

The Restless Pupil

Facilitator's Guide

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Topic: Attention-Deficit/Hyperactivity Disorder

Abstract:

Primary care clinicians are frequently consulted when children have behavioral or learning problems in school. Very often, the presenting question from parents and teachers is “*Could this be ADHD (Attention-Deficit/Hyperactivity Disorder)?*” Clinicians must know how to evaluate a child with inattention and make recommendations for appropriate interventions. This case presents the story of a first grade student with poor academic performance and disruptive behaviors.

Goal:

To provide learners with a basic understanding of the diagnosis and management of ADHD.

Objectives: By the end of this session, learners will be able to:

1. List the differential diagnosis for inattention in a school-aged child.
2. Discuss the signs and symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD).
3. Describe the role of the clinician in management of ADHD, including use of psychostimulant medication.

Prerequisite Cases:

"Jesse's School Quandary: Ready, Set, Go!" (School Readiness)

Related Cases:

“The Tale of Tommy’s Testing” (Learning Disorders)

Themes:

Child Development and Behavior

Key Words:

Attention-Deficit/Hyperactivity Disorder (ADHD), school failure, learning problems, stimulant medication



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Bright Futures Core Concepts:

While all of the Core Concepts are included in each case, this particular case can be used to highlight communication, partnership, advocacy, and prevention/health promotion.

Materials Provided:

- Facilitator's Guide
- 3-part Case Narrative: Part I, Part II, Epilogue
- Handout #1a and 1b: ADHD Rating Scales and Scoring sheet before medication
- Handout #2a and 2b: ADHD Rating Scales and Scoring sheet after medication
- Handout #3: Diagnostic Criteria and Management Strategies for ADHD
- Bibliography

Facilitator Preparation:

Facilitators should thoroughly review this guide and the other materials provided. In addition, check your own state law on school-based evaluations and special educational services. A brief summary may be found in "Using the Denver II" case materials.

At the end of the guide we have included a section entitled, "**Independent Learning/Prevention Exercises**," that will further stimulate group and individual education on this topic.

Suggested Format for a One Hour Session:

We anticipate that case facilitators will modify implementation of the case session to best fit their educational setting and learners. For detailed recommendations on case facilitation, please see the chapter entitled, "A Brief Guide to Facilitating Case-Discussion," found in *The Case Teaching Method; and Growth in Children and Adolescents* (book 1 of this series).

Introduction: Attention-Deficit/Hyperactivity Disorder (ADHD) is a disorder of attention and impulse control that is mediated by genetic, neurological and environmental factors. According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), the essential features of ADHD include: a) persistent and developmentally inappropriate pattern of inattention, impulsivity, and/or hyperactivity; b) presence of symptoms before 7 years of age; c) impairments apparent in at least two different settings (e.g., home and school); d) interference with social, academic, or occupational function; and e) symptoms are not due to some other psychiatric disorder.¹ Three ADHD subtypes are recognized: predominantly inattentive, predominantly hyperactive-impulsive, and a combined type. Specific symptoms are listed in Handout #3. To make the diagnosis, six or more symptoms of either inattention or hyperactivity-impulsivity should be present or, for combined type, six or more symptoms of both (i.e., a total of 12 or more).

While the DSM-IV helps define the nature of mental disorders, pediatricians have long recognized that all such problems exist on a spectrum of severity. This view is a

theoretical foundation of the new Diagnostic and Statistical Manual of Mental Disorders in Primary Care (DSM-PC), Child and Adolescent Version.² According to this model, attention deficits may be considered to be *Developmental Variations*, attention *Problems*, or true *Disorders*. This is an important concept for clinicians, who must remember that not every child who is inattentive has ADHD. Careful consideration must be given to both qualitative and quantitative aspects of the diagnosis, and treatment decisions regarding the use of stimulant medication made accordingly.

The prevalence of ADHD among elementary school children is estimated at 3-10% with a male:female ratio estimated to be from 3:1 to 6:1.^{1, 3, 4} The diagnosis may be made more commonly in boys than girls. Teachers tend to have higher academic expectations of boys than girls. In addition, girls with ADHD tend to exhibit more symptoms of inattention, rather than impulsive-hyperactive behaviors, and may therefore go unrecognized until middle school.

The natural history of ADHD is unclear. There is little doubt that the symptoms may persist into adolescence and adulthood, but there is some uncertainty regarding the extent to which this is the case. There is both a neurobiologic (e.g. brain injury, prenatal drug/alcohol exposure, prematurity, plumbism) and a genetic basis for ADHD. Family history of alcoholism may also be associated with ADHD.

Symptoms of ADHD include: short attention span, distractibility, impulsivity, poor planning and organization, hyperactivity and fidgeting. Inconsistency in performance may cause more distress to children with ADHD than all the other symptoms combined. Parents and teachers may misinterpret this as evidence of willful misbehavior. (*"Sometimes Emily can be such a good student! Other times, she is just the worst. I know that she could do better if she wanted to - she just doesn't care."*) Performance inconsistency, or ups and downs in behavior and academic achievement, may manifest itself within a single hour, within a single day, or over a span of weeks or months.

