> • Consider structural factors in making these diagnoses, as children of color are more frequently diagnosed with ODD and CD. • Risk of developing these disorders includes influence from temperament, environment (harsh parenting, trauma, unstable primary caregiver attachments), genetic and physiologic factors, and cultural expectations for communication and distress
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References: Shaw and DeMaso 2019, DSM-5-TR

Neurodevelopmental Disorders (Overview, Autism, ID, ADHD, OCD)

Overview of Neurodevelopmental Disorders	
<ul style="list-style-type: none"> • Group of conditions with onset in the developmental period (typically appearing in early childhood) • Characterized by developmental or brain-based differences precipitating impairments in social, intellectual, functional, and/or occupational functioning • Range from very specific limitations to global impairments of social skills and intellectual abilities • Diagnosis requires presence of symptoms AND impairment in functioning. • Frequently co-occur with each other (ADHD, ASD, ID, specific learning disorder) and with other psychiatric conditions (OCD, anxiety, depression) • Important to evaluate adaptive functioning through schooling (independent function and need for supports), learning and communication level and disorders, socialization, and compensatory mechanisms/behaviors 	

Reference: DSM-5-TR

Autism Spectrum Disorder	
<ul style="list-style-type: none"> • Neurodevelopmental disorder characterized by persistent problems in communication, social awareness and interest, and repetitive behaviors, occurring on a broad spectrum from needing minimal support to substantial support for ADLs • Social deficits are the most consistent and reliable findings. • Spoken language is often delayed or totally absent. • Frequently comorbid with intellectual disability (up to 50%), anxiety, depression (can be difficult to differentiate), ADHD, and medical conditions (including constipation, ARFID) that can precipitate aggression due to pain 	
Symptom Examples	<p><u>Social communication and interaction:</u> deficits in social reciprocity, non-verbal communication, difficulty initiating and maintaining relationships</p> <p><u>Behaviors and interests:</u> stereotyped, repetitive motor movements; inflexible adherence to routine; ritualized behaviors; restricted and fixated interests with intense focus/attachment; changes in sensitivity to sensory input or aspects of environment</p>
Screening & Diagnosis	<ul style="list-style-type: none"> • Screening at 18 and 24 months; symptoms typically evident by 30 months • Often presents with parental concern about speech delay or resistance to affection • Structural factors affecting access to care can lead to delays in diagnosis
Clinical Concerns	Undiagnosed or uncommunicated physical issues (e.g., pain, dental disease, allergies, constipation), aggression, and self-injurious behaviors
Treatment	<ul style="list-style-type: none"> • Best outcomes with multimodal approach (behavior therapy and parental training) • Applied Behavioral Analysis (ABA): therapy applying understanding of behaviors to real-life situations to promote helpful behaviors and improve communication skills • Wrap-around services: special education, speech/language therapy, vocational training, and adaptive skill training

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	<ul style="list-style-type: none"> • Severe aggression/agitation: evaluate for underlying physical conditions; make sure child can communicate (communication devices or picture boards); may need to consider acute hospitalization or residential treatment program • Pharmacotherapy: helpful for disruptive behavior or comorbid disorders <ul style="list-style-type: none"> ○ Aggression: low-dose antipsychotics (risperidone and aripiprazole are FDA-approved for treatment of irritability and aggression in autism spectrum disorder) ○ Higher risk of tardive dyskinesia from antipsychotics, activation with SSRIs, and paradoxical responses to benzodiazepines • Treatment of co-morbid conditions such as ADHD or anxiety
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Reference: Aylward et al 2021

Intellectual Disability

Definition and Diagnosis	<ul style="list-style-type: none"> • Deficits in general cognitive abilities (reasoning, problem-solving, planning, abstract thinking, judgment, academic learning, and learning from experience), which result in impairment in adaptive functioning • IQ of 2 standard deviations below the mean (generally < 65-75) with adaptive functioning impairment • Severity (mild, moderate, severe, profound) determined by level of adaptive functioning/impairment • Diagnosis: clinical assessment and standardized testing • Global developmental delay: reserved for children <5 years old failing to meet expected milestones in multiple areas of intellectual functioning, who are unable to complete systematic assessments; requires serial reevaluation as child grows older
Adaptive Function Domains	<p>Conceptual: language, math, reading/writing, reasoning, knowledge, memory</p> <p>Social: empathy, interpersonal communication, social awareness, friendships</p> <p>Practical: self-care, employment, financial management</p>
Presentation	<ul style="list-style-type: none"> • Common presenting symptoms: impulsivity, irritability, hyperactivity, impaired attention, language delay • Most cases are mild to moderate severity. • Comorbid psychiatric disorders are common.
Etiologies	<ul style="list-style-type: none"> • Idiopathic (most common); associated with >200 syndromes • Most common genetic syndrome: Trisomy 21/Down syndrome • Most common heritable syndrome: Fragile X syndrome
Differential	Learning disorders, autism spectrum disorder, communication disorders, environmental deprivation, borderline intellectual function, impaired vision/hearing

Attention Deficit-Hyperactivity Disorder (ADHD)

	<ul style="list-style-type: none"> • Persistent inattention and/or hyperactivity and impulsivity that interferes with functioning or development • Highly hereditary • One of the most common neurodevelopmental disorders in children • Often comorbid with tic disorders and obsessive compulsive disorder (OCD)
Presentation & Symptom Domains	<ul style="list-style-type: none"> • Commonly presents in early childhood; symptoms must be present by 12 years of age • Symptoms must be present in at least two settings (school and home) • 3 Subtypes: <ul style="list-style-type: none"> ○ Inattentive type (need 6 of 9): CALL FOR FrEd Careless mistakes Attention difficulty.

