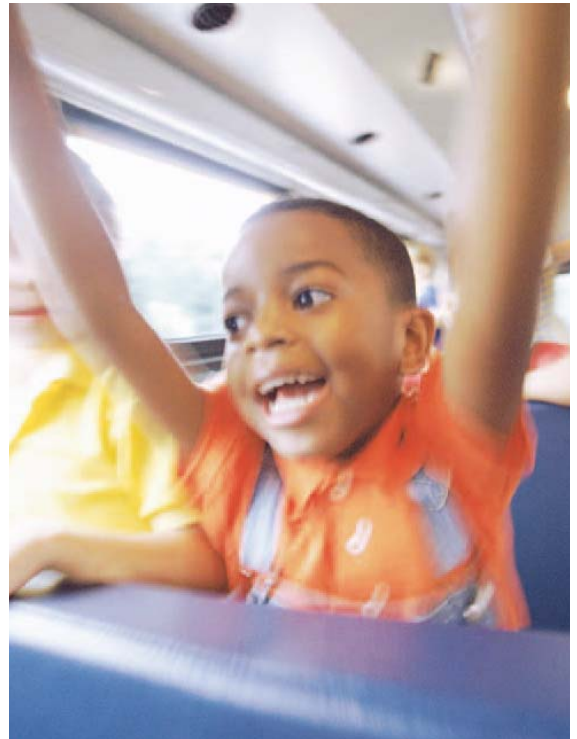


Off-Task and Fidgety

An update on ADHD

By Diane Morrison, MD, FRCPC



In this article:

1. What are the core symptoms?
2. What are some coexisting conditions?
3. What are the treatment options?
4. What are the effects of medication?

Attention deficit/hyperactivity disorder (ADHD) is common in the school age population and can cause significant academic and social impairment. The family physician is often asked to evaluate children for this problem and to provide ongoing care. Recent multicentre studies and literature reviews have provided an evidence base to support standards of practice for the evaluation, diagnosis and treatment of ADHD.¹⁻⁵ This article will review the best practices for clinical care.

This disorder is characterised by inattention, hyperactivity and impulsivity beyond what would be considered developmentally appropriate for a particular age. These characteristics can

cause significant functional impairments. Affected children often underachieve at school and have difficulty interacting socially with peers. They may be described as insatiable, intrusive and annoying. Recent estimates of prevalence of ADHD are 9.2% in males and 2.9% in females of school age.¹

How do you evaluate and diagnose ADHD?

The core symptoms of ADHD (inattention, hyperactivity and impulsivity) cannot be quantitatively measured, therefore their evaluation is invariably subjective. Diagnostic criteria are important, as they provide a greater degree of objectivity and allow for a more uniform diagnosis.¹ The most commonly used criteria in North America are from the DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders*) of the American Psychiatric Association.⁶ These criteria allow for the identification of three types of ADHD—Hyperactive, Inattentive, and Combined.

ADHD

Table 1

DSM-IV based rating scale - Attention Deficit/Hyperactivity Syndrome

Completed by: _____ Child's name: _____
 Date: _____

Inattention	Very Much	Somewhat	Not at All
Fails to give close attention to details or makes careless mistakes in schoolwork.			
Has difficulty keeping attention on tasks or play activities.			
Does not seem to listen when spoken to directly.			
Does not follow through on instructions and fails to finish homework or chores.			
Has difficulty organising tasks and activities.			
Avoids or strongly dislikes tasks, such as homework or school work, that require sustained mental effort.			
Loses things necessary for tasks or activities (e.g., school assignments, pencils, books or toys).			
Is easily distracted by outside stimuli.			
Forgetful in daily activities.			
Hyperactivity Impulsivity	Very Much	Somewhat	Not at All
Fidgets with hands or feet or squirms in seat.			
Leaves seat in classroom or in other situations in which remaining seated is expected (e.g., dinner table).			
Runs about or climbs in situations where it is inappropriate.			
Has difficulty playing quietly.			
Is "on the go" or acts "driven by a motor."			
Talks excessively.			
Blurts out answers to questions before the questions have been completed.			
Has difficulty awaiting turn.			
Interrupts or intrudes on others.			

The Hyperactive diagnosis requires that six of the following characteristics be present to a significant degree:

- Fidgety;
- Leaves seat in class;
- Runs or climbs excessively;
- Has difficulty playing quietly;
- On the go;
- Talks excessively;
- Blurts out answers;
- Has difficulty waiting turn; and
- Interrupts.

The Inattentive subgroup is characterised by six or more of the following difficulties:

- Failure to pay close attention;
- Difficulty sustaining attention;
- Doesn't seem to listen;
- Doesn't follow through on instructions;
- Difficulty organizing tasks;
- Avoids tasks that require sustained mental effort;
- Loses things;
- Is easily distracted; and
- Is forgetful.

The Combined diagnosis requires at least six criteria from each of the above categories.

The DSM-IV also requires that the characteristics be present across settings, be present before the age of seven and are not exclusively the result of another mental health disorder.

The diagnosis of ADHD is a "threshold" diagnosis, meaning that it is required that the symptoms described significantly interfere with function. To evaluate whether a patient meets the criteria in different settings, information should be collected directly from parents, teachers, and/or day care workers.¹ Checklists such as Table 1 can be valuable tools to augment the clinical interview.

Is the DSM-IV reliable?

The DSM-IV has some limitations. It has no variation for different genders or age extremes (preschool to young adults). The reporting which provides its information is invariably subjective. The degree of functional impairment (critical to the diagnosis) remains one of professional judgment on the part of the physician. The diagnostic criteria



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ADHD

Table 2

Frequency of coexisting conditions

Oppositional defiant disorder or conduct disorder:	35%
Depression or mood disorder	18%
Anxiety disorder	25%
Learning disorder	30%

only provide part of the information. It is essential that medical and developmental history, as well as situation information about family and school, be understood in the interpretation of DSM findings.