ADHD may be poorly named, as children with ADHD do not actually have trouble paying attention. They simply pay attention to *too many things* (distractibility) or *the wrong things* (poor selection). Thus, in Part I of this case, Emily selected a siren in the distance as more interesting than the conversation with her clinician. During the physical exam, Emily exhibits symptoms of distractibility, impulsivity and motoric overactivity (pumping up the cuff). The story of "Miss Penny" in Part II illustrates just how distractibility gets her into trouble at school. With many children, however, the symptoms will be more subtle and not readily apparent during the office visit.

Open the Discussion: Introduce the case title and the session goal. Explain that this will be an interactive case discussion and not a lecture. Distribute Part I of the case and ask one or more of the participants to read it aloud.

Part I

Emily is a 7-year-old girl who is in first grade. Mrs. Bishop brings her daughter to your clinic because “*she’s not doing well in school.*” When asked to provide more detail, she relates that Emily is disruptive in class and has trouble with both reading and math. Her teachers believe the problem is behavioral, that Emily “*could do better if she wanted to.*” As proof, they cite her inconsistent performance; some days her work is outstanding, while other days she just doesn’t seem to care.

"*And how are things going at home?*" you ask.

Mrs. Bishop says, "*Emily and I fight with each other all the time. I think she has some kind of a problem. She's just like my brother. He needed to take pills to calm him down when he was her age.*"

Emily is a slightly obese girl with a generally sad facial expression. You try asking her a few questions, but she is difficult to engage. She interrupts your conversation with Mrs. Bishop several times, at one point asking, "*So where do you think it's going?*"

You are quite puzzled by this question and tell her, "*I'm sorry, Emily, but I am not sure what you are talking about. Where is what going?*"

"*The fire engine, silly,*" she replies.

At this point, as you listen intently, you are able to hear a siren far in the distance.

Emily has never been hospitalized and has had no surgery. Audiometry was normal at age 5. Family history is positive for her maternal uncle who her mother says “*was ADD*” and a maternal grandfather who was “*a heavy drinker.*” Her growth and development have been normal.

Physical examination, including a careful neurological exam and vision testing, is normal. During the exam, you become alarmed that Emily will destroy your blood pressure cuff by excessively inflating it. You are able to redirect her from this activity only with considerable effort.

Following this reading, ask all participants “*So what do you think about this case? What would you like to focus on during our discussion today?*” List agenda items on a blackboard or flipchart. Then use the questions below to guide the discussion. Remember that the key to successfully leading a small group is facilitation of the discussion rather than lecture. Draw as many participants as possible into the discussion. Allow silences while group members think about questions. Present material from the discussion guide only when needed to complement or redirect the group discussion.

Guiding Questions for Discussion:

What is the differential diagnosis for Emily’s school problem? Inattention and school failure can be caused by myriad conditions. Among these are impairment in vision or hearing, medical illnesses (e.g., asthma, poorly controlled diabetes, enuresis or encopresis, chronic pain or fatigue), nutritional deficiencies, toxic exposure (e.g., lead), sleep disorders, epilepsy or other central nervous system dysfunction, substance abuse (adolescents), major mental disorders (e.g., depression, anxiety, thought disorders), characterological problems, psychosocial stressors, and specific learning disabilities. In addition, the existence of one diagnosis does not exclude the possibility of another, and these conditions are often “co-morbid.”⁵ The initial diagnostic assessment must therefore be comprehensive, and periodic re-assessments should be conducted whenever there is

escalation in difficulties or a new problem behavior emerges. A specific learning disability should always be considered in children presenting for an ADHD evaluation, as it can cause *secondary* inattention. Children will not pay attention to things that they cannot understand. Other comorbid problems include oppositional defiant disorder, conduct disorder, depression and anxiety.⁶ Clinicians evaluating children for ADHD must be familiar with the DSM-IV diagnostic criteria for these disorders or refer their patients for psychological diagnostic screening.

What other questions would you like to ask? Questions about school performance should be part of routine health supervision. The *Bright Futures*^{7,8} guidelines include suggested questions for “Developmental Surveillance and School Performance” during all middle childhood visits.