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	<ul style="list-style-type: none"> Listening problems Loses things Fails to finish what they start Organizational problems Reluctant to do tasks requiring sustained mental effort Forgetful in routine activities Easily distracted ○ Hyperactive/impulsive type (need 6 of 9): RUNS FASTT Restless Unable to wait turn Not able to play quietly Slow-oh no, on the go! (hyperactive) Fidgety Answers are blurted out Staying seated is difficult Talks excessively Tends to interrupt ○ Combined type: Must meet both inattentive and hyperactive/impulsive subtypes separately
Common Comorbidities	ODD (50% of those with ADHD-C and 25% ADHD-I), CD (25% of those with ADHD-C), anxiety, ASD, learning disabilities
Screening	Vanderbilt, Connors, ADHD Rating Scale-IV
Treatment Considerations	<ul style="list-style-type: none"> ● Pharmacologic: psychostimulants (1st line), alpha-2 agonists, norepinephrine reuptake inhibitors (atomoxetine, viloxazine) ● Non-pharmacologic: behavior modifications, school supports (IEP/504) ● Rule of 1/3rds: <ul style="list-style-type: none"> ○ 1/3 of patients have symptoms lasting into adulthood ○ 1/3 of patients have reduction of symptoms (hyperactivity > inattention) ○ 1/3 of patients have complete resolution of symptoms ● If untreated: increased risk of suicide, substance use, school dropouts, motor vehicle accidents, unplanned pregnancies, and STIs
Psychostimulants	<ul style="list-style-type: none"> ● Two main classes of psychostimulant medications: <ol style="list-style-type: none"> 1. Methylphenidate class: blocks dopamine and norepinephrine reuptake in presynaptic neuron, leading to increased synaptic concentration of these neurotransmitters 2. Amphetamine class: primarily stimulate release of dopamine (and, to a lesser degree, norepinephrine) from the presynaptic neuron and inhibit dopamine reuptake. Stimulate more dopamine release than methylphenidate. ● Agents in both classes are available in short-, intermediary-, and long-acting formulations. ● Common therapeutic effects include increased alertness, attention, and energy ● Adverse effects include insomnia and appetite suppression

References: Stubbe 2007, Sulzer et al 2005, Wilens 2008

Obsessive-Compulsive Disorder

Definition	<ul style="list-style-type: none"> ● Presence of obsessions, compulsions, or both ● Obsessions: recurrent, persistent, and intrusive thoughts, urges, or images causing significant distress ● Compulsions: repetitive behaviors or mental acts performed in response to an obsession, aimed to prevent or reduce associated anxiety and/or stress
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Pediatric Features	<ul style="list-style-type: none"> • Prepubertal onset (median onset 9-10 years old) • Highly hereditary • Most children will have multiple obsessions and compulsions; may perform compulsions without well-formed obsessions • Most common obsessions: contamination, sexual/somatic, scruples (overly moralistic thoughts) • 50% have psychiatric comorbidities (anxiety, mood, psychotic disorders)
Assessment	Clinical interview, CY-BOCS rating scale
Treatment	<ul style="list-style-type: none"> • 1st line: CBT (focus on exposure and relapse prevention) • Pharmacotherapy: SSRIs (sertraline, fluvoxamine, fluoxetine), clomipramine (TCA) • Greatest efficacy with combined treatment (CBT + pharmacotherapy)

Tic Disorders

	<ul style="list-style-type: none"> • Tic: sudden, repetitive, nonrhythmic movements or vocalizations; can be simple (one muscle group or sound involved) or complex (multiple muscle groups recruited or a sequence of sounds/words) • Typically wax/wane in frequency and intensity • Can be transient or persistent • Often preceded by urges or physical sensations
Tourette's Disorder	<ul style="list-style-type: none"> • Defined by presence of both multiple motor and vocal tics during course of illness (not required to be concurrent) for at least 1 year with onset before 18 years of age • More common in male children • Highly heritable • Almost all cases have psychiatric comorbidities (ADHD, OCD, trichotillomania)
Treatment	<ul style="list-style-type: none"> • 1st line: therapy. including Comprehensive Behavioral Intervention for Tics (CBIT) and/or Habit Reversal Therapy (HRT) • 3 FDA-approved medications for Tourette's and persistent tics: haloperidol, pimozide, aripiprazole • Off label: clonidine

Delirium and Neurocognitive Disturbances

Delirium

Definition & Risk Factors	<ul style="list-style-type: none"> • Delirium is a syndrome of acute brain dysfunction due to an underlying medical condition or toxic exposure that is characterized by acute deficits in awareness, cognition, and attention and can be accompanied by psychomotor disturbances and altered sleep cycles • Delirium is common among critically ill children • Risk factors: age < 2, mechanical ventilation, chronic illness (particularly cyanotic heart disease), use of benzodiazepines, physical restraints
Screening Tools for Pediatric Patients	<ul style="list-style-type: none"> • Pediatric Confusion Assessment Method for the ICU Series (pCAM-ICU): valid for children >5 years old • Preschool Confusion Assessment Method for the ICU Series (psCAM-ICU): ages 0-5 • Cornell Assessment of Pediatric Delirium (CAPD): valid in all age groups with high sensitivity
Evaluation and Treatment	<p>“BRAIN MAPS”: mnemonic for management of delirium</p> <p>B: Bring oxygen (hypoxia, anemia, low cardiac output)</p>

