

JCP

V I S U A L S

JOURNAL OF CLINICAL PSYCHIATRY

THIS ISSUE OF JCP VISUALS DISCUSSES THE POTENTIAL OUTCOMES, ASSESSMENT, AND TREATMENT OF FUNCTIONAL IMPAIRMENTS ASSOCIATED WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) IN CHILDREN AND ADOLESCENTS.

To obtain credit, read the material and complete the CME/CE Posttest and Registration Form.

CME OBJECTIVES

After completing this educational activity, participants should be able to:

- Define functional impairment related to ADHD in home, school, social, and self domains
- Use nonpharmacologic and pharmacologic treatments for functional impairments in ADHD

CE OBJECTIVES

After completing this educational activity, participants should be able to:

- Describe the physical symptoms of ADHD
- Discuss the goal of therapy in terms of relief of functional impairments

FACULTY

Chair, **Rakesh Jain, M.D., M.P.H.**, Department of Psychiatry and Behavioral Sciences, University of Texas Medical School, Houston, and Director of Psychopharmacology Research, R/D Clinical Research, Inc., Lake Jackson, Tex.; **David A. Duesenberg, M.D.**, Mercy Health Research and St. Louis University School of Medicine, Mo.; **Craig L. Donnelly, M.D.**, Department of Psychiatry, Dartmouth Medical School, Lebanon, N.H.

SUPPORTED BY AN UNRESTRICTED EDUCATIONAL GRANT FROM ELI LILLY AND COMPANY.

■ Functional Outcomes in Children and Adolescents With Attention-Deficit/Hyperactivity Disorder

RAKESH JAIN, M.D.

Medicine has made great strides in its understanding of the neurobehavioral psychiatric condition attention-deficit/hyperactivity disorder (ADHD). Most recently, recognition has been paid to the importance of functional impairments and outcomes. Functional impairments should be considered a prologue for the functional outcomes that may have lifelong negative implications for people with ADHD. Since much attention is given to the core symptoms of ADHD, the first task of clinicians is to educate patients with ADHD and their parents about functional impairments, which are how core symptoms are exhibited in daily activities, and their potential outcomes. Next, clinicians must assess and treat, with either nonpharmacologic or pharmacologic interventions, the functional impairments. By controlling all ADHD symptoms early in the course of illness, the success that an individual with ADHD can have over a lifetime is optimized.

■ Manifestation of Functional Impairments and Outcomes Across Domains

DAVID A. DUESENBERG, M.D.

Functional impairments are the manifestation of the core symptoms of ADHD—inattention, hyperactivity, and impulsivity—during the course of a day. They may also be thought of as the inability to meet obligations or complete tasks, such as routine activities as well as large projects, in a developmentally appropriate manner. Unfortunately, these impairments are not well understood by individuals with ADHD, their parents, and perhaps even their physicians and are often viewed as character defects instead of part of the disorder. Although functional impairments are most associated with the school domain, the symptoms of ADHD have a negative impact on home, self, and social domains as well.

■ Functional Impairments and Outcomes at School

Often the functional impairments young people with ADHD experience in school are what bring them to their clinician's office in the first place. In an environment like that of the classroom, where students are expected to pay attention, sit in desks, and complete tasks, individuals are impaired by the symptoms of inattentiveness, hyperactivity, and impulsiveness. Consequently, children and adolescents with ADHD are unable to fully meet their academic objectives. They may be disciplined for disruptive behavior, require tutoring, fail to keep up with peers, and, as they reach high school, drop out of school altogether.

Symptom	Impairment	Outcome
Inattention	Unable to follow directions, schoolwork is messy and contains careless mistakes	Falls behind in school, receives failing grades
Hyperactive	Fidgets at desk, walks and moves around classroom when should be seated	Reprimanded and disciplined for disruptive behavior
Impulsivity	Blurts out answer prematurely, talks at inappropriate times	Does not fully learn lesson, disciplined for behavior

■ Functional Impairments and Outcomes at Home

At home, the entire family unit is affected by ADHD. Parents may believe they have poor parenting skills because their child does not appear to listen or behave. Siblings may resent their brother or sister for being disruptive or requiring much of the parents' attention. Meanwhile, individuals with ADHD find themselves not only in conflict with their family but also causing accidents and becoming injured as a result of their ADHD symptoms.