Emily should have a complete medical, developmental, educational, and psychosocial history. ADHD may be over-diagnosed when clinicians rely solely on parent and teacher complaints, and do not conduct a thorough assessment.⁹ Given the rather subjective diagnostic criteria of ADHD, nothing is more important than the clinical history. Parent history should include questions regarding prenatal exposure to tobacco, alcohol, or other drugs, and complications during the delivery or immediate postnatal period. History of the child’s early developmental milestones, particularly language and temperament, may reveal important clues. Recurrent bouts of otitis media during the preschool years may suggest hearing impairment, and history of any disease that is known to affect the central nervous system is important (e.g., meningitis, encephalitis, lupus, plumbism, head injury).² Educational history can be taken from parents, but review of report cards is also helpful despite their lack of objective criteria. Teachers may record comments about classroom behavior and motivation that are revealing.⁶ Family medical history may provide important clues to conditions such as Tourette's disorder. Clinicians should also ask about parents' physical and mental health, level of education, occupation and employment, and assess the parents’ view of the child. Questions such as "What do you see as Emily's greatest strengths?" or "What are Emily's most significant weaknesses?" may provide important clues to underlying parent-child interaction problems. Parents who have difficulty identifying strengths may have a negative view of their child, contributing to poor motivation and acting-out behaviors. Clinicians should also inquire about siblings and any other individuals living in the home, and try to identify potential stressors (e.g., recent/impending divorce, financial difficulties, or dangerous neighborhood) that may be affecting the child's ability to concentrate on schoolwork. Parents can also provide information about peer relationships. Does their son/daughter have a peer group of friends at school, or is he/she socially isolated? Is he/she invited to parties at others' homes? Do they have friends visit at their home? What kind of activities does the peer group engage in? Lastly, current performance in school must be carefully assessed. Direct communications from teachers are most helpful. What are the child’s particular academic strengths and weaknesses? Are there ongoing behavioral problems?

What other evaluations are indicated? A careful and complete physical examination should be performed. Any chronic medical illness may cause school absences, discomfort or poor attention in class. Height, weight, and head circumference should be measured. Vital signs should be recorded. Examination of the face, hands, and general appearance can reveal dysmorphism, associated with chromosomal syndromes known to affect learning or cognition. The skin should be inspected for café-au-lait spots or other manifestations of a neurocutaneous disorder. Vision and hearing should be assessed, and formally tested unless recently done. A complete neurological examination should be performed. Asymmetry in cranial nerves, muscle strength, or other "hard" neurological signs may indicate degenerative CNS disease or a space-occupying lesion, although these are unusual causes of inattention. On the other hand, soft neurological signs, such as synkinesia or poor coordination, may suggest either ADHD or a learning disability.

Under federal law, every child is entitled to an evaluation (which may include educational and psychological testing) by the public school system at no charge. If special learning needs are identified, the student is entitled to an individualized educational plan (IEP), which outlines the child's learning profile and specific services that the school will provide. Mrs. Bishop should be instructed to request such an evaluation as soon as possible, and to list you as the clinician that will perform the medical assessment. You may decide to actually attend school conferences and IEP planning sessions, or you may just elect to receive a copy of all reports. You may elect to refer Emily for further testing in a multidisciplinary clinic or to a specific specialist based on the findings of the school evaluation, the family's preference, and the guidelines of their insurance plan.

What is your plan for follow-up? Emily should return to your office after the school-based evaluation so that you can review the results, complete your assessment, and discuss treatment.

Distribute Part II of the case and have participant(s) read it aloud.

Part II

You have Emily and her parents return for an appointment following her school evaluation. You elicit further family and social history. Emily's parents have been married for 10 years. They are both moderately obese but have no other known medical problems. They both deny any history of alcohol or drug abuse. Mrs. Bishop has been on an antidepressant medication for the past six months. She reports her own mother, whom Emily is very close to, is seriously ill. Mr. Bishop attended two years of college and is working as a custom home builder. Mrs. Bishop has a college degree and is currently taking evening classes in business administration. Neither parent recalls having significant learning or behavior problems when they were in school. Emily is an only child.

You ask about her earlier school experiences. They report "*Emily's nursery school teacher told us that she just couldn't sit still. Her kindergarten teacher said she was socially immature and wanted her to repeat the year.*"

You review the report from the school and see that all examiners were concerned about Emily's ability to pay attention. The psychologist's report states that her IQ test scores were in the average range, with

variability among sub-test scores. Achievement testing indicates that she is just slightly behind in her early reading and math skills.

In keeping with the *Bright Futures* guidelines, you ask Emily to tell you about her friends.

"Some of the kids at my school are mean to me," she replies. Mrs. Bishop interrupts to tell you that Emily doesn't get invited to play at homes of other children. "I think they get annoyed with her behavior," she adds.

Then you ask Emily, "How are things going in school? What things are you best at?"

"I just like lunch and Miss Penny," she replies.

"Is Miss Penny your teacher?" you ask.

"Of course not, silly!" she replies, "Miss Penny is our class hamster. She runs around and around in that little wheel and I just love to watch her. Sometimes it gets me in trouble."

"Maybe we could have Miss Penny's cage moved to the back of the room," you suggest.

"Oh, they already thought of that," Emily says sadly. "But I could still hear the wheel turning, and I just had to get up and go take a look."

