Learning Objectives

- At the end of this presentation the participant will be able to:
  - Plan the evaluation of youth who have behavioral problems
  - Understand the differential diagnosis for patients whose symptoms are suggestive of ADHD
  - Recognize the clinical features and presentation of learning disabilities
  - Know that school-related difficulties are often multifactorial in nature

Introduction

- ADHD is inherently difficult to diagnose
- Concern exists that ADHD is over-diagnosed in children and under-diagnosed in adults
- All children are different; they have diverse behaviors, emotions, and beliefs
- The use of the pharmacotherapy is controversial
- Neurotypical children w/ behavioral problems are misdiagnosed
- Adherence to DSM-5 diagnostic criteria for ADHD can reduce over- and under-diagnosis

Case #1 Maxine

- 9-year-old girl
- Chief complaint: poor grades
- Sx: “doesn’t get it”, needs repetition, disorganized, “homework takes forever”
- Gestation/Birth: Term, NSVD, AGA
- Development: Did not talk until 18 m/o, had language delay, slow to learn ABCs
Case #1 Maxine

- Therapy: Graduated from ST at age 6.
- Medical: Previous PCP diagnosed “ADD”
- Medication: Fails trials of MPH and AMP
  - Methylphenidate (Metadate® CD) 60 mg* PO QAM had no benefit
  - Dextroamphetamine and amphetamine (Adderall® XR) 30 mg PO QAM had no benefit

* (Dopheide 2009; Pliszka 2007)

Case #1 Maxine

- Social: non-contributory
- Family: Dad repeated 2nd grade
- Observation: pleasant, quiet
- Physical exam: normocephalic, nondysmorphic, no focal neurological findings

Response To Intervention (RTI)

3-tiered model of school supports

- Tier 1: High-Quality Classroom Instruction, Screening, and Group Interventions
  - Universal screenings identify students at risk
  - Supplemental small-group instruction in regular classroom
  - < 8 weeks

- Tier 2: Targeted Interventions
  - More intensive services in small-group setting in addition to instruction in the general curriculum
  - Parents may be involved
  - < 1 grading period
**Response To Intervention (RTI)**

- **Tier 3: Intensive Interventions & Comprehensive Evaluation**
  - Individualized, intensive interventions target skill deficits
  - Poor RTI: comprehensive evaluation
  - Considered for eligibility for SPED services
- At any point in RTI process, parents or PCP may request formal evaluation
- Qualifies for special education services as a student with a Specific Learning Disability

**Specific Learning Disability**

*Intrinsic cognitive difficulty that results in academic achievement at a level less than expected for the individual's intellectual potential*

**Specific Learning Disability**

- Unexpected failure to acquire, retrieve, and use information competently
- Manifests as deficits in listening, speaking, writing, spelling, or mathematics
- Due to congenital CNS dysfunction
- May co-exist with but not due to
  - other disabilities (e.g., HL, vision loss, ID, "ED")
  - extrinsic influences (e.g., cultural differences, insufficient or inappropriate instruction)

**Risk factors:**
- Family history of LD
- Low SES & understimulating environments
- Preterm
- Neurodevelopmental disorders
- Chronic medical conditions
- No cure → no "catch up" → lifelong challenge
- Support and intervention can help

**ADHD vs. Learning Disability**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>ADHD</th>
<th>LD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early signs</td>
<td>Can’t sit still for books, movies, meals; always on the go, inattentive, off-task</td>
<td>Developmental delay; not interested in books</td>
</tr>
<tr>
<td>Academic Problems</td>
<td>Similar deficit in multiple areas</td>
<td>Deficit in 1 or 2 areas</td>
</tr>
<tr>
<td>Etiology of problems</td>
<td>Behavior interferes with learning</td>
<td>Difficulty processing information</td>
</tr>
<tr>
<td>Social/emotional skills</td>
<td>Immature, hyperactive/impatient, may alienate peers</td>
<td>Difficulty with language</td>
</tr>
<tr>
<td>Breadth of problems</td>
<td>Broader problems: home, school, sports, etc.</td>
<td>Focused problems: academics</td>
</tr>
<tr>
<td>Response to stimulants</td>
<td>80-90% improve with medication</td>
<td>Medication should not help significantly</td>
</tr>
</tbody>
</table>

