Pediatric Psychiatric Disorders & Psychopharmacology: A Primer for Primary Care

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DISCLOSURES

None of the planners or presenters of this session have disclosed any conflict or commercial interest
OBJECTIVES:

1. Review assessment and diagnosis of the mental disorders most commonly encountered in pediatric primary care practice (ADHD, anxiety, depression, autism).
2. Review evidence-based treatment approaches to each of these disorders.
3. Provide an overview of common challenges associated with complex psychiatric cases and review available resources.
Some background & stats:

• About 20 percent of U.S. children and adolescents (15 million), ages 9 to 17, have diagnosable psychiatric disorders\(^1\)

• “Only about 20 percent of emotionally disturbed children and adolescents receive some kind of mental health services (the Surgeon General, 1999, CDC 2013), and only a small fraction of them receive evaluation and treatment by child and adolescent psychiatrists\(^1\).”

• There is a tremendous shortage of child and adolescent psychiatric specialists (psychiatrists & PMH APRNs), with highly skewed distribution towards urban areas

• Therefore, it falls to pediatric primary care providers to provide mental health treatment, particularly psychotropic medication management for children with significant emotional and behavioral health needs
What we’ll cover:

• *DSM-5*: updates to common diagnoses

• Evidence-based approaches to treating common diagnoses
  • ADHD
  • Anxiety & Depression
  • Autism

• When it gets complicated...
  • Medication monitoring guidelines

• Resources for practice
DSM-5 Highlights of Changes to Pediatric Diagnoses:

- Progression of diagnoses reorganized chronologically (infancy → adulthood)
- Diagnoses re-organized to reflect underlying neurobiological commonality and genetics when applicable
- Addition of descriptions of how symptoms may present in childhood vs. adulthood for many disorders
- Addition of several new diagnoses/specifiers (e.g. Social Pragmatic Communication Disorder; PTSD <6 years, etc.)

Summary of changes from the APA:
http://www.dsm5.org/Documents/changes%20from%20dsm-iv-tr%20to%20dsms-5.pdf
# DSM-5: ADHD

<table>
<thead>
<tr>
<th>Diagnosis:</th>
<th>Changes in DSM-5:</th>
<th>Assessment Tools:</th>
</tr>
</thead>
</table>
| Attention Deficit Hyperactivity Disorder (ADHD) | - Same 18 symptoms, divided into 2 domains: inattention and hyperactivity/impulsivity  
  * Need 6+ from each category to qualify for diagnosis  
- Onset criterion changed from "symptoms that caused impairment were present before age 7 years" to "several inattentive or hyperactive-impulsive symptoms were present prior to age 12"  
- Subtypes replaced with “specifiers:”  
  - ADHD, combined presentation  
  - ADHD, predominantly inattentive presentation  
  - ADHD, predominantly hyperactive/impulsive presentation | - Vanderbilt Assessment Scales (Free)  
  *Parent, Child, Teacher*  
- Connors Scales ($)  
- Parent Child Behavior Checklist ($)  
- Etc... |
## DSM-5: Anxiety Disorders

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Changes in DSM-5:</th>
<th>Assessment Measures:</th>
</tr>
</thead>
</table>
| Numerous specific anxiety disorders (GAD, Separation Anxiety, Phobias, Social Anxiety, Panic Disorder, OCD & similar, PTSD...) | Reorganization of anxiety disorders into new categories based on underlying neurobiological similarities and symptom dimensions:  
- Anxiety Disorders  
- OCD & Related Disorders  
- Trauma & Stressor-Related Disorders | Generalized Anxiety:  
Screen for Child Anxiety Related Disorders (SCARED) - PARENT form (free)  
Screen for Child Anxiety Related Disorders (SCARED) - CHILD form (free)  
GAD-7 (Free)  

**Key take away...**

*Consider treating anxiety that is persistent, functionally impairing → preventing developmentally appropriate activities*
# DSM-5: Depressive Disorders

<table>
<thead>
<tr>
<th>Diagnoses:</th>
<th>Changes in DSM-5:</th>
<th>Assessment Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>Disruptive Mood Dysregulation Disorder</strong> [NEW]</td>
<td>- Addition of DMDD &amp; Premenstrual Dysphoric Disorder</td>
<td><strong>SIGECAPS</strong> mnemonic:</td>
</tr>
<tr>
<td>- Major Depressive Disorder</td>
<td>- DMDD complex &amp; research ongoing</td>
<td>S - Sleep disturbance</td>
</tr>
<tr>
<td>- Persistent Depressive Disorder (Dysthymia)</td>
<td></td>
<td>I - Interest deficit</td>
</tr>
<tr>
<td>- <strong>Premenstrual Dysphoric Disorder</strong> [NEW]</td>
<td></td>
<td>G - Guilt, worthlessness, hopelessness, regret</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E - Energy deficit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C - Concentration deficit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A - Appetite disorder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P - Psychomotor retardation or agitation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S - Suicidality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Numerous Tools, several free:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.mcpap.com/Provider/Depression.aspx">http://www.mcpap.com/Provider/Depression.aspx</a></td>
</tr>
</tbody>
</table>
# DSM-5: ASDs