	<p>R: Reduce/remove drugs (limit use of anticholinergics or sedating medications) A: Atmosphere (improve environment to limit deliriogenic effects, including optimizing light and noise levels, utilizing caregiver presence and routines, minimizing restraints, and using adaptive equipment) I: Infection N: New organ dysfunction (CNS, CV, pulmonary, renal, hepatic, endocrine) M: Metabolic disturbance (consider ordering CMP and ABG) A: Awake (minimizing sleep/wake cycle disturbances) P: Pain (undertreated pain or oversedation from pain medications) S: Sedation (evaluating sedative agents, including benzodiazepines)</p> <p>Antipsychotics do not treat delirium but may be used to target symptoms of agitation or perceptual and thought disturbances (risperidone, olanzapine, quetiapine, haloperidol)</p>
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References: DSM-5-TR, Schieveld 2011, Traube et al 2014, Reade et al 2016, Smith et al 2013, Smith et al 2016; BRAIN MAPS adapted from CHOP PICU delirium pathway (<https://www.chop.edu/clinical-pathway/picu-pcu-delirium-brain-maps>)

Catatonia

- **Catatonia:** rare and frequently severe psychomotor syndrome that can occur in the context of medical conditions, psychiatric conditions, or neurodevelopmental disorders
- **3 Subtypes of Catatonia**
 - Akinetic (hypoactive) catatonia
 - Hyperkinetic (excited/agitated) catatonia
 - Malignant catatonia: life-threatening manifestation of catatonia associated with autonomic dysregulation; may require treatment with ECT
- **Screening Instruments**
 - Bush-Francis Catatonia Rating Scale (BFCRS): most commonly used screening instrument.
 - Pediatric Catatonia Rating Scale: modified version of BFCRS accounting for specific features in children (incontinence, acrocyanosis, schizophasia, automatic compulsive movements; delineated social withdrawal and refusal to eat/drink); validity for use in all ages

Features and Terms	<ul style="list-style-type: none"> • Acrocyanosis: cyanosis (blue/grayish pigmentation) of extremities • Ambitendency: appears motorically “stuck” by hesitating or displaying indecision in movements • Automatic obedience: exaggerated cooperation with or spontaneous continuation of requested movement • Automatic compulsive movements: involuntary muscular activity • Autonomic abnormalities: changes in blood pressure, heart rate, respiratory rate, diaphoresis • Combativeness: physical aggression in an undirected manner • Echolalia: mimicking examiner’s speech • Echopraxia: mimicking examiner’s actions or movements • Excitement: non-purposeful, extreme hyperactivity or motor unrest • Gegenhalten: resistance to passive movement that is proportional to the strength of the stimulus and does not appear volitional
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	<ul style="list-style-type: none"> • Grasp reflex: patient’s hand closes reflexively when examiner strokes patient’s palm from ulnar to radial side • Grimacing: maintenance of odd facial expressions • Impulsivity: sudden engagement in inappropriate behavior without rationale • Incontinence: nocturnal enuresis, daytime enuresis or fecal incontinence • Mannerisms: odd, purposeful movements • Mutism: verbally unresponsive or minimal verbal output • Negativism: apparently motiveless resistance or contrary behavior to instructions • Perseveration: repeatedly returns to same topic or persistent movement • Posturing/Catalepsy: spontaneous maintenance of bizarre positions (e.g., holds extremity up while lying in bed), which may be passively induced (e.g., holds posture after examiner repositions arms). Posturing may also present with mundane positions (e.g., sitting/standing for prolonged periods) • Rigidity: maintenance of a rigid position despite attempts to reposition • Schizophasia: scrambled speech • Staring: fixed gaze, little or no scanning of environment, decreased blinking • Stereotyped behavior: repetitive, non-goal-directed motor activity • Stupor: not actively engaging with environment, little to no psychomotor activity- • Verbigeration: repetition of words or phrases • Waxy flexibility: during re-positioning maneuver, patient demonstrates initial resistance to movement before allowing self to be repositioned • Withdrawal: refusal to eat or drink, absence of eye contact
Diagnosis	<ul style="list-style-type: none"> • Lorazepam challenge: if high suspicion for catatonia after completing a BFCRS or PCRS, can administer a dose of IV lorazepam, followed by repeating the BFCRS or PCRS ~30 min afterwards <ul style="list-style-type: none"> ○ <u>Positive challenge:</u> symptoms improve following lorazepam ○ <u>Negative challenge:</u> patient becomes tired and/or falls asleep without improvement in symptoms ○ <u>Equivocal challenge:</u> no effect; consider alternative diagnoses and/or repeating the challenge
Common Etiologies	<ul style="list-style-type: none"> • Mood disorders • Psychotic disorders • Neurodevelopmental disorders (e.g., autism spectrum disorder, intellectual disability, etc.) • Neurological, toxic-metabolic, and autoimmune conditions
Management	<ul style="list-style-type: none"> • Benzodiazepines (lorazepam), electroconvulsive therapy • Address underlying condition with medical/psychiatric workup and treatment • Limited or no PO intake → consider IV fluids, NG feeding • Marked or prolonged immobility → monitor CK

References: Cohen 2006, Benarous et al 2016, Benarous et al 2018

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For further information on catatonia, using the Bush-Francis, and illustrative videos, please see the University of Rochester's online resource

(<https://www.urmc.rochester.edu/psychiatry/divisions/collaborative-care-and-wellness/bush-francis-catatonia-rating-scale.aspx>)

Autoimmune Encephalitis (AIE)	
Common Types	Anti-NMDA receptor encephalitis, limbic encephalitis, Hashimoto's encephalopathy, seronegative autoimmune encephalitis
Workup/Diagnosis	Neuroimaging (brain MRI), EEG, lumbar puncture (CSF analysis, including antibody testing), oncologic evaluation, catatonia examination
Treatment Considerations	<ul style="list-style-type: none"> • Medical treatment: immunomodulatory therapies (IV steroids, IVIG, plasmapheresis) • Neurologic treatment: consider AEDs and benzodiazepines if seizures are present • Psychiatric treatment: <ul style="list-style-type: none"> ○ <u>Psychosis:</u> Consider antipsychotic treatment. Note that APs can complicate or worsen neurologic symptoms of AIE, and patients with AIE are at higher risk of NMS; therefore, treatment with APs requires close monitoring. ○ <u>Catatonia:</u> Patients with AIE are at a higher risk of catatonia. Complete BFCRS or PFCRS and pursue lorazepam challenge if positive screen.