**Reading Disorder (Dyslexia)**

- #1 learning disability
- 50–80% have a family history
  - Usually one parent dislikes/avoids reading
- #1 cause of reading, writing, and spelling difficulties
- 74% of poor readers in 3rd grade remain poor readers in 9th grade
- Often coexists with ADHD
- Boys more affected vs. girls under–referred
**Reading Disorder (Dyslexia)**

- Kids with dyslexia have difficulty
  - Hearing, identifying, and manipulating individual sounds—*phonemes*—in spoken words
  - Playing rhyming games
- *Phonemic awareness* is fundamental to word reading, comprehension, & spelling
- Problems worsen as child progresses from
  - "Learning to read" (K-3) to "reading to learn" (4-12)

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**Case #2 Tanya**

- 10 y/o girl whose "ADD" is getting worse
- Sx: inattentive, daydreams, off task
- School: In 4th grade, earning As and Bs. Passed school hearing/vision screening.
- Therapy: Gets OT for "sensory processing disorder"
Case #2 Tanya

- Medical hx: term, NSVD, healthy
- Social hx: non-contributory
- Family hx: cousin with ADHD, Mom has OCD
- Feeding history: benign
- Diagnosed with ADHD-I two years ago
- Atomoxetine (Strattera®) 100 mg* PO QAM
  - "Made her into a zombie"; lower doses didn’t help
- Methylphenidate (Concerta®) 27 mg PO QAM
  - "Not really helpful"
  - Higher dosing made her “moody and irritable”

*LexiComp® 2017

Symptoms
- Restlessness, difficulty concentrating
- Difficulty falling and staying asleep
- Over-sensitive to loud, noisy places
- Perfectionistic
- Often appears tense or irritable
- Worries excessively about
  - upcoming events (e.g., visiting relatives, exams)
  - parents’ health (both are healthy)
  - family’s finances (both parents have steady jobs)
  - perseverative ‘wh’ questions!
**DSM-5 Criteria GAD**

A. Excessive, irrational, or unfounded anxiety & worry more days than not for at least 6 months about a number of events or activities
B. Child finds it difficult to control the worry
C. Any of the following:
   1. Restlessness or feeling keyed up or on edge
   2. Being easily fatigued
   3. Difficulty concentrating or mind going blank
   4. Irritability
   5. Muscle tension
   6. Sleep disturbance
D. Impairs social, academic, or other functioning
E. Unrelated to another disorder, substance abuse, or other identifiable cause
F. Not better explained by another neurobehavioral d/o


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**Generalized Anxiety Disorder**

- **What to Look For**
  - Considerable symptom overlap: GAD & ADHD
  - ¼ of kids with one has the other
  - Anxiety symptoms more internalized
    - Parents may overstate or not recognize sx
    - Teacher can describe how child responds to separation and interacts with peers
    - Child may not endorse symptoms due to embarrassment, oppositionality, or wish to give a desirable response
  - Wider variety of social difficulties
  - Educational underachievement
  - Family history of anxiety disorder

- **Prognosis:** if left untreated, anxiety disorders
  - Persist into adulthood
  - Are associated with depression, SAD, occupational impairment, suicidality

- **Treatment**
  - Cognitive-behavioral therapy
  - Effective for all childhood anxiety disorders
  - Direct therapy to child if ≥ 7 years old cognitively
  - Adapted for delivery to parents if child < 7 years old
  - SSRI antidepressants are first line
  - Treat comorbid ADHD accordingly

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**Case #3 Miguel**

- 7 y/o boy. Parents & teachers concerned with problems learning
- New to your practice. No records.
- Per parents, previous PCP diagnosed him with “ADD”
- Dexmethylphenidate (Focalin® XR) 50 mg* PO QAM seemed to work then stopped; curbed his appetite
- Lisdexamfetamine (Vyvanse®) 70 mg** PO QAM had no effect

*(Dopheide, 2009; Pliszka, 2007) **(AAP 2011)