Do you need further information to help you decide if Emily has ADHD? The observations of Emily's parents and teachers are suggestive of ADHD. To make a more definitive diagnosis, however, the clinician should obtain and review attentional questionnaires (e.g., Child Attention Profile,¹⁰ Conner's Abbreviated Symptom Questionnaire,¹¹ Vanderbilt Attention Deficit Teacher Rating Scale,¹² Achenbach Child Behavior Checklist¹³) completed by Emily's teacher, and review the results of any testing done as part of the school-based evaluation. (For a more complete discussion of interpretation of educational and psychological testing, please refer to "The Tale of Tommy's Testing" case.) Other causes of inattention should be excluded. Hearing, vision, and neurological examination are normal. There is no evidence of cognitive impairment. However, Emily's history suggests that she is having significant difficulty with peer relationships and the possibility of a problem with self-esteem or depression should be explored. You need to explore further the potential impact of her grandmother's illness on her current functioning. Distinguishing mild Learning Disorders (LDs) from ADHD is difficult, particularly as children with LDs may have secondary inattention and a significant number of children with ADHD have co-morbid learning problems.¹⁴ In all cases, children with either ADHD or LD should be followed over time and periodically re-evaluated.

Distribute Handout #1a and #1b: ADHD Rating Scale and Scoring sheet before Medication. Allow participants to discuss their interpretation.

Scoring: Not true = 0; Somewhat or sometimes true = 1; Very or often true = 2.

- **Total Score** is sum of all 12 items (range: 0-24).
Upper limit of normal range (93rd percentile): 15 for boys; 11 for girls.
- **Inattention score** is the sum of items 1, 2, 5, 7, 9, 10 and 12 (range: 0-14).
Upper limit of normal range (93rd percentile): 9 for boys; 7 for girls.
- **Overactivity score** is the sum of items 3, 4, 6, 8, and 11 (range: 0-10).
Upper limit of normal range (93rd percentile): 6 for boys; 5 for girls.

This pre-treatment rating shows that Emily has significant problems (**Emily's total morning score = 20**, inattention = 12, overactivity = 8; **total afternoon score = 22**, inattention = 13, overactivity = 9). Given this result, school testing, and the pervasive nature of Emily's symptoms (impacting school, home, and peer relationships), the diagnosis of ADHD is likely correct.

What recommendations will you present to Mrs. Bishop? Describe at least three components (i.e., educational, psychological, medical).

You should review recommendations made by the school and actively communicate with teachers, school psychologists and special educators whenever possible. Emily should have *educational accommodations* made within the regular classroom (preferential seating, frequent teacher redirection to task) and *remedial help* by a resource room teacher if she is behind grade level in specific academic skills. She should also receive behavioral and organizational *counseling*. She may need further assessment by a mental health provider to address your concerns about her social and emotional adjustment.

You may also consider a trial of stimulant medication. Parents should be fully informed regarding potential risks and benefits of such a trial. The potential benefits include improvement in symptoms of inattention, distractibility, impulsivity and hyperactivity. Potential risks are for the most part immediately apparent and readily reversible. They include headache, dysphoria, upset stomach, loss of appetite, and sleeplessness.¹⁵ Clinicians should advise parents to give an initial dose of medication on a non-school (i.e., weekend) day, to minimize the impact of a side effect should one appear. Stimulants are unlikely to suppress growth.¹⁶ Tics, however, are a more significant potential side effect. While they occur in a small percentage of patients and are usually transient, they can become chronic.¹⁷ The stimulant medications methylphenidate and dextroamphetamine are the first line drugs for attentional disorders and are effective in 70% of children.¹⁸ Individual children may respond differently to each. Try both before declaring treatment failure.¹⁹ Long-acting preparations (Dexedrine, Ritalin SR, Concerta) may be associated with improved compliance. *Maximal learning may occur at a lower dosage than that which provides the most improvement in behavior.* Dosages for children 6 years and older are:

- Methylphenidate: 0.6-2.1 mg/kg/day divided into 2-3 doses. Available in 5 mg, 10 mg, 20 mg tablets, and 20 mg sustained release (SR).
- Dextroamphetamine: 0.3-1.5 mg/kg/day divided into 2-3 doses. Available in 5 mg tablets, and sustained release 5 mg, 10 mg, and 15 mg spansules, providing the greatest flexibility in SR dosing among stimulant medications. A new form (Adderall) includes a mixture of both amphetamine and dextroamphetamine in strengths of 5, 10, 20, and 30 mg.

Pre-adolescent students who primarily manifest symptoms of inattention may be started on a single 5-mg spansule of dextroamphetamine or 10-mg tablet of methylphenidate taken with or just after breakfast. These children need not necessarily take medication after school, or on non-school days, weekends, and holidays. On the other hand, children

who are impulsive and hyperactive may need to take medication after school and every day to avoid behavior problems and social difficulties. Adolescents, because they are more likely to spend several hours after school and on weekends completing homework, should be started on somewhat higher doses (e.g., dextroamphetamine 10 mg spansule before school, 5 mg tablet after school). After instituting stimulant medication at the above-mentioned doses, modest increases may be needed. Once a therapeutic dose has been found for an individual patient, it is likely to remain stable over time. The single exception to this is puberty. Due to the rapid acceleration in physical growth, an adjustment in dose is very often required. Otherwise, there tends to be a "threshold" effect of stimulant drugs at fairly moderate doses.²⁰ Increases thus provide little additional benefit, but make side effects more likely. Clinicians should therefore resist the temptation to escalate dosages, and carefully reconsider the accuracy of the ADHD diagnosis when pharmacologic treatment seems to be ineffective. They should also counsel the patient, parents, and teachers that inconsistency is a typical feature of ADHD, and variability in treatment response is to be expected. When parents or teachers request increases in medication, the clinician should carefully assess the reasons for the request and whether or not other influential factors may have changed (e.g., a new teacher, a recent move). What do they see as the target symptom? Antisocial behaviors such as lying, stealing, or fighting may signal a co-morbid diagnosis and are unlikely to respond to stimulant medications.