Reference: Dalmau and Rosenfeld 2024

PANS & PANDAS	
<ul style="list-style-type: none"> • Controversial diagnoses; currently diagnoses of exclusion • Consider onset of primary anxiety or obsessive-compulsive disorder with comorbid physical illness/somatic symptoms 	
Pediatric Acute-Onset Neuropsychiatric Syndrome (PANS)	<ul style="list-style-type: none"> • Abrupt onset (<72 hours) of obsessive-compulsive symptoms or severe eating restrictions in addition to two more of the following symptoms: <ul style="list-style-type: none"> ○ anxiety, emotional lability/depression, irritability or aggression, behavioral or developmental regression, academic difficulties, sensory or motor abnormalities, somatic symptoms including enuresis and urinary frequency • Many possible causes, including psychological trauma, neurological/endocrine/metabolic disorders, postinfectious autoimmune and neuroinflammatory disorders (including PANDAS), cerebral vasculitis, neuropsychiatric lupus
Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections (PANDAS)	<ul style="list-style-type: none"> • Characterized by very sudden onset of obsessive-compulsive or tic disorder symptomatology along with associated neurological difficulties (including motor hyperactivity or choreiform movements) following a group A streptococcal infection
Treatment	<ul style="list-style-type: none"> • Treat underlying source of inflammation (for immune system processes, may consider immunomodulatory or anti-inflammatory therapies) • Treat psychiatric or behavioral symptoms with psychotherapy and psychotropic agents

Reference: Shaw and DeMaso 2019

Mood, Anxiety, and Trauma-related Disorders

<i>Mood & Depressive Disorders in Medically Ill Children</i>	
<ul style="list-style-type: none"> The term “depression” can refer to transient mood change or state in response to a stressor or can also reflect a serious psychiatric condition requiring hospitalization. Compared to children experiencing depressive symptoms as part of a psychological reaction to a stressor or as part of a medical illness, pediatric patients with a primary depressive disorder are more likely to experience suicidality, helplessness, dysphoria, feelings of guilt, distractibility, and discouragement. 	
Major Depressive Disorder	<ul style="list-style-type: none"> Five or more of the following symptoms over at least 2 weeks causing significant functional impairment: depressed mood, loss of interest or pleasure (anhedonia), sleep disturbances (insomnia or hypersomnia), weight or appetite changes (gain or loss), psychomotor agitation or slowing, fatigue or loss of energy, feelings of worthlessness or disproportionate guilt, diminished ability to concentrate, suicidality In children or adolescents, depressed mood may present primarily as irritability; may also see failure to gain weight appropriately as marker of appetite loss.
Disruptive Mood Dysregulation Disorder	<ul style="list-style-type: none"> Persistent irritability with frequent significant behavioral episodes (3+ major tantrums per week with ongoing irritability and anger between episodes) Children with DMDD typically develop depressive or anxiety disorders later in adolescence and adulthood
Treatment	<ul style="list-style-type: none"> Selective serotonin reuptake inhibitors (SSRIs) <ul style="list-style-type: none"> Fluoxetine: FDA-approved for depression treatment in children >8 years old Escitalopram: FDA-approved for depression treatment in children >12 years old Sertraline: frequently used off-label SSRI Black Box Warning <ul style="list-style-type: none"> FDA issued a “black box” warning for SSRI use in children, adolescents, and young adults up until age 26, stating that antidepressants increased the risk of suicidal thoughts and behavior in pediatric and young adult patients in short-term studies. No evidence for direct causation Further studies have shown that SSRIs are generally safe and are more likely to decrease the risk of suicide.

Reference: Hammad et al 2006

<i>Bipolar Disorder</i>
<ul style="list-style-type: none"> Rare in children, especially in children <12 years old Possible manic symptoms or agitation accompanied by depressive symptoms are more likely to be related to a neurocognitive disorder such as delirium or agitated catatonia rather than bipolar illness Signs/symptoms associated with true bipolar illness: elated affect, grandiosity, hypersexuality, positive family history, episodic nature of symptoms, impaired judgment, mood dysregulation, psychomotor activation, psychosis Treatment: <ul style="list-style-type: none"> FDA approved medications for pediatric mania/bipolar disorder include lithium (12 years and older) and second-generation antipsychotics (SAG): aripiprazole, risperidone, quetiapine (10 years and older), asenapine, and olanzapine (13 years and older). Prevention of recurrence of mania: aripiprazole and lithium are FDA-approved. Avoid treatment of bipolar depression with antidepressants until a mood stabilizer is established

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- Lurasidone and quetiapine (both SAG) are FDA-approved for depression associated with bipolar disorder in children age 10 and above.
- Family-focused psychotherapy modalities are helpful in conjunction with medications, especially for adolescents.