<table>
<thead>
<tr>
<th>Diagnosis: Autism Spectrum Disorders (ASD)</th>
<th>Changes in DSM-5:</th>
<th>Assessment Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- ASD now encompasses the previous DSM-IV autistic disorder (autism), Asperger’s disorder, childhood disintegrative disorder, and pervasive developmental disorder NOS</td>
<td>MCHAT, revised with follow up (Free) - 16-48 months - Parent &amp; Clinician <a href="http://mchatscreen.com/">http://mchatscreen.com/</a></td>
</tr>
<tr>
<td></td>
<td>- ASD is characterized by 1) deficits in social communication and social interaction and 2) restricted repetitive behaviors, interests, and activities (RRBs)</td>
<td>Other tools available through: <a href="http://www.dbmhresource.org/asd.html">http://www.dbmhresource.org/asd.html</a></td>
</tr>
<tr>
<td></td>
<td>- Because both components are required for diagnosis of ASD, a new diagnosis, <strong>Social Pragmatic Communication Disorder</strong>, is diagnosed if no RRBs are present</td>
<td></td>
</tr>
</tbody>
</table>
Screening & Assessment Tools Resources:

Comprehensive chart of screening/assessment tools, age ranges and free/cost information available from AAP:

MENTAL HEALTH SCREENING AND ASSESSMENT TOOLS FOR PRIMARY CARE

Evidence-Based Psychopharmacology in Primary Care:

Johns Hopkins Bloomberg School for Public Health: 
Center for Mental Health Services in Primary Care

- **Psychopharmacology Project** is developing guidelines for PCPs related to ADHD, anxiety, & depression
- Team evaluated medications to create guidelines/suggestions for safe, effective prescribing in primary care settings based on the following criteria:
  - Efficacy
  - Ease of dosing & monitoring
  - Safety
- Four classes of psychiatric medications met criteria:
  - Stimulants
  - Alpha-2adrenergic agents
  - Serotonin and norepinephrine reuptake inhibitors (SNRIs)
  - Selective serotonin reuptake inhibitors (SSRIs)
Criteria for Psychopharmacology in Primary Care:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>Medications must perform better than placebo in at least 2 RCTs</td>
</tr>
</tbody>
</table>
| Dosing & Monitoring | - Dosing guidelines should be well established & not require intensive monitoring  
                     | - Necessary monitoring should be limited to vital signs, height, and weight  
                     | - Side effects should be detectable, predictable, and readily manageable in primary care                                             |
| Safety              | - Should have FDA approval  
                     | - Minimal concern about boxed warnings  
                     | - Medications should be on the market for at least 10 years  
                     | - Medications should have minimal harm from  
                     | - Medications should have minimal potential for irreversible long-term harm                                                              |
# Treating ADHD³:

<table>
<thead>
<tr>
<th>Drug (class)</th>
<th>Trade names</th>
<th>Proposed use in primary care</th>
<th>FDA indication?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylphenidate (stimulant)</td>
<td>Ritalin, Concerta &amp; others</td>
<td>ADHD</td>
<td>Yes</td>
</tr>
<tr>
<td>Amphetamines (stimulants)</td>
<td>Dexedrine, Adderall &amp; others</td>
<td>ADHD</td>
<td>Yes</td>
</tr>
<tr>
<td>Guanfacine (alpha-2A adrenergic agonist)</td>
<td>Tenex, Intuniv</td>
<td>ADHD</td>
<td>Yes</td>
</tr>
<tr>
<td>Clonidine (alpha-2 adrenergic agonist)</td>
<td>Catapres, Kapvay</td>
<td>ADHD</td>
<td>Yes</td>
</tr>
<tr>
<td>Atomoxetine (SNRI)</td>
<td>Strattera</td>
<td>ADHD</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## Treating ADHD³:

<table>
<thead>
<tr>
<th>Medication class: <em>Generic name</em></th>
<th>Common adverse events</th>
<th>Less common adverse events</th>
<th>Rare events</th>
<th>Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stimulants:</strong> Methylphenidate, dextroamphetamine, amphetamine salts</td>
<td>Insomnia, appetite suppression, headache, stomachache</td>
<td>Cognitive dulling, irritability, exacerbation of tics (controversial)</td>
<td>Growth retardation, hallucinations (visual or tactile, auditory rare), arrhythmia in those with cardiac disease</td>
<td>BP, HR, BMI</td>
</tr>
<tr>
<td><strong>alpha-2 adrenergic agonists:</strong> Guanfacine, clonidine</td>
<td>Somnolence</td>
<td>Dry mouth, headache, nausea, ↓ BP</td>
<td>↑ BP, nervousness, headache, confusion</td>
<td>BP, HR</td>
</tr>
<tr>
<td><strong>SNRI:</strong> Atomoxetine</td>
<td>Dry mouth, insomnia, nausea, decreased appetite</td>
<td>↑ HR &amp; BP, palpitations, dizziness, sweating, dysuria, weight change</td>
<td>None</td>
<td>BMI, BP, HR</td>
</tr>
</tbody>
</table>
Treating ADHD:

Pre-stimulant Cardiac Screening Questions:

- History of fainting, dizziness (particularly during exercise)?
- Seizures
- Chest pain or shortness of breath with exercise
- Palpitations, heart “skipping a beat”
- High blood pressure
- Heart murmur
- History of rheumatic fever

- Family history of: sudden/unexplained death in someone young; “heart attack” in someone <35 years; cardiac arrhythmias or other “heart problems” that require(d) seeing a cardiologist; Marfan syndrome

Taken in context of physical, if “red flags” → consider getting EKG
Treating ADHD: Practice pearls

**Stimulant pearls:**
- IR formulations are more easily misused/abused than long-acting.
- For most kids, can start with longer-acting formulations for ease of dosing; IR for younger/smaller kids (<16kg)
- May get rebound symptoms as stimulant wears off in the evening → may add smaller IR “booster” in the afternoon
- Tics are not an absolute contraindication for prescribing stimulants
- Breakfast is key!
- When choosing consider → ease of dosing, swallow pills?, past trials

**Non-stimulant pearls:**

**Intuniv (guanfacine ER)/Kapvay (clonidine ER):**
- Good option for those who can’t tolerate stims or have high anxiety
- Can use adjunctively with stimulants; may be helpful for sleep & hyperarousal
- Not as robustly effective as stimulants

**Strattera (atomoxetine):**
- Option if can’t tolerate stimulants
- May help for ADHD with anxiety or history of substance abuse
## Treating Anxiety & Depression:\(^3\):

<table>
<thead>
<tr>
<th>Drug (class)</th>
<th>Trade names</th>
<th>Proposed use in primary care</th>
<th>FDA indication?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoxetine (SSRI)</td>
<td>Prozac</td>
<td>Anxiety* MDD</td>
<td>No Yes</td>
</tr>
<tr>
<td>Sertraline (SSRI)</td>
<td>Zoloft</td>
<td>Anxiety* MDD**</td>
<td>No No</td>
</tr>
<tr>
<td>Escitalopram (SSRI)</td>
<td>Lexapro</td>
<td>Anxiety MDD</td>
<td>No Yes</td>
</tr>
</tbody>
</table>

*Though the FDA has not officially approved fluoxetine and sertraline for treating anxiety disorders such as social phobia, separation anxiety, or generalized anxiety disorders, there is convincing evidence for using these medications for these disorders.

**Sertraline has some evidence supporting its use in MDD, but not enough evidence to support an FDA indication.
## Treating Anxiety & Depression

<table>
<thead>
<tr>
<th>Name</th>
<th>Common adverse events</th>
<th>Less common adverse events</th>
<th>Rare events</th>
<th>Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSRIs:</strong> Fluoxetine, sertraline, escitalopram</td>
<td>“Activation” (restlessness, insomnia, impulsiveness, talkativeness — usually occurs early in treatment) without mood elevation, gastrointestinal upset, nausea, diarrhea</td>
<td>Diaphoresis, mydriasis, flushing, sinus tachycardia, HTN, ↓libido, delayed ejaculation, akathisia</td>
<td>Serotonergic syndrome* (agitation, ataxia, diaphoresis, diarrhea, hyperreflexia, mental state changes, myoclonus, shivering, tremor, hyperthermia), suicidal thinking or behavior, true mania emergence, usually by 4th week of treatment</td>
<td>BMI, suicidality, activation</td>
</tr>
</tbody>
</table>

*Risk of serotonergic syndrome ↑ by drug interaction with other pro-serotonergic agents (eg, MAOIs, trazodone, lithium, opioids, amphetamine/stimulants, cocaine, St John’s Wort, or ginseng)*
Depression & Anxiety⁵:

**When to treat?**

- Functional decline
  - Grades declining in school
  - Treat more readily with high school students
  - Withdrawing from extracurricular activities
  - Child says it is difficult to have fun/enjoy things
  - Decreased self-care
  - High irritability, sometimes aggressive behaviors
  - Suicidal thoughts
    - Untreated depression is the greatest risk factor for suicide

**When to stop treatment?**

- Once child symptom free for ≥ 6-12 months
- Slow taper; decrease dose every two weeks
- Continue taper as long as symptoms do not worsen
- If symptoms worsen, go back to previous dose
- Recommend tapering doses during summer/non-school times

*Referral for counseling services either before or along with medication if possible*
Antidepressants & Suicide?