Pemoline, tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRI's), and clonidine are second or third line choices. Primary care providers may wish to obtain a psychopharmacology consultation before using them. Recent reports of hepatic toxicity associated with pemoline have greatly reduced use of this drug, and liver function studies should be obtained at baseline and retested periodically whenever it is used.¹⁵

How will you monitor the success or failure of a trial of stimulant medication?

Teacher questionnaires or telephone contacts are often the best source of information concerning medication response in younger children. When using questionnaires, be sure to obtain a baseline before medication and then repeat after several weeks. When medication doses are changed, follow-up questionnaires should be administered to obtain objective evidence of effect. Stimulant trials should be implemented during a period of relative stability in school (i.e., not in September, June, or just before vacations).

Distribute Handout #2a and #2b: ADHD Rating Scale and Scoring sheet after Medication. Allow participants to discuss their interpretation. This post-treatment rating shows that Emily has significantly improved in a number of areas, although some symptoms still remain (Total morning score = 9; total afternoon score = 8).

Distribute Handout #3, the Bibliography page and Epilogue. Ask someone to read the Epilogue aloud.

Epilogue

Emily is given extra help at school in math and reading. She is started on Dexedrine, one 10-mg. spansule each morning. Her attention and behavior at school improve as measured by ADHD rating scales. By the end of the academic year, she is working at grade level in all areas. Emily and her mother continue to have trouble getting along at home, however. Mrs. Bishop resists counseling at first, but finally agrees to see a psychologist who has experience in working with families affected by ADHD. The school enrolls Emily in a weekly "Friendship Group" in which, with two or three other girls, she works on social skills with the assistance of the school guidance counselor.

Refer back to group's learning agenda and summarize the key teaching points that were made. This will give the group a sense of accomplishment, and emphasize the important messages. Suggest further sources of reading or other information if there are agenda items that were not covered in the discussion.

Independent Learning/Prevention Exercise: Facilitators may wish to assign "Independent Learning/Prevention Exercises" to the group, particularly if time constraints hinder the completion of the case. The following list includes suggestions to explore the available community resources that focus on Attention-Deficit/Hyperactivity Disorder, as well as other areas of pertinent interest that can be integrated during or after the session. If the exercise is done in the absence of the facilitator, learners should take notes on their experience, then discuss with a faculty member for feedback.

1. Explore the available community resources that focus on Attention Deficit/Hyperactivity Disorder
2. Talk with a special education teacher about classroom accommodations and organizational help for children with ADHD

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Part I

Emily is a 7-year-old girl who is in first grade. Mrs. Bishop brings her daughter to your clinic because *"she's not doing well in school."* When asked to provide more detail, she relates that Emily is disruptive in class and has trouble with both reading and math. Her teachers believe the problem is behavioral, that Emily *"could do better if she wanted to."* As proof, they cite her inconsistent performance; some days her work is outstanding, while other days she just doesn't seem to care.

"And how are things going at home?" you ask.

Mrs. Bishop says, *"Emily and I fight with each other all the time. I think she has some kind of a problem. She's just like my brother. He needed to take pills to calm him down when he was her age."*

Emily is a slightly obese girl with a generally sad facial expression. You try asking her a few questions, but she is difficult to engage. She interrupts your conversation with Mrs. Bishop several times, at one point asking, *"So where do you think it's going?"*

You are quite puzzled by this question and tell her, *"I'm sorry, Emily, but I am not sure what you are talking about. Where is what going?"*

"The fire engine, silly," she replies.

At this point, as you listen intently, you are able to hear a siren far in the distance.

Emily has never been hospitalized and has had no surgery. Audiometry was normal at age 5. Family history is positive for her maternal uncle who her mother says *"was ADD"* and a maternal grandfather who was *"a heavy drinker."* Her growth and development have been normal.

Physical examination, including a careful neurological exam and vision testing, is normal. During the exam, you become alarmed that Emily will destroy your blood pressure cuff by excessively inflating it. You are able to redirect her from this activity only with considerable effort.

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In keeping with the *Bright Futures* guidelines, you ask Emily to tell you about her friends. *“Some of the kids at my school are mean to me,”* she replies. Mrs. Bishop interrupts to tell you that Emily doesn't get invited to play at homes of other children. *“I think they get annoyed with her behavior,”* she adds.

Then you ask Emily, *“How are things going in school? What things are you best at?”* *“I just like lunch and Miss Penny,”* she replies.

“Is Miss Penny your teacher?” you ask.