References: Shaw and DeMaso 2019, Cepeda and Gotanco 2016, Dulcan 2022

Anxiety Disorders in Medically Ill Children	
Anxiety in Children & Adolescents	<ul style="list-style-type: none"> • Anxiety is a normal emotion that helps humans prepare, use caution, and get things done. Level of anxiety is typically associated with the severity of the stressor. It resolves when the stressor resolves. • Typical fears or worries correlate with developmental stages and do not persist <ul style="list-style-type: none"> - Infants/toddlers: anxiousness in response to loud or sudden noises, interacting with strangers, or predictable separation from parents or primary attachment figures (e.g., drop off at daycare, bedtime) - Preschool: fears of imaginary monsters, darkness, heights - School-age worries about injury, storms, insects - Late School-age/Adolescence: worries become increasingly abstract and focused on interpersonal relationships, social functioning, perception by others, and social/academic performance. • When anxiety occurs in context of normal developmental tasks that do not warrant such a response (e.g., going to school, sleepovers, camp, socializing), anxiety reaction is considered impairing. If these reactions are consistent, may meet criteria for an anxiety disorder • Commonly associated with physical symptoms, including stomachaches, headaches, chest pain, shortness of breath, and choking/gagging sensations
Epidemiology	<ul style="list-style-type: none"> • Anxiety disorders are the most common childhood psychiatric disorders. • Prevalence: specific phobia(s) > social anxiety > separation anxiety > panic/panic disorder > generalized anxiety
Specific Disorders Correlate with Developmental Stages	<ul style="list-style-type: none"> • Preschool: Separation anxiety during preschool years • Early School-age: specific phobias • Later school-age/early adolescence: social anxiety • Later adolescence: Generalized anxiety disorder, panic disorders
Common Processes and Characteristics	<ul style="list-style-type: none"> • Avoidance • Catastrophizing • Perfectionism • Inflexibility with change • Require frequent reassurance/consolation • Selective mutism (not speaking in contexts where it is expected or encouraged)
Differential diagnoses	ADHD, bullying, depressive disorder, family conflict, learning disorder, OCD, PTSD, tic disorders, trichotillomania
Non-Psychiatric Causes of Anxiety	<ul style="list-style-type: none"> • Endocrine: hyperthyroidism, hypoglycemia, pheochromocytoma, hypo- or hyperparathyroidism • Cardiac: tachyarrhythmias • Respiratory: asthma • Neurologic: restless legs syndrome • Nutritional: iron deficiency, vitamin B12 deficiency • Medication-induced: sympathomimetics, beta-agonists, corticosteroids, amphetamine-based stimulants
Treatment	<ul style="list-style-type: none"> • Pharmacologic: SSRIs or SNRIs

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	<ul style="list-style-type: none"> • Psychotherapy: CBT (1st line). Can be adapted to child, family, or parent-only formats
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References: Shaw and DeMaso 2019, Dulcan 2022

<i>Stressor- & Trauma-related Disorders</i>	
	<p>Physical illness can be a significant source of stress and worry for children. Sources of anxiety associated with medical illness include:</p> <ul style="list-style-type: none"> • The meaning of a diagnosis • Effects of illness on the body • Fear associated with hospital environments and medical treatments/procedures • Illness effects on relationships with friends and family • Impact of the illness on the child's ability to attend school and activities • The prognosis and possibility of death
Adjustment Disorder	<ul style="list-style-type: none"> • Very common reason for consultation • Development of emotional and/or behavioral symptoms (including mood, anxiety, or conduct disturbances) within 3 months of a stressor, including recent life changes like a move, family separation, illness or injury • Adjustment disorder applies when magnitude of distress exceeds normal expectations (which may be culturally variable) or when the stressor incites functional impairment • Once stressor resolves/concludes, symptoms should dissipate within 6 months
Reactive Attachment Disorder	<ul style="list-style-type: none"> • Pattern of developmentally inappropriate attachment in setting of profound neglect or abuse • Child will rarely or minimally seek comfort, support, protection, or nurturance from attachment figures (including parents or primary caregivers). • Associated with lack of expected comfort-seeking behaviors and lack of response to comforting or supportive behaviors • Child will display diminished or absent expression of positive emotions during routine interactions with caregivers. • Capacity for emotional regulation may be compromised.
Trauma in Pediatric Population	<ul style="list-style-type: none"> • General PTSD criteria apply to children over 6 years old • DSM 5 acknowledges young children may struggle to relate symptoms to an event; criteria have been adjusted for those under 6 years old. • Intrusive phenomena may manifest as play reenactment. • Avoidance behavior(s) can lead to underreporting of symptoms or traumatic events. • Trauma-associated irritability can precipitate temper-tantrums or aggression. • Many children have experienced multiple traumas.
Pediatric Medical Traumatic Stress	<ul style="list-style-type: none"> • Psychological response of children and their families to pain, injury, critical illness, medical procedures, invasive or frightening treatment experiences • May experience a range of symptoms, including intrusiveness (re-experiencing), numbness (or avoidance), and hyperarousal. Symptoms are similar to PTSD without meeting full criteria. • Post-Intensive Care Syndrome (PICS) is a term used to describe new or worsening physical, cognitive, social, or mental health symptoms following discharge from the intensive care unit. PICS may affect the patient or family members (PICS-f).
Treatment	Symptom-focused treatment; trauma-focused psychotherapy
Trauma-Informed Care Tips	<ul style="list-style-type: none"> • Limit number of new people in room • Introduce self and all team members

	<ul style="list-style-type: none"> • Avoid physically startling by abruptly awakening or emotionally startling by providing news without warning • Ask permission before touching • Explain what you are doing (e.g., drawing blood, checking blood pressure) • Foster agency when appropriate (e.g., fixed choices with reasonable options: “Would you like to do your vitals now or in 10 minutes?”) • Avoid engaging in power struggles • Validate concerns and emotions • Engage patients in a calm, non-judgmental demeanor, especially when they are anxious or distressed
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Psychosis