Symptom	Impairment	Outcome
Inattention	Loses things, room is messy	Discipline problems
Hyperactive	Disrupts mealtimes by running around table; excessively noisy and/or rambunctious at play	Conflict with parents and siblings
Impulsivity	Engages in risk-taking or destructive behavior	Accidents, injuries to self or others

■ Functional Impairments and Outcomes in Social Life

Children and adolescents who struggle in school and have a home environment in which they are constantly disciplined can have difficulty forming and maintaining relationships with peers. Individuals with ADHD tend to be disruptive or aggressive, which often leads to rejection by their peers.

Symptom	Impairment	Outcome
Inattention	Unable to follow rules or distracted	Not invited to participate in games or sports
Hyperactive	Excessively talkative, aggressive	Disrupts games, causes fights
Impulsivity	Cannot wait for turn; breaks plans	Shunned by peers; considered unreliable

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Statement of Need and Purpose

Attention-deficit/hyperactivity disorder (ADHD) affects the domains of the home, the social, the school, and the self. ADHD, which is one of the most frequently diagnosed disorders in children and often persists into adolescents and adulthood, is associated with a variety of functional impairments that lead to poor social, educational, and occupational outcomes. This activity was designed to meet the needs of participants in CME activities provided by Physicians Postgraduate Press, Inc. who have requested information on functional outcomes in children and adolescents with ADHD. There are no prerequisites for participating in this activity.

Accreditation Statement

Physicians Postgraduate Press, Inc. is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation

Physicians Postgraduate Press, Inc. designates this educational activity for up to 1 Category 1 credit toward the AMA Physician's Recognition Award. Each participant should claim only those credits that he/she actually spent in the educational activity.

Date of Original Release/Review

This *JCP Visuals* was published in July 2003 and is eligible for CME credit through July 31, 2005. The latest review of this material was June 2003.

Faculty Disclosure

In the spirit of full disclosure and in compliance with all ACCME Essential Areas and Policies, the faculty for this CME activity were asked to complete a full disclosure statement. The information received is as follows: *Dr. Jain* is a consultant for Eli Lilly and GlaxoSmithKline; has received grant/research support from Wyeth, GlaxoSmithKline, Eli Lilly, and Merck; has received honoraria from Wyeth, GlaxoSmithKline, and Eli Lilly; and is a member of the speakers/advisory board for Eli Lilly; *Dr. Duesenberg* is a consultant for and has received honoraria from Eli Lilly and Shire Richwood; has received grant/research support from Eli Lilly, Shire Richwood, Novartis, and Johnson & Johnson; and is a member of the speakers/advisory boards for Eli Lilly, Shire Richwood, and Forest; and *Dr. Donnelly* is an employee of Dartmouth Medical School; is a consultant for Eli Lilly and Pfizer; has received grant/research support from Janssen, Pfizer, and Eli Lilly; has received honoraria from GlaxoSmithKline and AstraZeneca; and is a member of the speakers/advisory boards for Eli Lilly, Pfizer, Janssen, and GlaxoSmithKline.

Disclosure of Off-Label Usage

To the best of his knowledge, Dr. Jain has determined that bupropion, clonidine, desipramine, guanfacine, and imipramine are not approved by the U.S. Food and

Drug Administration for the treatment of attention-deficit/hyperactivity disorder. If you have questions, contact the medical affairs department of the manufacturer for the most recent prescribing information.

Acknowledgment

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Editor Rakesh Jain, M.D.

Project Manager Elizabeth Boone, M.F.A.

CME Director Jane B. Eckstein, M.A.

Asst. CME Director Becky Brown Derych, M.A.

CME Coordinator Diane Brunner

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■ Functional Impairments and Outcomes in Self-Concept

Negative input from teachers, family, and peers erodes self-esteem. Individuals with ADHD frequently feel rejected and unloved. Difficulty with schoolwork and an inability to complete tasks can cause these young people to view themselves as unintelligent and to lack self-confidence. An impaired sense of self often leads to self-destructive behavior.