“Of course not, silly!” she replies, *“Miss Penny is our class hamster. She runs around and around in that little wheel and I just love to watch her. Sometimes it gets me in trouble.”*

“Maybe we could have Miss Penny’s cage moved to the back of the room,” you suggest. *“Oh, they already thought of that,”* Emily says sadly. *“But I could still hear the wheel turning, and I just had to get up and go take a look.”*

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Epilogue

Emily is given extra help at school in math and reading. She is started on Dexedrine, one 10-mg. capsule each morning. Her attention and behavior at school improve as measured by ADHD rating scales. By the end of the academic year, she is working at grade level in all areas. Emily and her mother continue to have trouble getting along at home, however. Mrs. Bishop resists counseling at first, but finally agrees to see a psychologist who has experience in working with families affected by ADHD. The school enrolls Emily in a weekly "Friendship Group" in which, with two or three other girls, she works on social skills with the assistance of the school guidance counselor.

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Handout #1a: Attention Profile—Before Medication

Please complete once a week

Child's name: Emily Bishop
 Completed by: Miss Rose

Today's date: _____
 Medication: _____

Below is a list of items that describe pupils. Rate each item that describes the pupil *now* or *within the last week* as follows:

0 = Not true

1 = Somewhat or Sometimes True

2 = Very or Often True

Morning			
1. Fails to finish things he/she starts.....	0	1	(2)
2. Can't concentrate, can't pay attention for long.....	0	1	(2)
3. Can't sit still, restless, or hyperactive	0	(1)	2
4. Fidgets	0	1	(2)
5. Daydreams or gets lost in his/her thoughts.....	0	(1)	2
6. Impulsive, or acts without thinking	0	(1)	2
7. Difficulty following directions.....	0	1	(2)
8. Talks out of turn	0	1	(2)
9. Messy.....	0	1	(2)
10. Inattentive, easily distracted.....	0	1	(2)
11. Talks too much.....	0	1	(2)
12. Fails to carry out assigned tasks	0	(1)	2

Afternoon			
1. Fails to finish things he/she starts.....	0	1	(2)
2. Can't concentrate, can't pay attention for long.....	0	1	(2)
3. Can't sit still, restless, or hyperactive.....	0	(1)	2
4. Fidgets.....	0	1	(2)
5. Daydreams or gets lost in his/her thoughts.....	0	1	(2)
6. Impulsive, or acts without thinking.....	0	1	(2)
7. Difficulty following directions	0	1	(2)
8. Talks out of turn	0	1	(2)
9. Messy.....	0	1	(2)
10. Inattentive, easily distracted	0	1	(2)
11. Talks too much	0	1	(2)
12. Fails to carry out assigned tasks	0	(1)	2

Additional Comments:

*Emily talks constantly. Her work is very messy.
 Her effort is much less than it could be.*

The Restless Pupil

Handout #1b: Attention Profile Scoring Before Medication

Morning

	Inattention	Overactivity	
1.	2		
2.	2		
3.		1	
4.		2	
5.	1		
6.		1	
7.	2		
8.		2	
9.	2		
10.	2		
11.		2	
12.	1		Total
Raw	12	8	20
Pct	98	98	

Afternoon

	Inattention	Overactivity	
1.	2		
2.	2		
3.		1	
4.		2	
5.	2		
6.		2	
7.	2		
8.		2	
9.	2		
10.	2		
11.		2	
12.	1		Total
Raw	13	9	22
Pct	98	98	

Inattention

	All	Boys	Girls
Median	1	2	0
69th %	3	4	2
84th %	6	7	5
93rd %	8	9	7
98th %	11	12	10

Overactivity

	All	Boys	Girls
Median	0	1	0
69th %	1	2	1
84th %	4	4	2
93rd %	6	6	5
98th %	8	8	7

Total Score

	All	Boys	Girls
Median	2	4	1
69th %	6	7	4
84th %	10	11	8
93rd %	14	15	11
98th %	19	20	16

The Restless Pupil

Handout #2a: Attention Profile—After Medication

Please complete once a week

Child's name: Emily Bishop
 Completed by: Miss Rose

Today's date: _____
 Medication: Dexedrine 10mg

Below is a list of items that describe pupils. Rate each item that describes the pupil *now* or *within the last week* as follows:

0 = Not true

1 = Somewhat or Sometimes True

2 = Very or Often True

- | Morning | | | |
|---|----------|----------|----------|
| 1. Fails to finish things he/she starts..... | 0 | <u>1</u> | 2 |
| 2. Can't concentrate, can't pay attention for long..... | 0 | <u>1</u> | 2 |
| 3. Can't sit still, restless, or hyperactive..... | <u>0</u> | 1 | 2 |
| 4. Fidgets..... | 0 | <u>1</u> | 2 |
| 5. Daydreams or gets lost in his/her thoughts..... | <u>0</u> | 1 | 2 |
| 6. Impulsive, or acts without thinking..... | 0 | <u>1</u> | 2 |
| 7. Difficulty following directions..... | 0 | <u>1</u> | 2 |
| 8. Talks out of turn..... | 0 | <u>1</u> | 2 |
| 9. Messy..... | <u>0</u> | 1 | 2 |
| 10. Inattentive, easily distracted..... | 0 | <u>1</u> | 2 |
| 11. Talks too much..... | 0 | 1 | <u>2</u> |
| 12. Fails to carry out assigned tasks..... | <u>0</u> | 1 | 2 |