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**Sx:** inattentive, needs redirection, “doesn’t get it”, needs lots of repetition, often off task, “stubborn”, “oppositional”, “lies”, “lazy”
- Gestation/Birth: Term, NSVD, AGA
- Development: Did not talk until 18 m/o, toilet trained at 6 y/o
- School/therapy: Repeating K, struggling in all classes. Parents unsure of services or results of school hearing/vision screening.
Case #3 Miguel

- Medical hx: PE tubes for recurrent OM at age 18 months
- Social hx: non-contributory
- Family hx: 32 y/o maternal uncle repeated 2nd grade, was in special education, and now lives at home with parents
- Observation: quiet, shy, immature
- Physical exam: height < 2nd percentile, non-dysmorphic, no focal neurological findings

Parents recall school testing and bring you a copy of his Full & Individual Evaluation (FIE)

- Wechsler Intelligence Scale for Children®-Fifth Edition (WISC®-V)
  - Verbal Comprehension Index 64
  - Visual Spatial Index 58
  - Full Scale IQ 60

- Vineland Adaptive Behavior Scales™ -3rd Edition (Vineland™-3)
  - Adaptive Behavior Composite score 55 (teacher)

Diagnosis: mild intellectual disability

Intellectual Disability: Definition

- The following 3 criteria must be met:
  A. Deficits in intellectual functioning
     - Reasoning, problem-solving, planning, abstract thinking, judgment, academic learning, learning from experience, and practical understanding
     - Clinical assessment
     - Standardized intelligence testing
     - Full scale IQ of 70 (±5) or below
  B. Deficits in adaptive functioning
     - failure to meet developmental and sociocultural standards for personal independence and social responsibility
     - standard score 70 (±5) or below
     - without ongoing support, limits functioning
     - one or more activities of daily living
     - Conceptual skills, social skills, practical skills
     - across multiple environments
     - Home, school, work, recreation
  C. Onset during before age 18 years
Severity is defined based on adaptive functioning, and not IQ scores, because adaptive functioning determines level of support required.

Intelligence measures are less valid in the lower end of the IQ range (i.e., < 40).

**Severity**

<table>
<thead>
<tr>
<th>Severity</th>
<th>DSM-5</th>
<th>AAIDD</th>
<th>SSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borderline</td>
<td>Can live independently w/ minimal support</td>
<td>Intermittent support needed during transitions</td>
<td>IQ 60-70 and limited function</td>
</tr>
<tr>
<td>Mild</td>
<td>Moderate support (e.g., group home)</td>
<td>Limited support for daily activities</td>
<td>IQ ≤ 59</td>
</tr>
<tr>
<td>Moderate</td>
<td>Daily assistance w/ self-care &amp; safety supervision</td>
<td>Extensive support for daily activities</td>
<td>IQ ≤ 59</td>
</tr>
<tr>
<td>Severe</td>
<td>Requires 24-hour care</td>
<td>Pervasive support for every aspect of daily routines</td>
<td>IQ ≤ 59</td>
</tr>
</tbody>
</table>

**Presentations**

- Language delay
- Language delay
- Language delay
- Delay in self-help skills
- Immature behavior
- Problems with attention and focus
- Difficulty with learning and comprehension

**Diagnostics**

- Diagnostic genetic testing indicated only for:
  - GDD: cognitive DQ < 70
  - Bayley Scales of Infant & Toddler Development, The Capute Scales (CAT/CLAMS), Mullen Scales of Early Learning
  - ID: full scale IQ < 70
  - Multiple dysmorphic features suggestive of an underlying genetic or chromosomal anomaly

7-year-old boy whose mother is concerned about his behavior
Sx: "he’s always in trouble", “can’t sit still”, “won’t listen to us”, “talks back”, “meltdowns”
Medical hx: 36-week EGA, mild asthma
Development: had language delay—resolved
Therapy: graduated from ST at age 4

School: 1st grade, doing well. Passed hearing & vision screens. “Loves school”
Social hx: Dad often away, marital conflict
Family hx: No known diagnoses
Sleep hx: “He wont’ go to bed. It’s a battle. I usually have to lay down with him until he falls asleep. Most nights, he’s up till 11 p.m. But, once he’s out, he’s out,”

Feeding hx: “He’s a picky eater. He’ll only eat Double Dave’s® cheese pizza, McDonald’s® chicken nuggets, and spaghetti with tomato sauce. He hates fruits and won’t touch anything green.”
Mom comments (in front of Austin), “He doesn’t pull this crap as much for Dad. Right, Austin?”