Psychosis in Pediatric Populations

<ul style="list-style-type: none"> • Primary psychotic disorders are relatively rare in children • Symptoms may reflect: <ul style="list-style-type: none"> ○ age-appropriate magical thinking ○ anxiety ○ fantasy/imaginative thinking in contexts of stressful or confusing experiences ○ hyperarousal • When children report hallucinations, it is important to gather information about the symptoms in the context of the child’s development, • Differential diagnoses for psychotic symptoms in children include underlying medical conditions (often associated with delirium), intoxication, affective disorders, trauma- and stressor-related disorders, OCD, anxiety disorders, • Younger children are more likely to have visual hallucinations than auditory hallucinations, • Pediatric Schizophrenia <ul style="list-style-type: none"> ○ Subtypes <ul style="list-style-type: none"> ▪ Childhood-onset schizophrenia (COS): onset before 13 years old ▪ Early-onset schizophrenia (EOS): onset before 18 years old ○ Same diagnostic criteria for EOS and COS as for adults ○ COS/EOS may be more severe variants of adult-onset form. ○ Prodromal signs/symptoms may present in adolescence, including alterations in mood, affective blunting, alterations in cognition, social withdrawal, and subacute declining academic performance. ○ Patients with schizophrenia are at elevated risk for suicide.
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References: Dulcan 2022, Shaw and DeMaso 2019

Somatization, Eating, and Feeding Disorders

Somatization in Children

Definition	<ul style="list-style-type: none"> • Expression of psychological phenomena through physical symptoms (normal in young children) • Young children may not have the cognitive and linguistic skills necessary to communicate emotions and psychological experiences; as these skills develop, somatization usually decreases.
Somatic Symptom Disorder	<ul style="list-style-type: none"> • ≥ 1 physical symptom that cause distress or functional impairment

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	<ul style="list-style-type: none"> Excessive and disproportionate thoughts, feelings, and/or behaviors about symptoms Essential feature is somatic symptom burden May be present with or without medical illness
Functional Neurologic Symptom Disorder	<ul style="list-style-type: none"> Syndrome of neurological symptoms (such as weakness, abnormal movements, or nonepileptic seizures) involving abnormal functioning rather than structural disease Essential feature is presence of functional pattern of sensory/motor symptoms that are incompatible with recognized neurologic disorders. May co-occur with neurological illness
Illness Anxiety Disorder	<ul style="list-style-type: none"> Persistent, excessive thoughts and feelings about having a serious physical illness; not reassured by normal medical workup Essential feature is preoccupation with being ill May be present with or without medical illness
Factitious Disorder Imposed on Another	<ul style="list-style-type: none"> Formerly called “factitious disorder by proxy” or “Munchausen’s by proxy” Intentional falsification of physical or psychological signs/symptoms or production of injury/disease in another person Individual presents victim as injured, ill, or impaired Associated with identified deception in absence of external reward or gain Diagnosis applies to perpetrator (not the victim)
Symptom Clusters	Cardiovascular, gastrointestinal, pain/weakness, neurological
Epidemiology	Early childhood: equal incidence across sexes Adolescence: somatic concerns seen more in females than males
Risk Factors	<ul style="list-style-type: none"> Genetic factors Stressful life events Developmental level Coping styles (e.g., using physical symptoms as mode of self-expression) Cognitive or learning delays or difficulties Learned behaviors from family Childhood physical illness Sociocultural background
Notes	<ul style="list-style-type: none"> May lead to increased utilization of medical care, increased ED visits Pediatric patients with functional or somatic symptoms are more likely to experience anxiety or depression

References: DSM-5-TR, Dulcan 2022, Shaw and DeMaso 2019

<i>Eating and Feeding Disorders</i>	
	<ul style="list-style-type: none"> Characterized by pathologic deviations in eating or feeding behaviors Most common in female patients and in late adolescence and early adulthood Often chronic and relapsing conditions
Disorder Types	<p><u>Anorexia Nervosa</u>: restriction of food intake leading to a significantly low body weight due to fear of weight gain or engagement in behaviors that interfere with weight gain, and disturbance in experience of one’s body weight or shape; highest mortality rate of any psychiatric disorder; often comorbid with suicidal ideation with highest risk in adolescents</p> <p><u>Bulimia Nervosa</u>: recurrent episodes of binge eating and maladaptive compensatory behaviors (e.g., vomiting, laxative/diuretic misuse, excessive exercising, restricting) accompanied by beliefs and attitudes overemphasizing body weight and shape</p> <p><u>Binge Eating Disorder</u>: recurrent and distressing episodes of binge eating not accompanied by maladaptive compensatory behaviors</p> <p><u>Avoidant/Restrictive Food Intake Disorder (ARFID)</u>: restriction or food avoidance leading to</p>

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	inadequate energy or nutritional intake that is not motivated by disturbances in body image or fear of weight gain; frequently comorbid with anxiety, autism spectrum disorder
Physiologic Signs/Sequelae of Malnutrition	<ul style="list-style-type: none"> • Lower body temperature • Amenorrhea • Hypotension • Changes in skin/hair • Structural brain abnormalities • Growth slowing/arrest • Psychiatric symptoms (obsessions, compulsions, depression) • Changes in growth hormone level • Osteopenia/osteoporosis • Hypothalamic dysfunction • Bone marrow hypoplasia • Cardiac arrhythmias • GI difficulties • Pubertal delay/interruption • Aggression/agitation
Refeeding Syndrome	<ul style="list-style-type: none"> • Metabolic disturbances and clinical sequelae resulting from reintroduction of nutrition after moderate to severe malnourishment • Hallmark feature: hypophosphatemia • Can induce electrolyte disturbances, fluid overload, arrhythmia, seizure, encephalopathy; can be fatal • Prevent refeeding syndrome by gradual reintroduction of nutrition • Management of refeeding syndrome: close monitoring and replenishment of electrolytes (particularly phosphorus, potassium, and magnesium)
Treatment	<ul style="list-style-type: none"> • Inpatient hospitalization for acute weight restoration • Family-based treatment (FBT) is 1st line, 3 phases: <ul style="list-style-type: none"> ○ Phase 1: rapid restoration of physical health (orchestrated by parents) ○ Phase 2: gradual return of responsibilities to adolescent ○ Phase 3: review of adolescent’s development and preparation for future challenges, return to normal family life • FBT initially developed for AN but has been adapted for BN • Medications are not routinely helpful for AN or BN (exception is fluoxetine for BN), although should be considered for co-occurring conditions.