- | Afternoon | | | |
|---|----------|----------|---|
| 1. Fails to finish things he/she starts..... | 0 | <u>1</u> | 2 |
| 2. Can't concentrate, can't pay attention for long..... | 0 | <u>1</u> | 2 |
| 3. Can't sit still, restless, or hyperactive..... | <u>0</u> | 1 | 2 |
| 4. Fidgets..... | 0 | <u>1</u> | 2 |
| 5. Daydreams or gets lost in his/her thoughts..... | <u>0</u> | 1 | 2 |
| 6. Impulsive, or acts without thinking..... | 0 | <u>1</u> | 2 |
| 7. Difficulty following directions..... | 0 | <u>1</u> | 2 |
| 8. Talks out of turn..... | 0 | <u>1</u> | 2 |
| 9. Messy..... | <u>0</u> | 1 | 2 |
| 10. Inattentive, easily distracted..... | 0 | <u>1</u> | 2 |
| 11. Talks too much..... | 0 | <u>1</u> | 2 |
| 12. Fails to carry out assigned tasks..... | <u>0</u> | 1 | 2 |

Additional Comments:

Emily is still chatty during class
 but her work is much better!

The Restless Pupil
Handout #2b: Attention Profile Scoring After Medication

Morning

	Inattention	Overactivity	
1.	1		
2.	1		
3.		0	
4.		1	
5.	0		
6.		1	
7.	1		
8.		1	
9.	0		
10.	1		
11.		2	
12.	0		Total
Raw	4	5	9
Pct	69	93	

Afternoon

	Inattention	Overactivity	
1.	1		
2.	1		
3.		0	
4.		1	
5.	0		
6.		1	
7.	1		
8.		1	
9.	0		
10.	1		
11.		1	
12.	0		Total
Raw	4	4	8
Pct	69	84	

Inattention

	All	Boys	Girls
Median	1	2	0
69 th %	3	4	2
84 th %	6	7	5
93 rd %	8	9	7
98 th %	11	12	10

Overactivity

	All	Boys	Girls
Median	0	1	0
69 th %	1	2	1
84 th %	4	4	2
93 rd %	6	6	5
98 th %	8	8	7

Total Score

	All	Boys	Girls
Median	2	4	1
69 th %	6	7	4
84 th %	10	11	8
93 rd %	14	15	11
98 th %	19	20	16

The Restless Pupil

Handout #3: Diagnostic Criteria and Management Strategies for ADHD

Attention-Deficit/Hyperactivity Disorder

1. **Definition:** Attention deficit (with hyperactivity) disorder (ADHD) is a disorder with developmentally inappropriate inattention, impulsivity, and distractibility with or without hyperactivity occurring in 3-10% of the population.
2. **Signs and Symptoms:** The predominant symptoms vary with age: hyperactivity in the preschooler, distractibility and impulsivity in the older child and adolescent. ADHD is often associated with other learning disabilities (particularly language based), low self-esteem, mood lability, low frustration tolerance, and temper tantrums.

Diagnostic Features of ADHD (Adapted from DSM IV)

Inattention:

- Fails to give close attention to details, makes careless errors
- Difficulty sustaining attention in work or play
- Doesn't seem to listen
- Cannot follow instructions, fails to complete work
- Has difficulty organizing tasks and activities
- Avoids tasks that require concentration (schoolwork)
- Loses things needed for tasks and activities (books, assignments)
- Easily distracted by extraneous stimuli
- Forgetful in daily activities

Hyperactivity-Impulsivity:

- Fidgets and/or squirms in seat
- Leaves seat in classroom
- Runs about or climbs when inappropriate to do so
- Has difficulty playing quietly
- Always "on the go" or acts as if "driven by a motor"
- Talks excessively
- Blurts out answers before questions have been completed
- Has difficulty awaiting turn
- Interrupts or intrudes on others

To make a diagnosis of ADHD, some symptoms should have been present before age 7 years, and impairment should be apparent in two or more settings (e.g., home and school). There must be clear evidence of significant impairment in function and symptoms should not be explainable on the basis of another mental disorder (e.g., Autism). A child should have 6 or more symptoms of inattention, hyperactivity-impulsivity, or both (mixed type) for a period of at least six months to meet diagnostic criteria.