Observation: pleasant, quiet,
Physical exam: normocephalic, nondysmorphic, no focal neurological findings
Mom states, “His teacher thinks he’s an angel.”
She adds, “His grandma thinks he’s a spoiled brat. What can I do to make him behave better? He just laughs when I spank him.”
You suspect something besides ADHD
Austin’s maladaptive, externalizing behaviors are “situational” (i.e., only with Mom)
He has no behavioral or academic problems elsewhere
He does not meet DSM–5 criteria for ADHD
What is the diagnosis?
- Oppositional–defiant disorder?
- Bad parenting?
- Spoiled child?

Each child has a unique temperament
Not a matter of being a “good” parent or child
“Goodness of fit” is critical for success
Kids do not come with an owner’s manual!
Risk factors:
- Environment: psychosocial stressors
- Parents: psychopathology
- Child: neurodevelopmental disorders

Failure of caretakers to adapt their parenting style to each child’s temperament can cause or worsen behavioral problems
Refer for parenting skills training
- PROXIMA Project
- Any Baby Can of San Antonio
  www.AnyBabyCanSA.org
- Focus is on the parent–child dyad
- May detect parental psychopathology

Symptoms have persisted for at least 6 months
Degree inconsistent with developmental level
Negatively impacts directly on social and academic/occupational activities
Symptoms not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions
**DSM-5 Criteria ADHD Inattention**

- Inattentive, careless mistakes
- Difficulty sustaining attention in tasks or play
- Does not listen when spoken to directly
- No follow-through and incomplete work
- Disorganized, late
- Avoids/dislikes tasks requiring sustained mental effort
- Often loses things necessary for activities
- Easily distracted by extraneous stimuli or own thoughts
- Forgetful in daily activities

6 or more of the following:

- Fidgets, taps, or squirms
- Leaves seat
- Runs/climbs inappropriately or feels restless
- Unable to play or engage in leisure activities quietly
- “On the go” as if “driven by a motor” Blurs out answers
- Talks excessively
- Blurs out answers
- Difficulty waiting turn
- Interrupts or intrudes on others

**DSM-5 Criteria ADHD Hyperactivity/Impulsivity**

- Fidgets, taps, or squirms
- Leaves seat
- Runs/climbs inappropriately or feels restless
- Unable to play or engage in leisure activities quietly
- “On the go” as if “driven by a motor” Blurs out answers
- Talks excessively
- Blurs out answers
- Difficulty waiting turn
- Interrupts or intrudes on others

**The “Forgotten” DSM-5 Criteria**

Symptoms must:
- Be present by age 12 years, and
- Occur in more than ≥2 settings and
- Clear evidence that symptoms interfere with or reduce quality of functioning
- Not better explained by another mental disorder

Note: DSM-5 allows for concurrent anxiety, depression, or other disorders while ICD-10 prohibits this

**New DSM-5 Criteria**

Specify if:
- In partial remission:
  - criteria previously met but not for the past 6 months
  - symptoms still result in impairment in functioning

Specify current severity:
- Mild: Minimal symptoms; minor impairments
- Moderate: Several symptoms; moderate impairment
- Severe: Many or severe symptoms; marked impairment

**Questions to Answer Before Confirming a Diagnosis of ADHD**

- Do the child’s symptoms fulfill DSM-5 criteria for the diagnosis of ADHD?
  - Despite broad endorsement for using ADHD-specific behavior rating scales and DSM-5 criteria to diagnose and monitor ADHD, many providers use neither

- ADHD Rating Scales:
  - NICHQ Vanderbilt Assessment Scale Free
  - Conners 3rd Edition™ $350 to $450
  - ADHD Rating Scale-5 $136

- Sometimes physical symptoms or underlying conditions may result in inattention

- Do the child have normal vision and hearing?
  - Visual and auditory problems can contribute to poor school performance and inattention.
  - Hearing evaluation for 100% of patients
  - If not done at school or fails clinical screening, consult audiology
  - Vision screening for 100% of patients
  - Consult optometry if vision 20/30 or worse or > 2 lines difference between eyes in kids > 4 years old
Questions to Answer Before Confirming a Diagnosis of ADHD

- Does the child’s history suggest the presence of a comorbid psychiatric or neurologic disorder?