Symptom	Impairment	Outcome
Inattention	Lacks self-confidence, views self as unintelligent	Limited ambition, drops out of school
Hyperactive	Feels unloved and rejected	Substance abuse, unstable relationships
Impulsivity	Causes trouble, reckless behavior	Problems with police, self-harm

■ Sex and Development in Functional Impairments and Outcomes

Functional impairments vary by sex and developmental stage. The core symptoms are associated with different impairments, so patients diagnosed with the primarily inattentive subtype, a diagnosis twice as likely to be made in girls than boys, may have fewer impairments associated with hyperactivity and impulsivity.

As children age, their worlds broaden: they take on more responsibility, mature sexually, and become more independent.

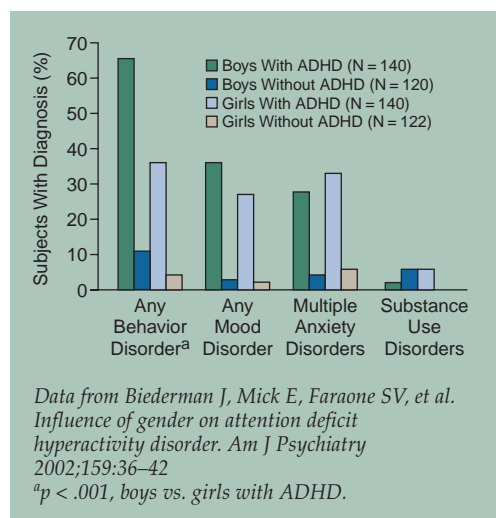
Symptom	Impairment in Child	Outcome in Adolescent
Inattention	Is unmindful of other people/situations	Driving violations/accidents
Hyperactivity	Disrupts routine at home	Strained relationship with family
Impulsivity	Fails to consider consequences	Unplanned pregnancy and sexually transmitted disease

Unsurprisingly, as children with ADHD develop, the functional impairments associated with core ADHD symptoms

change. By adolescence, the functional outcomes associated with childhood impairments have begun to appear.

■ Function and Comorbid Disorders

Comorbid disorders, which children and adolescents with ADHD have at higher rate than their peers without ADHD, confound ADHD core symptoms and their effects on function. Pooled data show that boys and girls (6–17 years) with ADHD have similar psychiatric comorbidity profiles. ■



■ Assessing and Treating Functional Impairments

CRAIG L. DONNELLY, M.D.

Practitioners are faced with the challenge of explaining the biological basis of ADHD to patients and their parents in such a way that patients and parents understand that biology affects real life activities throughout the day. Once patients and their parents are aware of how the core symptoms are exhibited as functional impairments, the practitioner, through assessment, can help them identify specific individual impairments and then target those impairments for treatment.

■ Approaching Functional Impairments

When identifying functional impairments in patients with ADHD, physicians should first approach impairments from a developmental perspective; the different tasks of developmental stages mean impairments will differ, too. Next, domains of functioning are evaluated in terms of how impairment affects the individual child. Finally, symptom domains are assessed to determine how they are affected by functional impairments.

Development

Is the patient

- a preschooler?
- a child?
- an adolescent?

Domains of Functioning

Are impairments occurring

- in school?
- at home?
- in social settings?
- in self?

Symptom Domains

Are impairments the result of

- inattention?
- hyperactivity?
- impulsiveness?

■ Asking About Impairments

Once ADHD core symptoms have improved, clinicians should continue to query patients and their parents about impairments. Knowing how and what to ask about impairments is essential to getting useful answers, especially when brief office visits may limit questioning.

- ✓ Ask questions that are developmentally appropriate and that take into account all domains of functioning, eg, How do you feel about yourself? (to a school-age child or adolescent)
- ✓ Ask open-ended questions that make patients and their parents think about and evaluate the entire day, eg, Things would be great except for what?
- ✓ Ask questions that target areas of daily living with which impairments are frequently associated, eg, How does your child manage waking, dressing, eating, etc? How does he/she move between these activities?

■ Nonpharmacologic Interventions

Several nonpharmacologic interventions for impairment can be used by clinicians. ■

- ✓ Educate patients and parents about ADHD, its expected natural course, and the relative contributions and benefits various treatments will have on the disorder
- ✓ Provide anticipatory guidance about what patients and parents can expect as they move forward into the future with treatment
- ✓ Suggest that patients and parents consider psychosocial techniques like behavior management for ADHD to be analogous to hearing aids for deafness
- ✓ Match therapeutics with target symptoms, eg, medication for core symptoms and parent management training for oppositional behavior

■ Tools for Assessing Functional Impairments

A range of instruments are available for assessing functional impairment and quality of life. Many of these instruments are used in research and may be cumbersome for the clinician, although 2 rating scales, the Child Health Questionnaire and the Conners Parent Rating Scale-Revised short form, are helpful in the clinical setting.

Perhaps the most accurate way for a clinician to assess functional impairments and to track improvement is to devise a scale that targets the specific symptoms and goals of an individual patient. These personalized scales can be easily constructed using a 3-point Likert intensity scale and are face valid. Over time, they should be repeated to measure improvement and to determine whether treatment goals are being met.

If treatment is unsuccessful, reexamining the initial diagnostic picture may be necessary to ensure that a comorbid condition has not been missed. Diagnoses such as anxiety disorders, depression, and substance use disorders can complicate treatment response in patients with ADHD.

Rating Scales

- Child Health Questionnaire
 - ✓ Assesses functional impairment in school, social life, family, and self
- Conners Parent Rating Scale-Revised short form
 - ✓ Includes subscales that assess ADHD core symptoms
- Clinician-patient constructed scale
 - ✓ Targets individual patient's symptoms and impairments and tracks improvement in these specified areas

Other Assessment Tools

- School progress reports
 - ✓ Document behavior-related, rather than academic-related, impairments/improvements occurring in school hours
- Report cards
 - ✓ Document academic-related impairments/improvements
- Standardized tests
 - ✓ Assess patient's academic achievement and compare it with that of the peer group

■ Pharmacologic Interventions for Functional Impairments Associated With ADHD

RAKESH JAIN, M.D.

Psychopharmacology plays a critical role in helping patients and their families deal with ADHD. The triple approach of psychological, behavioral, and educational interventions should be the first-line of treatment for children and adolescents with ADHD. Only when this combination is considered to have been inadequate or is expected to be inadequate for acute treatment should pharmacologic treatment of ADHD be considered. The goals of pharmacologic interventions are to reduce the symptoms of ADHD and to improve short-term and long-term functional outcomes. Both goals must be achieved in order to consider pharmacologic treatment a complete success.

Considerable evidence from both the research and clinical arenas shows that pharmacotherapy reduces not only the core DSM-IV–defined symptoms of ADHD but also the frequently coexisting functional impairments of ADHD, such as low academic achievement, low self-esteem, oppositional behaviors, asocial behaviors, poor family interactions, and poor peer interactions. ADHD treatment, particularly stimulants, often requires polypharmacy to increase the hours of coverage and to treat side effects, such as insomnia, tics, and anxiety, that are associated with the agent used to treat ADHD.

■ Potential Advantages and Disadvantages of Stimulants and Atomoxetine

The U.S. Food and Drug Administration (FDA) has approved only agents from the stimulant class and the nonstimulant atomoxetine for the treatment of ADHD in children and adolescents. Approved agents are efficacious treatments for core ADHD symptoms and associated functional impairments.

■ Stimulant Advantages

- ✓ Rapid onset of action
- ✓ Marketed for many years
- ✓ Demonstrated efficacy in the treatment of core ADHD symptoms
- ✓ Known to improve functional outcomes in patients with ADHD

■ Stimulant Disadvantages

- ✓ Not approved for adults
- ✓ Limited hours of coverage may not include early morning, evening, and night
- ✓ Controlled, possibly addictive substances
- ✓ Possible zombie-like effects and adverse personality changes
- ✓ Side effects such as decreased appetite, possible rebound symptoms, insomnia, and tics

■ Atomoxetine Advantages

- ✓ Approved for children over 6 years and adults
- ✓ Long acting to cover symptoms in early morning, evening, and night
- ✓ Demonstrated efficacy in the treatment of core ADHD symptoms
- ✓ Known to improve functional outcomes in patients with ADHD
- ✓ Noncontrolled, nonaddictive substance
- ✓ Diminished risk of rebound symptoms, insomnia, or tics

■ Atomoxetine Disadvantages

- ✓ Slower onset of action
- ✓ New on the market
- ✓ Early, frequently transient sedation
- ✓ Decreased appetite, gastrointestinal distress

■ Improvement of Functional Impairments With Stimulant Treatment

The landmark study by the Multimodal Treatment Study of Children With ADHD (MTA) Cooperative Group makes a strong case for the pharmacologic treatment of ADHD. In the 14-month study, 579 children diagnosed with DSM-IV ADHD, combined type, aged 7 to 9.9 years, were assigned to medication, behavioral treatment, both interventions, or standard community care. Several areas associated with functional impairments were assessed in addition to ADHD core symptoms. Stimulants were found to not only reduce the core symptoms of ADHD but also improve functional impairments, which established that pharmacotherapy is a preeminent treatment for children with ADHD for whom other interventions are insufficient.

Functional Impairment	Measure and Rater	Baseline			14 mo		
		Mean Score	SD	N	Mean Score	SD	N
Aggression-ODD	ODD aggression						
	Parent	1.45	0.80	139	0.94	0.74	121
Internalizing symptoms	CO	0.014	0.025	119	0.004	0.011	108
	SSRS internalizing symptoms						
	Teacher	0.79	0.47	117	0.63	0.47	99
	Parent	0.97	0.37	137	0.67	0.39	120
Social skills	MASC						
	Child	2.48	0.49	143	2.22	0.47	125
	SSRS ^a						
	Teacher	0.83	0.31	117	1.15	0.32	99
Parent-child relations	Parent	1.01	0.24	137	1.17	0.26	120
	Power assertion						
	Parent	2.75	0.56	140	2.46	0.57	122
Academic achievement	Personal closeness ^a						
	Parent	3.58	0.49	140	3.55	0.52	122
	Child's scores						
	Reading ^b	96.1	13.7	144	97.9	14.1	124
Mathematics	97.2	12.6	144	99.7	13.0	124	
Spelling	95.2	13.1	144	96.0	14.8	124	

Adapted from The MTA Cooperative Group. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. *Arch Gen Psychiatry* 1999;56:1073-1086.

^aA higher score indicates increased ability.

^bMeasured by Wechsler Individual Achievement Test. A higher score indicates increased ability.

Abbreviations: CO = classroom observer, MASC = Multidimensional Anxiety Scale for Children, ODD = oppositional-defiant disorder, SSRS = Social Skills Rating System.

A later 4-week study by Wolraich et al. found that methylphenidate (MPH), both immediate release (IR) (N = 97) and extended release (ER) (N = 95) formulations, improved core symptoms, peer interactions, and oppositional/defiant behavior more than placebo (N = 90) in children with ADHD, all subtypes, aged 6 to 12 years.

Measure	Rater	Treatment	Mean Score			
			Baseline	SD	Study End	SD
Peer interaction ^a	Teacher	MPH ER	0.88	0.7	0.55	0.59*
		MPH IR	0.69	0.6**	0.48	0.61*
		Placebo	0.97	0.7	0.96	0.78
Oppositional/defiance ^b	Teacher	MPH ER	4.34	4.2	2.74	3.73*
		MPH IR	3.83	4.4**	2.50	3.70*
		Placebo	5.44	4.5	5.38	5.13
Oppositional/defiance ^b	Parent	MPH ER	8.15	4.4	4.91	3.93*
		MPH IR	7.34	4.0	4.98	3.81*
		Placebo	8.19	3.8	8.60	4.82

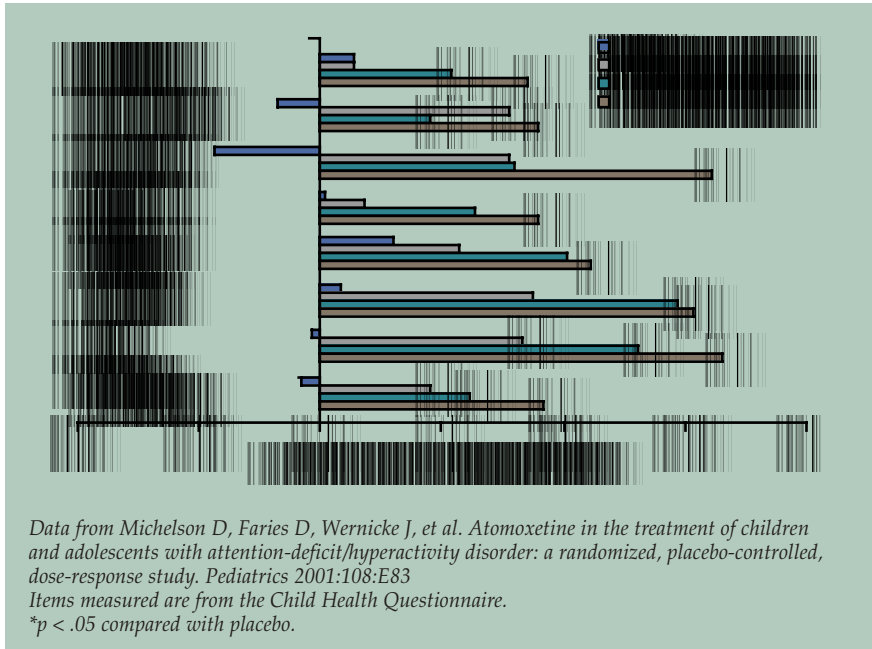
Data from Wolraich ML, Greenhill LL, Pelham W, et al, for the Concerta Study Group. Randomized, controlled trial of OROS methylphenidate once a day in children with attention-deficit/hyperactivity disorder. *Pediatrics* 2001;108:883-892

^aMeasured by 6 items from the SNAP-IV Peer Interaction category and 1 item from the IOWA Conners Rating Scale.

^bMeasured by the IOWA Conners Rating Scale Oppositional/Defiance subset.

* $p < .05$ compared with placebo. ** $p < .001$ compared with placebo.

Improvement of Functional Impairment With Atomoxetine Treatment



Michelson et al. have published 2 studies on the efficacy of atomoxetine in children and adolescents that assess functional impairments as outcome measures. The first study, published in 2001, was a dose-response study and included a sample of 297 children and adolescents, aged 8 to 18 years with DSM-IV–diagnosed ADHD. Participants were randomly assigned to receive placebo or 1 of 3 atomoxetine doses, 0.5 mg/kg/day, 1.2 mg/kg/day, or 1.8 mg/kg/day, for 8 weeks. The agent's effect on psychosocial outcomes such as behavior, family activity, mental health, and self-esteem was determined by the Child Health Questionnaire. The atomoxetine-treated groups showed statistically significant improvement in impairments associated with home and self domains compared with placebo.

In a more recent study by Kelsey et al., children (N = 197), aged 6 to 12 years, who met DSM-IV criteria for ADHD were randomly assigned to receive either atomoxetine once a day or placebo for 8 weeks. Using the Daily Parent Rating of Evening and Morning Behavior-Revised (DPREMB-R) scale, parents were asked to rate their child's behavior during a variety of daily tasks.

Atomoxetine was shown to improve these home domain tasks in which functional impairments frequently occur:

- ✓ Getting up and ready in the morning
- ✓ Completing homework
- ✓ Playing quietly
- ✓ Moving from one activity to another
- ✓ Getting ready for bed and falling asleep

Data from Kelsey DK, Sumner CR, Sutton V, et al. Once-daily atomoxetine in childhood ADHD: continuous symptom relief. In: *New Research Abstracts of the 156th Annual Meeting of the American Psychiatric Association*; May 21, 2003; San Francisco, Calif. Abstract NR716:268

Each of the 11 items was rated on a 4-point scale (0 = none to 3 = a lot). Compared with placebo, atomoxetine (final mean daily dose of 1.3 mg/kg) significantly reduced morning symptoms and resulted in superior efficacy outcomes in the evening hours, as assessed by the DPREMB-R.

Other ADHD Treatments

Other agents such as bupropion, α_2 noradrenergic agonists like guanfacine and clonidine, and tricyclic antidepressants like imipramine and desipramine are commonly used to treat ADHD. Data indicate that these agents may be useful as a second- or third-line treatment for ADHD because they frequently possess dose-limiting side effects. Sometimes, they may be combined with the first-line treatments to increase the hours of coverage of ADHD symptoms, to treat side effects caused by the primary agent, and to treat comorbid mood and anxiety disorders. More research is needed to determine the effect of these agents on functional impairment. ■

Agent	Outcome
Bupropion ¹	By day 3, a significant treatment effect was seen for conduct problems and hyperactivity. By day 28, such an effect was seen for conduct problems and restless-impulsive behavior.
Guanfacine ²	Patients scores improved significantly ($p < .01$) on the hyperactivity, inattention, and immaturity factors of the Conners Parent Rating Scale.
Desipramine ³	Patient scores on the Clinical Global Impressions scale and Conners Abbreviated Parent-Teacher Rating Scale declined after 4 weeks.

¹Conners CK, Casat CD, Gualtieri CT, et al. Bupropion hydrochloride in attention deficit disorder with hyperactivity. *J Am Acad Child Adolesc Psychiatry* 1996;35:1314–1321

²Hunt RD, Armsten AF, Asbell MD. An open trial of guanfacine in the treatment of attention-deficit hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 1995;34:50–54

³Gastfriend DR, Biederman J, Jellinek MS. Desipramine in the treatment of adolescents with attention deficit disorder. *Am J Psychiatry* 1984;141:906–908

CME/CE POSTTEST

JCP Visuals Vol. 5 No. 6 July 2003
Functional Outcomes in Children and Adolescents With Attention-Deficit/Hyperactivity Disorder

Physicians

Participants may receive up to 1 Category 1 credit toward the American Medical Association Physician's Recognition Award by reading the material in this *JCP Visuals* and correctly answering at least 70% of the questions in the Posttest that follows.

1. Go to www.psychiatrist.com/cmehome to take this Posttest online and earn credit immediately.

Or

1. Read each question carefully and circle the answer on the Registration Form.
2. Type or print the registration information in the spaces provided and complete the evaluation.
3. Send the Registration Form to the address or fax number listed on the Registration Form.

All replies and results are confidential. Answer sheets, once graded, will not be returned. Unanswered questions will be considered incorrect and so scored. The Physicians Postgraduate Press, Inc. Office of Continuing Medical Education will keep only a record of participation, which indicates the completion of the activity and the designated number of Category 1 credits that have been awarded. Correct answers to the Posttest will be made available to the participants of this activity upon request after the submission deadline.

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1. Go to www.rxed.org/umce to take this Posttest online and earn credit immediately.

Or

1. Read every question carefully and circle the correct corresponding answer on the Registration Form.
2. Type or print your full name and address and phone, fax, and Social Security numbers in the spaces provided.
3. Send the completed Registration Form to The University of Mississippi. No payment is necessary as this CE activity is free.
4. For a credit certificate to be issued, answers must be postmarked by the deadline shown on the Registration Form.

All replies and results are confidential. Answer sheets will be graded and returned along with a certificate of completion. Unanswered questions will be considered incorrect and so scored.

Certifying Institution

The University of Mississippi School of Pharmacy is approved by the American Council on Pharmaceutical Education as a provider of continuing pharmaceutical education.