- In October 2004, the FDA issues a black box warning about an increased risk of suicidality in children and adolescents treated with SSRI antidepressant medications.
- In 2007, a comprehensive review was conducted looking at pediatric SSRI trials between 1988-2006.
- Risk of suicidality was 2% with placebo and 4% with SSRIs (smaller differences were noted in studies of anxiety). No suicides occurred in the studies.
- **TAKE HOME**: The greatest risk factor for completed suicide is untreated depression.
Assessment: Autism

- EARLY IDENTIFICATION IS KEY & IMPROVES OUTCOMES!!!
- General “red flags”: early reciprocal communication & language difficulties, social/pragmatic difficulties, rigid adherence to routines, cognitive inflexibility, areas of intense interest...

- MCHAT screening at 18 & 24 months → what to do with a positive screen and/or suspected ASD?
  - Consider using the M-CHAT Interview for clarification: https://www.autismspeaks.org/sites/default/files/docs/sciencedocs/m-chat/m-chat-r_f.pdf?v=1
  - <3 – refer for Early Intervention
  - Refer for audiology evaluation
  - Refer to specialist (developmental peds, psychology, psychiatry, etc.) for definitive diagnosis

Excellent Resource including
Checklist for Child Who Screens Positive:
Treating Autism:

No medication for the core symptoms of ASD:
- Risperidone (Risperdal) & Abilify (aripiprazole) → approved for irritability associated with ASD.
- Need to watch closely for metabolic side effects (weight, cholesterol, etc.) & sedation
- May consider SSRIs for repetitive behaviors, anxiety...
- May consider stimulants/alpha-2s for ADHD symptoms...

Remembering, kids with ASDs are often more sensitive to adverse reactions...go very low & slow...
When it gets complicated:

**Multiple Medications**

- Most children will require only 1 psychiatric medication.
- It is generally safe to prescribe methylphenidate, amphetamine, guanfacine, or atomoxetine in combination with fluoxetine, sertraline, or escitalopram to treat comorbid ADHD and depression or anxiety.
- Consult with mental health specialists when a youth requires more than 2 medications

“Some medications should [ideally] only be prescribed by those with specific mental health expertise due to complicated dosing regimens, potential for side effects, and/or other concerns. But primary care clinicians can still play an important role in monitoring patients prescribed these medications.”
Medications recommended for monitoring only:

<table>
<thead>
<tr>
<th>Medication class</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRIs</td>
<td>Fluvoxamine, citalopram, paroxetine</td>
</tr>
<tr>
<td>SNRI</td>
<td>Venlafaxine</td>
</tr>
<tr>
<td>Tricyclic antidepressants</td>
<td>Nortriptyline, clomipramine</td>
</tr>
<tr>
<td>Other antidepressants</td>
<td>Bupropion, mirtazepine</td>
</tr>
<tr>
<td>Anxiolytics</td>
<td>Buspirone, lorazepam and clonazepam (benzodiazepines)</td>
</tr>
<tr>
<td>Second generation antipsychotics</td>
<td>Risperidone, quetiapine, aripiprasole, ziprazidone, olanzapine</td>
</tr>
<tr>
<td>First generation antipsychotics</td>
<td>Perphenazine, haloperidol</td>
</tr>
<tr>
<td>Mood stabilizers</td>
<td>Lithium, valproic acid, carbamazepine/oxycarbamazepine, lamotrigine</td>
</tr>
</tbody>
</table>

Resource for Primary Care Clinicians: Medication for Monitoring

http://web.jhu.edu/pedmentalhealth/images/Monitoring%20Meds.pdf
Recommended Resources:

- AACAP’s Resources for Primary Care:
  - [http://www.aacap.org/AACAP/Resources_for_Primary_Care/Home.aspx?hkey=59bfdf7f-149f-43fd-babb-a6a77c5e8caf](http://www.aacap.org/AACAP/Resources_for_Primary_Care/Home.aspx?hkey=59bfdf7f-149f-43fd-babb-a6a77c5e8caf)

- NAPNAP’s Developmental Behavioral & Mental Health Special Interest Group:
  - [http://www.dbmhresource.org/](http://www.dbmhresource.org/)

- Massachusetts Child Psychiatry Access Project

- National Network of Child Psychiatry Access Projects

- Healthy Children.org [https://www.healthychildren.org/English/Pages/default.aspx](https://www.healthychildren.org/English/Pages/default.aspx)
References:


