



Body System: Pediatrics		
Session Topic: Diagnosis and Management of ADHD in Children		
Educational Format		Faculty Expertise Required
REQUIRED	Interactive Lecture	Expertise in the field of study. Experience teaching in the field of study is desired. Preferred experience with audience response systems (ARS). Utilizing polling questions and engaging the learners in Q&A during the final 15 minutes of the session are required.
OPTIONAL	Problem-Based Learning (PBL)	Expertise teaching highly interactive, small group learning environments. Case-based, with experience developing and teaching case scenarios for simulation labs preferred. Other workshop-oriented designs may be accommodated. A typical PBL room is set for 50-100 participants, with 7-8 each per round table. <u>Please describe your interest and plan for teaching a PBL on your proposal form.</u>
Professional Practice Gap	Learning Objective(s) that will close the gap and meet the need	Outcome Being Measured
<ul style="list-style-type: none"> Children/adolescents with ADHD frequently do not receive medication or mental health counseling. First line treatment for children aged 2-5 years with ADHD is underused. There have been recent updates to ADHD diagnostic criteria and guidelines (e.g. DSM-V, AAP guidelines). Physicians must keep up to date on current FDA ADHD medication approvals and warnings. Guideline recommendations from different medical specialty society sometime conflict (i.e. AHA vs. AAP) Physicians, in general, do not optimally adhere to current ADHD guidelines. 	<ol style="list-style-type: none"> Utilize current AAP evidence-based guidelines and DSM-V criteria to diagnose and evaluate ADHD in symptomatic child. Screen all children diagnosed with ADHD for other primary conditions or comorbidities. Develop a management plan that included multimodal interventions of other concomitant conditions and comorbidities, as well as pharmacologic and non-pharmacologic interventions to manage ADHD. Counsel children and family members on successful management of ADHD, including transition management from adolescence to adulthood. 	Learners will submit written commitment to change statements on the session evaluation, indicating how they plan to implement presented practice recommendations.
ACGME Core Competencies Addressed (select all that apply)		
X	Medical Knowledge	Patient Care
X	Interpersonal and Communication Skills	Practice-Based Learning and Improvement



Professionalism	Systems-Based Practice
Faculty Instructional Goals	
<p>Faculty play a vital role in assisting the AAFP to achieve its mission by providing high-quality, innovative education for physicians, residents and medical students that will encompass the art, science, evidence and socio-economics of family medicine and to support the pursuit of lifelong learning. By achieving the instructional goals provided, faculty will facilitate the application of new knowledge and skills gained by learners to practice, so that they may optimize care provided to their patients.</p> <ul style="list-style-type: none"> • Provide up to 3 evidence-based recommended practice changes that can be immediately implemented, at the conclusion of the session; including SORT taxonomy & reference citations • Facilitate learner engagement during the session • Address related practice barriers to foster optimal patient management • Provide recommended journal resources and tools, during the session, from the American Family Physician (AFP), Family Practice Management (FPM), and Familydoctor.org patient resources; those listed in the <u>References</u> section below are a good place to start <ul style="list-style-type: none"> ○ Visit http://www.aafp.org/journals for additional resources ○ Visit http://familydoctor.org for patient education and resources • Provide specific case-based examples to illustrate the application of current evidence-based recommendations and guidelines for the diagnosis, evaluation, treatment and management of ADHD in the symptomatic child; paying special attention to gender differences in symptom presentation (i.e. female vs. male presentation of symptoms) • Provide specific evidence-based recommendations screen all children diagnosed with ADHD for other primary conditions or comorbidities • Provide specific recommendations regarding preschool-aged children (4-5 years of age), diagnosed with ADHD, & counseling parents to use behavior therapy as the first line of treatment. • Provide recommendations regarding medication issues in ADHD patients including managing medication side effects, and determining when to increase dose vs changing stimulant class. • Provide strategies for developing a management plan that included multimodal interventions of other concomitant conditions and comorbidities, as well as pharmacologic and non-pharmacologic interventions to manage ADHD. • Provide specific resources and strategies to counsel children and family members on successful management of ADHD • Provide recommendations to maximize office efficiency and guideline adherence to the treatment of ADHD. • Provide an overview of newly available treatments, including efficacy, safety, contraindications, and cost/benefit relative to existing treatments. 	

Needs Assessment

The American Psychiatric Association states in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) that 5% of children have ADHD, and while the percentage of children with



an ADHD diagnosis continues to increase, from 7.8% in 2003 to 9.5% in 2007 and to 11.0% in 2011, as many as 17.5% of children with current ADHD were not receiving either medication for ADHD or mental health counseling in 2011.¹ ADHD often goes undiagnosed, and as such, physicians should follow current guidelines from the American Academy of Pediatrics (AAP) on Diagnosis, Evaluation, and Treatment of ADHD.² Additionally, rescreening with a standardized tool and routine additional testing are underutilized.³

Recent studies indicate that more than 6 million children in the United States were reported by their parents to have been diagnosed with attention-deficit/hyperactivity disorder (ADHD) in 2011-2012, making it the most common neurodevelopmental disorder among those ages 4 to 17 years.⁴ This represents a 42 percent rise in the prevalence of ADHD in children and adolescents since 2003. More than half (53%) of children in that age range who are diagnosed with ADHD, first receive that diagnosis from primary care physicians.⁵ Current 2011 American Academy of Pediatrics (AAP) guidelines indicate that the first line of treatment for young children (preschool-aged) should be behavioral therapy administered by the child's parents; and physicians should resort to medication only if behavioral interventions fail to achieve significant improvement and patients continue to have moderate to severe functional impairment.⁶ Use of behavior therapy for ADHD has been shown to have lasting beneficial effects on how these children function in school, at home and elsewhere.

However, recent reports from the Centers for Disease Control and Prevention (CDC) indicate that these children are more often being prescribed potent drugs to help reduce their impulsive behaviors in the short term.^{7,8}

Furthermore, although percentages varied by state, no more than 55 percent of children with ADHD overall received psychological services each year, regardless of insurance type. By contrast, about three-fourths received medical therapy.

Perhaps most troubling, the use of psychological services to treat young children with ADHD, as recommended in the 2011 AAP guideline, did not increase after publication of that guidance. In fact, the percentage of children receiving this type of therapy decreased slightly, while the percentage of those being treated medically did not change.

"These data suggest we are missing opportunities for young children with ADHD to receive behavior therapy," Schuchat observed. "Increasing referrals and the availability of appropriate services could help many families with young children who have ADHD."⁹

Physicians must also be aware of gender-related diagnostic issues. ADHD is more frequent in males than in females in the general population, with a ratio of approximately 2:1 in children and 1.6:1 in adults. Females are more likely than males to present primarily with inattention versus disruptive behaviors more commonly displayed by males, resulting in girls and women consistently being under identified and underdiagnosed.¹⁰⁻¹³ Physicians need continuing training and education with regard to gender-sensitive aspects of the diagnosis and treatment of ADHD in females; including raising awareness among parents, school counselors, teachers, and other care givers.



Data from a recent American Academy of Family Physicians (AAFP) CME Needs Assessment Survey indicates that family physicians have statistically significant knowledge gaps with regard to screening, treating, and managing pediatric patients with ADHD.¹⁴ More specifically, data from 2012-2015 AAFP FMX (formerly Assembly) *Attention-Deficit Hyperactivity Disorder* sessions suggest that physicians have knowledge and practice gaps with regard to screening and evaluation tools; implementation of evidence-based recommendations and guidelines into practice; and treatment therapies, including both behavioral therapy and pharmacologic.¹⁵⁻¹⁸

Family physicians should initiate an evaluation for attention-deficit/hyperactivity disorder (ADHD) for any child 4 through 18 years of age who presents with academic or behavioral problems and symptoms of inattention, hyperactivity, or impulsivity.⁶ Because symptoms vary significantly from person to person, ADHD can be difficult to diagnose. ADHD is frequently comorbid with the disorders listed in the *Disruptive, Impulse-Control, and Conduct Disorders* chapter of the DSM-V.¹⁰ Family physicians need to have an understanding of how the changes in diagnostic criteria for ADHD and comorbid disorders from the DSM-IV to the DSM-V impact decisions about diagnosis and treatment.

Physicians should also be prepared to provide transitional services for patients with ADHD from adolescents to adulthood; including having strategies in place to prevent misuse or diversion of stimulants prescribed for adults with ADHD.¹⁹⁻²¹

The AAFP endorses the current AAP clinical practice guidelines for the diagnosis, evaluation, and treatment of ADHD in children and adolescents; therefore, family physicians should understand how to apply the guidelines to individual patient scenarios. A summary of key recommendations from the AAP guideline is as follows:^{6,22}

- Any child 4 through 18 years of age who presents with academic or behavioral problems and symptoms of inattention, hyperactivity, or impulsivity should be evaluated for ADHD.
- The diagnosis of ADHD should be based on the criteria from the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-V), with information obtained from parents/guardians, teachers, and other school and mental health clinicians involved in the child's care.
- Alternative causes of the behavior should be ruled out.
- A child being evaluated for ADHD should also be assessed for other conditions that might coexist with ADHD, including emotional, behavioral, developmental, and physical conditions.
- Children with ADHD should be managed following the principles of the chronic care model and the Medical Home.
- Preschool-aged children (4-5 years of age) should be treated with behavior therapy as the first line of treatment. Methylphenidate may be prescribed if the behavior interventions do not provide significant improvement and there is moderate-to-severe continuing disturbance in the child's function.
- Elementary school-aged children (6-11 years of age) should be treated with FDA-approved medications for ADHD and /or behavioral therapy.
- Adolescents (12-18 years of age) should be treated with FDA-approved medications for ADHD and may be treated with behavioral therapy.



- Medication doses should be titrated to achieve maximum benefit with minimum adverse effects.

Additional evidence-based clinical practice recommendations for consideration:²³⁻²⁵

- A proper diagnosis of ADHD requires obtaining information from teachers, family members, and non-family members who are familiar with the child's behavior
- Pharmacotherapy with stimulant medication is the first-line treatment for most patients with ADHD
- On average, carefully monitored pharmacotherapy is more effective for ADHD than intensive behavioral treatment alone
- Support groups for parents who have children with ADHD help parents connect with others who have children with similar problems
- Parent behavior training is an efficacious treatment option for preschoolers with disruptive behavior disorders or ADHD symptoms.
- Benefits for children with disruptive behavior disorders are maintained at least six months and, in some studies, up to two years.
- Parents who attend more parent behavior training sessions see more improvement in their child's behavior
- Where there is socioeconomic burden, a school-based intervention appears to be the primary beneficial intervention. However, benefits diminished over two years, likely because of lack of parental engagement and attendance at sessions. The evidence is insufficient to quantify the effect.
- Methylphenidate is efficacious for treating ADHD symptoms, but there has been limited long-term follow-up beyond 12 months in preschoolers.
- Methylphenidate can produce adverse effects (e.g., diminished growth rates, insomnia, loss of appetite, tiredness, social withdrawal, abdominal pain), and more adverse effects are reported in preschoolers than in elementary school-aged children.
- Evidence is insufficient to know if there are additional benefits from combining different treatments.

As the diagnosis is considered in patients, the physician also has to determine whether other co-existing conditions – including mood and anxiety disorders, tics and Tourette syndrome, learning disabilities or speech/language/hearing disorders (the latter primarily in children) – may be responsible for the presenting symptoms. ADHD is a particular concern for children because its comorbidities include learning disabilities, conduct disorders (including oppositional defiant disorder), anxiety, depression or bipolar disorder.^{23,26,27}

Physicians should also be kept up to date on new treatment therapies, changes to therapies, or warnings associated with existing therapies. Provide recommendations regarding new FDA approved medications for the treatment of ADHD; including safety, efficacy, tolerance, and cost considerations relative to currently available options. Examples include, but are not limited to:²⁸

- Intuniv (guanfacine extended-release); Shire Pharmaceuticals; For the treatment of ADHD in children and adolescents, Approved September 2009
- Ritalin LA (methylphenidate HCl); Novartis; Oral capsules for the treatment Attention-Deficit/Hyperactivity Disorder (ADHD), Approved June 2002



- Strattera (atomoxetine HCl); Eli Lilly; For the treatment of Attention-Deficit/Hyperactivity Disorder (ADHD) in children, adolescents and adults., December 2002
- Adderall XR; Shire Pharmaceuticals; Once-daily medication for the treatment of attention deficit/hyperactivity disorder (ADHD), Approved October 2001
- Focalin (dexamethylphenidate HCl); Celgene; For the treatment of attention deficit hyperactivity disorder (ADHD), Approved November 2001

A Cochrane Review finds that tricyclic antidepressants (TCAs) specifically desipramine and nortriptyline (Pamelor), are superior to placebo at reducing ADHD symptoms in the short term (two to six weeks); however, the quality of evidence is low. Increased heart rate and diastolic blood pressure may be noted with treatment. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)²⁹

It is important for patients to recognize that the disorder cannot be cured but it can be successfully managed with ongoing treatment, which typically combines pharmacologic and psychologic therapies. Stimulants and behavioral therapy are considered first-line therapies for both children and adults, but special prescribing considerations exist for some patients who have ADHD. Physicians are frequently challenged by conflicting guidelines. A recent guideline from the American Heart Association (AHA) recommended routine electrocardiography (ECG) in children before they begin pharmacotherapy for attention-deficit/hyperactivity disorder (ADHD).³⁰ That recommendation contradicts evidence-based recommendations from the American Academy of Child and Adolescent Psychiatry and the American Academy of Pediatrics (AAP). These organizations concluded that sudden cardiac death in persons taking medications for ADHD is rare, with rates no higher than those in the general population of children and adolescents.³¹

- The AAP recommends that physicians carefully assess children being considered for ADHD therapy by using a targeted cardiac history (e.g., patient history of cardiac disease, palpitations, syncope, or seizures; family history of sudden death in children or adolescents; hypertrophic cardiomyopathy; long QT syndrome) and a physical examination, including a cardiac examination.
- The AAP encourages physicians to continue to follow current recommendations for ADHD treatment, including the use of stimulants, without obtaining routine ECG before beginning therapy.

Dosing and medication release should be carefully considered in prescribing an effective pharmacologic agent for patients with ADHD, and a family physician can help monitor safety, efficacy and any potential misuse of the medication. Family physicians may need to be especially alert in treating patients who specifically request stimulants, as the medication may be sought for purposes that are not consistent with treatment for ADHD. Physicians should also check the FDA Approved Risk Evaluation and Mitigation Strategies (REMS) for current REMS components for medications they are prescribing for the treatment of ADHD.³² For example, the issued a warning in 2013 that methylphenidate products, one type of stimulant drug used to treat attention deficit hyperactivity disorder (ADHD), may in rare instances cause prolonged and sometimes painful erections known as priapism.³³



Family physicians should receive continuing education that helps practicing physicians apply evidence-based recommendations and guidelines for the diagnosis, evaluation, treatment and management of ADHD in children to their current practices; emphasizing tools, resources, and strategies.³⁴⁻³⁹

Resources: Evidence-Based Practice Recommendations/Guidelines/Performance Measures

- AAP ADHD: clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents⁶
- Current strategies in the diagnosis and treatment of childhood attention-deficit/hyperactivity disorder²³
- FDA Approved Risk Evaluation and Mitigation Strategies (REMS)³²
- Medication adherence: we didn't ask and they didn't tell³⁵
- Health coaching for patients with chronic illness³⁴
- Patient-physician partnering to improve chronic disease care³⁶
- Thinking on paper: documenting decision making³⁷
- Engaging Patients in Collaborative Care Plans³⁸
- Integrating a behavioral health specialist into your practice³⁹
- Familydoctor.org. Attention-Deficit Hyperactivity Disorder (ADHD) | Overview (patient resource)⁴⁰

References:

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