What are the possible coexisting conditions?

A number of other mental health disorders occur more frequently in the ADHD population (oppositional defiant disorder, conduct disorder, depression or mood disorder, anxiety disorder, and learning disorder).¹ These so-called coexisting conditions or comorbidities are important to recognise, as they often require intervention and/or treatment. Recent studies estimate the frequencies for these conditions (Table 2). Evaluation for these comorbidities is integral to the evaluation for ADHD.¹

What are the treatments?

The treatment of ADHD must address the fact that this is a chronic condition. In at least 50% to 60% of patients, symptoms persist into adolescence and adulthood.⁷ The physician needs to form a strong alliance with the patient, family and school that

Table 3

The expected effects of stimulants on ADHD children

- Better concentration
- Increased attention span
- Ability to finish tasks
- Improved conduct
- Better social interaction
- Decreased impulsivity
- Increased self-control

Stimulants are effective 80% of the time

allows ongoing communication, monitoring and timely intervention.² Anticipation of difficulty at times of transition (birth of a sibling, school move, starting junior high or high school) can prevent crisis.

The mainstays of ADHD treatment are behavioural management and stimulant medication. Medication has the most pronounced immediate effect on the core symptoms. It also may allow better compliance and attention, enabling the child to learn appropriate behaviours and skills.

What is behavioural management?

Consistency, structure and reduction of distractions are classic strategies to assist ADHD children in the classroom and at home. A morning routine, standard places for school supplies, and breaking down school tasks into manageable pieces are all helpful strategies. Positive reinforcement is essential for these children. They have often experienced negative feedback because of their behaviour. Recent studies in psychosocial literature show that a behavioural approach that focuses on specific goals and the teaching of specific skills to the patient, parents and teachers is most likely to be successful.³

Table 4

Stimulant medication trial

	Ritalin (Methylphenidate HCL)	Dexedrine (Dextroamphetaminesulfate)
Duration	2-4 weeks	2-4 weeks
Starting dose	0.3 mg/kg/dose	0.15 mg/kg/dose
Administration	a.m. and noon	a.m. and noon
Increment	60 mg daily	30 mg daily
Maximum	If medication makes a significant difference	If medication makes a significant difference
Continue	At 3 months, then every 6 months	At 3 months, then every 6 months
Review	Response to medication Other needs	Response to medication Other needs
Monitor	Height/weight/blood pressure/pulse	Height/weight/blood pressure/pulse

When should medication be prescribed?

Stimulant medication is extremely effective in treating ADHD. Approximately 80% of affected children will respond to stimulant treatment with improved attention to task, decreased impulsivity and decreased physical activity (Table 3).² Improved social and classroom behaviour has also been shown.⁵ A trial of stimulant medication should be initiated when inattention continues to significantly interfere, despite appropriate behavioural management techniques.²

In a recent literature review, Ritalin[®] and Dexedrine[®] were found to be equally effective in the treatment of ADHD.⁴ However, responses and side effects may differ significantly in the individual patient.

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The medication trial

Table 4 outlines a stimulant medication trial. It is usually best to do an initial trial with a short-acting preparation as it is easier to fine tune the dose. However, in the adolescent population a long-acting preparation may be more acceptable to the patient and family (as it avoids having to take the medication at school). The trial should be monitored by having teacher(s) and parents complete response and side effect checklists.²

If one stimulant doesn't work despite trying dose increments, or is not tolerated because of side effects, the physician should try another one.² Although other medications have been used in ADHD (particularly when comorbidities are present), no medication is as effective as stimulants to treat the core symptoms. Minor adjustments to the medication regime are worth the effort if they can assist the child in benefiting from the medication. Table 5 describes strategies to deal with possible side effects of stimulant medication.

Table 5

Side effects of stimulants and coping strategies

Side effect	Strategy
Appetite suppression	<ul style="list-style-type: none"> • Give with meals • Replace calories at non-medication times • Decrease noon dose
Insomnia	<ul style="list-style-type: none"> • Alternate stimulant
Emotional lability	<ul style="list-style-type: none"> • Often transient • Decrease dose • Alternate stimulant
Headache	<ul style="list-style-type: none"> • Often transient • Alternate stimulant
Rebound	<ul style="list-style-type: none"> • Snack/exercise • Slow-release preparation • Alternate stimulant
Sedation	<ul style="list-style-type: none"> • Decrease dose
Pulse or blood pressure affected	<ul style="list-style-type: none"> • Alternate stimulant
Not lasting long enough	<ul style="list-style-type: none"> • More frequent doses • Slow-release preparation

Which tests/treatments are not evidence-based?

No routine blood testing (*e.g.*, lead levels, thyroid testing) is useful in the evaluation for ADHD. Radiologic investigations (CT, MRI) and EEG are not useful diagnostically.²

Biofeedback, elimination diets, and herbal remedies have not been shown to alter the degree of functional impairment in ADHD patients.

Take-home message

ADHD is widely prevalent among the school-age population, affecting 9.2% of boys and 2.9% of girls. The diagnosis of ADHD requires that symptoms interfere significantly with the patient's functioning in multiple settings. Treatment should address the fact that ADHD is a chronic condition. The mainstays of treatment are behavioural management and stimulant medication. Approximately 80% of ADHD patients will respond to medication, however, medication treatment should be closely monitored as responses and side effects can differ significantly in each patient. CME

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