***Adapted from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington DC: American Psychiatric Association, 1994.*

3. **Evaluation and diagnosis:** Distinguish from inattention secondary to sensory deficits (vision or hearing), language disorders, learning disability, mental retardation, PDD, emotional stress (i.e., depression, anxiety, neglect), seizures, sleep disorders, illicit drug use, age appropriate overactivity (i.e., active, but not haphazard or poorly organized behavior). However, ADHD may coexist with any of these problems.
 - a. **History:** Obtain a full developmental and school history with parent and teacher questionnaires. Symptoms may be less prominent in a novel and structured environment like the clinician's office.
 - b. **Physical examination:** Check for "soft neurological signs" (synkinesia, stress gait posturing, choreiform movement, incoordination, motor overflow), screen vision and hearing. Tics or tremors may indicate ADHD associated with Tourette's Syndrome.
 - c. **Other examination:** Consider educational or neurodevelopmental testing, and psychiatric assessment if indicated.
4. **Treatment:** Treatment must be a combination of educational strategies, counseling and medication. Explanation of the disorder is essential as much of the child's behavior may be wrongly attributed to laziness or willfulness by parents and teachers.
5. **Medication:** Inform parents of potential risks and benefits.
 - a. **Benefits:** Improvement in symptoms of inattention, distractibility, impulsivity and hyperactivity. Psychostimulant medications are the first line drugs for attentional disorders and are effective in 70% of children.
 - b. **Risks:** Headache, dysphoria, upset stomach, loss of appetite, and sleeplessness. Stimulants are unlikely to suppress growth. Tics occur in a small percentage of patients and are usually transient, but can become chronic.
 - c. **General Principles:** Advise parents to give the initial dose of medication on a non-school (i.e., weekend) day, to minimize the impact of a side effect should one appear. Individual children may respond differently to the various stimulants. Try all before declaring treatment failure. Long-acting preparations (Dexedrine, Ritalin SR, Concerta) are associated with improved compliance. *Maximal learning may occur at a lower dosage than that which provides the most improvement in behavior.* Once a therapeutic dose has been found for an individual patient, it is likely to remain stable over time. Increases over the "therapeutic threshold" provide little additional benefit, but make side effects more likely. Resist the temptation to escalate dosages, and carefully reassess the child when pharmacologic treatment seems to be ineffective.
 - d. **Dosages:** (children 6 years and older)
 - Methylphenidate: 0.6-2.1 mg/kg/day divided into 2-3 doses. Usual starting dose is 5 or 10 mg BID. Available in 5 mg, 10 mg, 20 mg tablets, and 20 mg sustained release (SR).
 - Dextroamphetamine: 0.30-1.5 mg/kg/day divided into 2-3 doses. Usual starting dose is 5 mg BID. Available in 5 mg tablets, and sustained release 5 mg, 10 mg, and 15 mg, providing the greatest flexibility in SR dosing of all three stimulant medications. A new form (Adderall) includes a mixture of both amphetamine and dextroamphetamine in strengths of 5, 10, 20, and 30 mg.
 - e. **Other Medicines:** *Pemoline*, *tricyclic antidepressants*, *selective serotonin reuptake inhibitors* (SSRI's), and *clonidine* are second/third line choices. Clinicians may wish to obtain a psychopharmacology consultation before using them.

The Restless Pupil

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Suggested Readings (Annotated):

Levy HB, Harper CR, Weinberg WA. A practical approach to children failing in school. *Pediatric Clinics of North America* 1992;39(4):895-928. This article provides an extensive discussion of school failure and learning difficulties. There is a detailed guide to history and evaluation tools. Specific strategies are given for problems ranging from specific learning disorder to psychiatric problems, including psychopharmacological management.

McInerney TK. Children who have difficulty in school: A primary pediatrician's approach. *Pediatrics in Review* 1995;16(9):325-32. This article presents a comprehensive overview of management of school failure in primary care office practice. It includes a discussion of the etiologies, a guide to diagnosis, a list of commonly used tests, and clinician's guide to management strategies.

Culbert TP, Banez GA, Reiff MI. Children Who Have Attentional Disorders: Diagnosis and Evaluation. *Pediatrics in Review* 1993;14(12):455-464, and Culbert TP, Banez GA, Reiff MI. Children Who Have Attentional Disorders: Intervention. *Pediatrics in Review* 1994;15(1):5-14. This two part review article provides a detailed discussion of the presenting symptoms, differential diagnosis, etiology, and clinical management of Attentional Disorders in children.

American Academy of Pediatrics Committee on Quality Improvement, Subcommittee on Attention-Deficit Hyperactivity Disorder. Clinical practice guideline: Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. *Pediatrics* 2000;105:1158-70. This article provides an updated overview and clinical practice guideline for the diagnosis and management of children with ADHD.

Educational Resources on the World Wide Web:

Attention Deficits: What Teachers Should Know
<http://www.dbpeds.org/articles/101tips.html>

Wolraich ML: *Defining ADHD in Children and Adults: A Multidimensional Overview*
<http://pbirg.com/Discovery/unsecure/adhd2/2-3.html>

Development and Behavior home page: <http://www.dbpeds.org>

American Academy of Child and Adolescent Psychiatry-Facts for Families. This site provides access to the AACAP's award winning "Facts for Families" pamphlet series on various developmental topics. The information sheet entitled "Children Who Can't Pay Attention" is #6.
<http://www.aacap.org/publications/factsfam/index.htm>