References: DSM-5-TR, Lock 2013

Pediatric Pain

<i>Pediatric Pain</i>	
Key Facts	<ul style="list-style-type: none"> • Up to 25% of youth can experience pain lasting longer than 3 months. • Brief psychotherapy for child and or family can be an efficacious bedside intervention. • Can utilize TCAs, SNRIs for pain and comorbid depression or comorbid anxiety
Key elements of psychiatric assessment	<ul style="list-style-type: none"> • Location, severity, and duration • Precipitating, exacerbating, and alleviating factors • Past and current treatment interventions • Social, emotional, academic, familial impacts of pain • Family beliefs about pain and treatment • Family medical and behavioral history (history of somatic symptom disorder, reinforcement of illness behaviors) • Psychological factors (meaning of pain, personality, temperament, psychiatric comorbidity, family influences, secondary gain)
Nonpharmacologic Interventions	<ul style="list-style-type: none"> • Diaphragmatic breathing • Progressive muscle relaxation • Guided imagery

Reference: Shaw and DeMaso 2019

Legal/Forensic Considerations

Basic Schooling, Legal, and Forensic Issues in Child/Adolescent Psychiatry

Note: rules and regulations may vary by state and jurisdiction

School:

- Schools can be important sites for accessing various support services, including occupational therapy (OT), speech/language therapy, etc.
- 504 Plan: outlines how children with disabilities in grades K-12 will receive accommodations, modifications, and services to remove any barriers to learning at school; children with various types of disabilities may qualify
- Individualized Education Program (IEP): legal document identifying a child’s special needs and how a school will address those needs with accommodations, supports, and services; children qualify if they have one or more of 13 conditions identified by the Individuals with Disabilities Education Act, including autism spectrum disorder, specific learning disorder (dyslexia, dyscalculia, dysgraphia), speech/language impairment, visual or hearing impairment, intellectual disability, TBI, or orthopedic impairment
- C/L psychiatrists can assist in designing return-to-school recommendations for children who have been hospitalized or have ongoing medical and/or psychiatric needs

Consent:

- Informed Consent: permission for treatment granted with understanding of the possible risks and benefits
- Assent: a child’s agreement to medical procedures or treatment
- Informed consent from parents/guardians is required for treatment of pediatric patients
- Lower threshold for assenting to treatment (interactive process involving developmentally appropriate disclosure about the illness and solicitation of the child’s willingness and preferences for treatment)
- Exceptions for treatment without parental consent include emergency treatment, emancipated minors, treatment related to reproductive health (substance use treatment, STIs, pregnancy prevention/treatment/termination), sexual abuse, mental health treatment (some exceptions: jurisdiction and age dependent)
- Divorced/Separated parents: important to obtain clarification regarding custodial and medical decision-making arrangements
- Children generally cannot refuse medical treatment if it is lifesaving (e.g., child with eating disorder cannot refuse treatment such as feeding and fluids)

Capacity:

- Children under 18 are generally deemed to lack decisional capacity (with rare exceptions), though assent is often sought when developmentally appropriate
- Assessment of capacity should include patient’s neurocognitive developmental level

Exceptions to Patient-Provider Confidentiality:

- Mandated reporting for concern of child abuse (physical/sexual) or neglect (note: it is not the responsibility of the psychiatrist to investigate but rather to report)
- Public health statutes (certain infections or conditions)
- Imminent danger to self or others

Parental Considerations:

- Parents are expected to provide children a safe and secure living environment, appropriate medical and health care, ensure school attendance, and assist with mental or physical disabilities.
- Medical neglect: failure of parents or legal guardians to provide appropriate healthcare (including psychological treatment) when they have the means to do so
- Medical neglect can present as parents declining care for treatable diseases, frequent hospitalizations for recurrent problems, or significant health deterioration without seeking care

Reference: Shaw and DeMaso 2019

Acronyms and Abbreviations

ABA	Applied Behavioral Analysis
ADHD	Attention-Deficit Hyperactivity Disorder
ADL	Activities of Daily Living
AIE	Autoimmune encephalitis
ARFID	Avoidant/Restrictive Food Intake Disorder
ASD	Autism Spectrum Disorder
C/L	Consult/Liaison
CBT	Cognitive-Behavioral Therapy
CD	Conduct Disorder
FBT	Family-Based Treatment
GAD	Generalized Anxiety Disorder
ID	Intellectual Disability
IED	Intermittent Explosive Disorder
OCD	Obsessive-Compulsive Disorder
ODD	Oppositional-Defiant Disorder
PRN	“Pro Re Nata” = as needed
PTSD	Post-Traumatic Stress Disorder
SNRI	Serotonin-Norepinephrine Reuptake Inhibitor
SSRI	Selective Serotonin Reuptake Inhibitor
TBI	Traumatic Brain Injury
TCA	Tricyclic Antidepressant

References

Aylward BS, Gal-Szabo DE, Taraman S. Racial, Ethnic, and Sociodemographic Disparities in Diagnosis of Children with Autism Spectrum Disorder. *J Dev Behav Pediatr.* 2021 Oct-Nov 01;42(8):682-689. doi: 10.1097/DBP.0000000000000996. PMID: 34510108; PMCID: PMC8500365

Benarous X, Consoli A, Raffin M, et al. Validation of the Pediatric Catatonia Rating Scale (PCRS). *Schizophr Res.* 2016;176(2-3):378-386. doi:10.1016/j.schres.2016.06.020

Benarous X, Raffin M, Ferrafiat V, Consoli A, Cohen D. Catatonia in children and adolescents: New perspectives. *Schizophr Res.* 2018;200:56-67. doi:10.1016/j.schres.2017.07.028

Caplan R, Bursch B. *“How Many More Questions?”: Techniques for Clinical Interviews of Young Medically Ill Children.* Oxford University Press; 2013

Cepeda C, & Gotanco L. *Psychiatric interview of children and adolescents.* American Psychiatric Pub; 2016

Cohen D. Towards a valid nosography and psychopathology of catatonia in children and adolescents. *Int Rev Neurobiol.* 2006;72:131-147. doi:10.1016/S0074-7742(05)72008-0

Dalmau J and Rosenfeld M. Autoimmune encephalitis: Clinical features and diagnosis. In: UpToDate, Connor RF (Ed), Wolters Kluwer. Accessed 08/22/2024

Diagnostic and Statistical Manual of Mental Disorders: DSM-5-TR. American Psychiatric Association Publishing; 2022

Dulcan MK, ed. *Dulcan’s Textbook of Child and Adolescent Psychiatry.* Third edition. Washington, DC: American Psychiatric Association Publishing, 2022

Gerson R, Malas N, Feuer V, Silver GH, Prasad R, Mroczkowski MM. Best Practices for Evaluation and Treatment of Agitated Children and Adolescents (BETA) in the Emergency Department: Consensus Statement of the American Association for Emergency Psychiatry [published correction appears in *West J Emerg Med.* 2019 May;20(3):537] [published correction appears in *West J Emerg Med.* 2019 Jul;20(4):688-689]. *West J Emerg Med.* 2019;20(2):409-418. doi:10.5811/westjem.2019.1.41344

Hammad TA, Laughren T, Racoosin J. Suicidality in pediatric patients treated with antidepressant drugs. *Arch Gen Psychiatry.* 2006 Mar;63(3):332-9. doi: 10.1001/archpsyc.63.3.332. PMID: 16520440

Lock J, le Grange D. *Treatment Manual for Anorexia Nervosa: A Family-Based Approach.* 2nd ed. New York: Guilford; 2013

Reade MC, Eastwood GM, Bellomo R, Bailey M, Bersten A, Cheung B, et al. Effect of Dexmedetomidine Added to Standard Care on Ventilator-Free Time in Patients with Agitated Delirium A Randomized Clinical Trial. *JAMA.* 2016; 315(14):1460-1468

Schieveld, JNM. On pediatric delirium and the use of the Pediatric Confusion Assessment Method for the Intensive Care Unit*. *Critical Care Medicine* January 2011; 39(1):p 220-221

Shah H, Somaiya M, Chauhan N, & Gautam A. Clinical practice guidelines for assessment and management of children and adolescents presenting with psychiatric emergencies. *Indian Journal of Psychiatry,* 2023; 65(2), 159-174

Shaw RJ, & DeMaso DR. *Clinical Manual of Pediatric Consultation-Liaison Psychiatry: Mental Health Consultation with Physically Ill Children and Adolescents*. American Psychiatric Pub; 2019

Stubbe D. *Child and adolescent psychiatry: a practical guide*. Philadelphia, USA: Lippincott Williams & Wilkins; 2007

Smith HA, Brink E, Fuchs DC, Wesley E, Pandharipande PP. Pediatric Delirium - Monitoring and Management in the Pediatric Intensive Care Unit. *Pediatr Clin North Am*. 2013; 60(3): 741-760.

Smith HA, Gangopadhyay M, Goben CM, et al. The Preschool Confusion Assessment Method for the ICU: Valid and Reliable Delirium Monitoring for Critically Ill Infants and Children. *Crit Care Med*. 2016;44(3):592-600. doi:10.1097/CCM.0000000000001428

Smith HA, Besunder JB, Betters, KA, et al. Society of Critical Care Medicine Clinical Practice Guidelines on Prevention and Management of Pain, Agitation, Neuromuscular Blockade, and Delirium in Critically Ill Pediatric Patients With Consideration of the ICU Environment and Early Mobility. *Pediatric Critical Care Medicine* 23(2):p e74-e110, February 2022. | DOI: 10.1097/PCC.0000000000002873

Sulzer D, Sonders MS, Poulsen NW, & Galli A. Mechanisms of neurotransmitter release by amphetamines: a review. *Progress in Neurobiology* 2005; 75(6), 406-433.

Traube C, Silver G, Kearney J, et al. Cornell Assessment of Pediatric Delirium: a valid, rapid, observational tool for screening delirium in the PICU*. *Crit Care Med*. 2014;42(3):656-663. doi:10.1097/CCM.0b013e3182a66b76

Wilens, TE. Effects of methylphenidate on the catecholaminergic system in attention-deficit/hyperactivity disorder. *Journal of Clinical Psychopharmacology* 2008; 28(3), S46-S53

Woodruff AG, Choong K. Long-Term Outcomes and the Post-Intensive Care Syndrome in Critically Ill Children: A North American Perspective. *Children* 2021; 8, 254. <https://doi.org/10.3390/children8040254>

General References

Diagnostic and statistical manual of mental disorders: DSM-5-TR (Fifth edition, text revision). American Psychiatric Association Publishing; 2022

Levenson J. *The American Psychiatric Association Publishing Textbook of Psychosomatic Medicine and Consultation-Liaison Psychiatry* (Levenson J, Ed.; Third edition). American Psychiatric Association Publishing; 2019 <https://doi.org/10.1176/appi.books.9781615371990>

Stern TA, Freudenreich O, Smith FA, Fricchione G, Rosenbaum JF. *Massachusetts General Hospital Handbook of General Hospital Psychiatry*. Seventh edition. Elsevier; 2018