- Must screen 100% of patients
  - Broad screens: ADHD Rating Scales
  - Specific screens for:
    - Anxiety disorder
    - Major depressive disorder
    - Disruptive mood dysregulation disorder (i.e., “childhood bipolar disorder”)
    - Autism spectrum disorder

Questions to Answer Before Confirming a Diagnosis of ADHD

- Does the child have a learning disability?
  - 20 to 30% of kids with ADHD have comorbid LD
  - LD causes limited problems: when child challenged in deficient skill
    - Behavioral problems only at school or during homework
    - Psychoeducational testing beneficial if reading or language achievement below grade level
  - What is impact of stimulant medication on child’s ADHD symptoms and school performance?
    - Stimulants should not have a significant impact in the absence of ADHD
    - Response to medication is not diagnostic, but lack thereof may suggest another diagnosis

Questions to Answer Before Confirming a Diagnosis of ADHD

- What about environmental factors?
  - Parent–child conflict [Z62.820]
  - Family dysfunction [Z63.X]
  - Educational maladjustment [Z55.4]
  - Inquire about:
    - symptoms across environments
    - symptoms with different caretakers
    - family stressors and coping methods
    - discipline style

Questions to Answer Before Confirming a Diagnosis of ADHD

- Is additional diagnostic testing indicated?
  - ADHD is a clinical diagnosis
  - Blood tests, neuroimaging, EEG, ECG, and other studies are not recommended as part of routine evaluation
  - Diagnostic testing guided by history & exam
    - A family history of neurodevelopmental disorders suggests the need for further evaluation
    - Dysmorphic features and abnormalities of growth, development or neurologic function

Case #5: Philip

- 8–year–old boy referred for evaluation of his behavior
- Parents and teacher see him as hyperactive and impulsive since he was a toddler
- Socially outgoing and well liked by peers, but his behaviors are disruptive to others
- Struggles academically
Case #5: Philip

- Birth history: full term
- Medical history: healthy
- Medications: None
- Family and social histories are not revealing
- You find no evidence of a comorbid sleep or psychiatric disorder
- Physical examination is normal

Workup: NICHQ Vanderbilt Assessment Scale
- Parents: 9/9 hyperactive/impulsive, 5/9 inattention
- Teacher: 7/9 hyperactive/impulsive, 6/9 inattention
- No ODD/CD or anxiety
- Significant academic and behavioral problems
- Fails a trial of two stimulants
- Now you’re thinking of a second- or third-line medication

Video:
http://www.hulu.com/watch/18878/saturday-night-live-phillip#s-p19-st-i0

Let’s examine these drug “failures” more closely
- Trial 1: methylphenidate (Ritalin®) 5 mg PO QAM and noon. No benefit or side effects after one week. Abandoned.
- Trial 2: dextroamphetamine (Dexedrine®) 5 mg PO QAM and noon. No benefit or side effects after one week. Abandoned.
- Neither trial was adequate in dosage or duration and thus abandoned prematurely

ADHD Psychopharmacology

First-line: stimulants always
- methylphenidate IR (Ritalin®) or dextroamphetamine IR (Dexedrine®)
- AM, noon, and +/- afternoon
- Titration dosing not based on weight or age
- Start low and go slow
- If no benefit, increase every 5–7 days
- Goal: lowest effective dose
- Stop increasing when:
  - Desirable benefits noted
  - Intolerable adverse reactions don’t resolve after 3–5 days
  - Maximum dose and no benefits
- Weight ≤ 50 kg: 60 mg/day; >50 kg: 100 mg/day (Dopheide 2009; Pliszka 2007)

If fails first stimulant, switch to the stimulant not initially used
If truly fails trial of both MPH and DEX,
Second-line: alpha agonists
- Clonidine ER (Kapvay®)
- Guanfacine IR (Tenex®) or ER (Intuniv®)
Third-line:
- Atomoxetine (Strattera®)