1. Which of the following can be described as the manifestation of the core symptoms of attention-deficit/hyperactivity disorder (ADHD) during the course of a day?
 - a. Inattention
 - b. Hyperactivity
 - c. Functional impairments
 - d. Impulsiveness
2. The functional impairments young people with ADHD experience in this domain are often what bring them to their clinician's office in the first place.
 - a. School
 - b. Home
 - c. Social
 - d. Self
3. Functional impairments vary by sex and developmental stage.
 - a. True
 - b. False
4. All of the following may help clinicians obtain useful answers about impairments *except*:
 - a. Asking open-ended questions
 - b. Asking questions targeting areas of daily living with which impairments are frequently associated
 - c. Asking questions about only the school domain
 - d. Asking developmentally appropriate questions
5. This tool for assessing functional impairment assesses a patient's academic achievement and compares it with achievement in his/her peer group.
 - a. Child Health Questionnaire
 - b. Conners' Parent Rating Scale-Revised short form
 - c. Clinician-patient constructed scale
 - d. Standardized tests
6. This approach should be the first-line treatment for children and adolescents with ADHD.
 - a. Pharmacologic and psychological interventions
 - b. Psychological interventions
 - c. Psychological, behavioral, and educational interventions
 - d. Educational interventions
7. Evidence from research and clinical arenas indicates that pharmacotherapy reduces:
 - a. Only the core symptoms of ADHD
 - b. Hyperactivity and impulsivity but not inattention
 - c. The core symptoms of ADHD and coexisting functional impairments
 - d. Only the functional impairments associated with ADHD

CME/CE REGISTRATION FORM

JCP Visuals Vol. 5 No. 6 July 2003
Functional Outcomes in Children and Adolescents With Attention-Deficit/Hyperactivity Disorder

Registrant Information (print or type)

Name _____

Social Security Number (for CME or CE credit recording purposes) _____

Degree _____ Specialty _____

Affiliation _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

E-Mail _____

Answer Bank: Circle the one correct answer for each question.

1. a b c d
2. a b c d
3. a b
4. a b c d
5. a b c d
6. a b c d
7. a b c d

Type of Professional/Setting

1 Please select the title that most accurately describes your profession:

- Physician Pharmacy technician
 Pharmacist

2 Physicians: Please indicate your practice setting.

- Hospital Private practice
 Resident Intern

3 Pharmacists and Pharmacy Technicians: Please indicate your practice setting.

- Independent Chain
 Hospital Other

Physicians' Activity Evaluation

Please evaluate the effectiveness of this CME activity by answering the following questions.

1. Was the educational content relevant to the stated educational objective? Yes No
2. Did this activity provide information that is useful in your clinical practice? Yes No
3. Was the format of this activity appropriate for the content being presented? Yes No
4. Did the method of presentation hold your interest and make the material easy to understand? Yes No
5. Achievement of educational objective:
 - A. Enabled me to define functional impairment related to ADHD in home, school, social, and self domains. Yes No
 - B. Enabled me to use nonpharmacologic and pharmacologic treatments for functional impairments in ADHD. Yes No
6. Did this CME activity provide a balanced, scientifically rigorous presentation of therapeutic options related to the topic, without commercial bias? Yes No
7. Does the information you received from this CME activity confirm the way you presently manage your patients? Yes No
8. Does the information you received from this CME activity change the way you will manage your patients in the future? Yes No
9. Please offer comments and/or suggested topics for future CME activities.

10. How much time did you spend completing this CME activity? _____

Pharmacists' and Pharmacy Technicians' Activity Evaluation

Please circle the number that best reflects your opinion of the following statements, using the rating scale above the questions.

Comments: _____

1 = Strongly agree 2 = Agree 3 = Disagree 4 = Strongly disagree

1. The program objectives were met. 1 2 3 4
2. The program content was useful and relevant. 1 2 3 4
3. The program was educational and not promotional. 1 2 3 4
4. How long did it take you to complete the lesson? _____ hr _____ minutes

Physicians' Submission Instructions

Tear out and mail the Registration Form to:

Physicians Postgraduate Press, Inc.
Office of Continuing Medical Education
P.O. Box 752870
Memphis, TN 38175-2870

You may fax the Registration Form to:

Office of CME at 901-751-3444

Submit online at: www.psychiatrist.com/cmehome

Questions? Call 1-800-489-1001, ext. 8

Deadline: July 31, 2005

Pharmacists' Submission Instructions

Tear out and mail the Registration Form to:

University of Mississippi
Bureau of Pharmaceutical Services
P.O. Box 337
University, MS 38677

You may fax the Registration Form to:

Office of Continuing Education at 662-915-5696

Submit online at: www.rxed.org/umce

Questions? Call 662-915-7080 or e-mail thebureau@olemiss.edu

Deadline: July 31, 2004

No payment is necessary as this CME/CE activity is free.