Contemporary Pediatrics Conference 2013

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Lexington, KY

ADHD and Beyond: Appropriate Therapy and When to Refer

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Disclosures

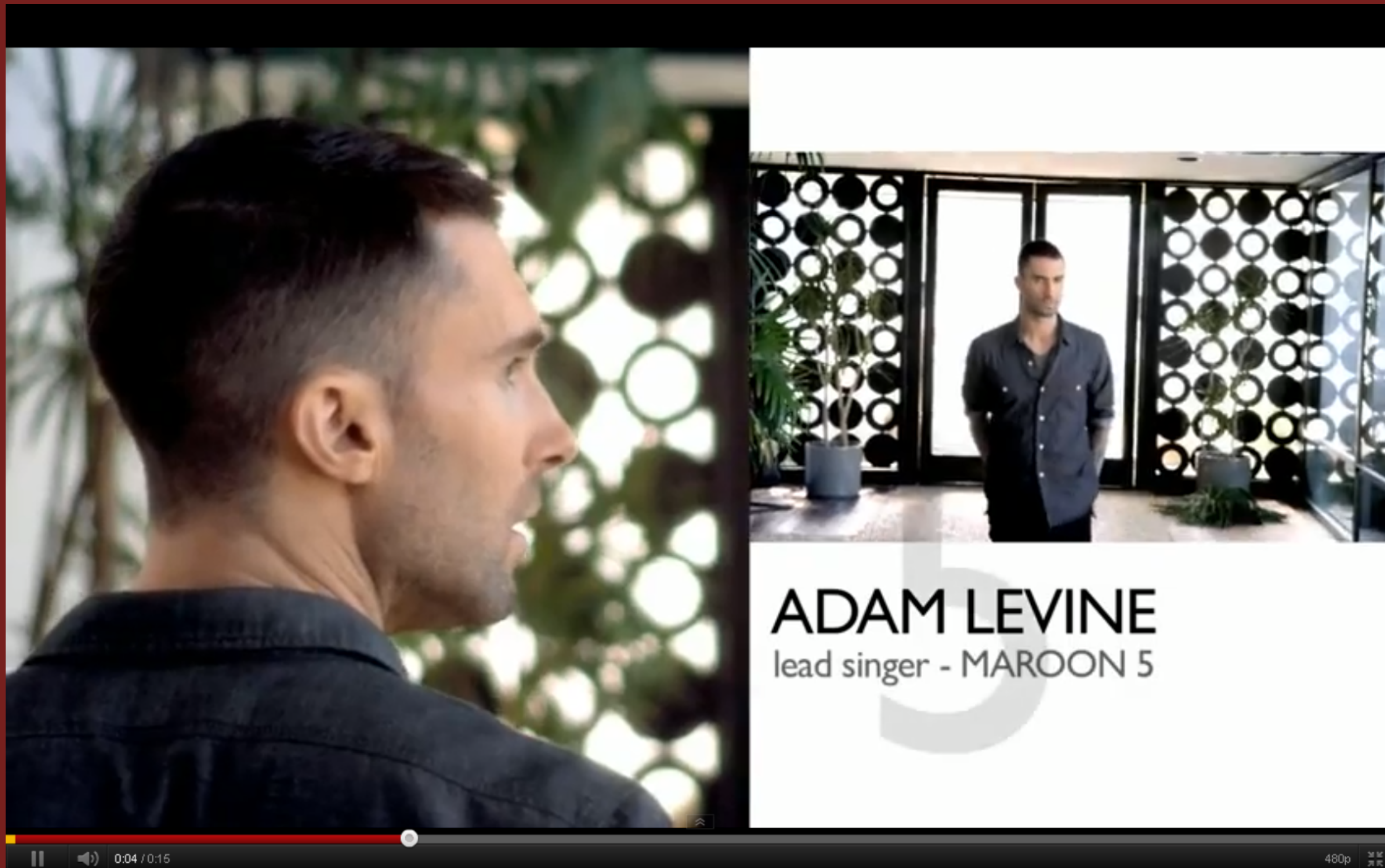
- This lecture may contain off-label use of medications in children
- Financial Disclosures
  - Nothing to disclose

Learning Objectives

- Identify the DSM criteria for ADHD
- Construct a differential diagnosis for ADHD
- Describe the etiology and risk factors for ADHD
- Formulate a treatment plan for ADHD
- Tips on when to refer

DSM 5 slated to be released May 2013

DSM-IV TR CRITERIA FOR ADHD



http://www.youtube.com/watch?NR=1&v=jBLg1bnWQQw

What happened to ADD in DSM-IV?

- DSM Diagnostic and Statistical Manual
  - DSM-IV 1994-2000
  - DSM-IV-TR 2000-2013
- DSM-IV No longer used ADD
- Sub-types Classified
  - ADHD: Inattentive Type
  - ADHD: Combined Type
  - ADHD: Hyperactive-Impulsive Type

Changes with DSM-5

- DSM-5 (MAY 2013)
  - Age of onset of symptoms raised from 7 to 12
  - Fewer symptoms for adults (5 vs 6)
  - Now ADHD can be diagnosed with Austism
  - The term “sub-types” no longer used
    - “Current Presentations”

Essentials of ADHD

- Inattention and/or hyperactivity-impulsivity
- Symptoms present before age 7
  - 12 with DSM-5
- **$\geq$ 2 settings**
  - School and home
- Interferes with social, academic or occupational functioning

Inattention ($\geq$ 6 Symptoms)

- Cannot pay close attention to detail
- Difficulty sustaining attention (work/play)
- Appears not to be listening - spoken to directly
- Doesn't follow through on instructions
  - ex. chores, schoolwork
- Disorganized
- Avoids things that require sustained attention
- Distracted by irrelevant noises or events
- Forgetful in daily activities

Hyperactivity-Impulsivity ($\geq$ 6)

Hyperactivity

- Fidgets
- Out of seat
- Runs and climbs when inappropriate
- Can't play quietly
- "On the go"
- Talks excessively

Impulsivity

- Blurts out answers
- Difficulty waiting turn
- Interrupts or intrudes

Changes with DSM-5

DIFFERENTIAL DIAGNOSIS OF ADHD

Course of ADHD Over the Lifespan
Infancy

- Irritable
- Fussy eaters
- Colicky
- Decreased sleep
- Difficulty to hold and comfort
- Not cuddly

Course of ADHD Over the Lifespan
Preschool Years

- Increased social exposure
  - Out of control
  - Demands must be met
  - Center of attention
  - Blames others
  - Aggressive, selfish, destructive
  - Does better 1:1, with mother or father alone
  - **Extreme safety issues**
    - **Running into traffic, jumping off of high places**

Course of ADHD Over the Lifespan
Grade School Years

- School demands increase 3rd & 4th grade
- Grades may start to fall
- Learning disabilities become more obvious
- Peer difficulties increase
- Can't take turns
- Unpopular
- Exploited by others

Course of ADHD Over the Lifespan
Adolescence

- Internal sense of restlessness
  - Trouble with sedentary activities
- Increase in repeated grades
- Disorganization
- Poorer grades
- Decreased self-esteem
- Failure
- Low expectations of future
- Parents "fed up"

Course of ADHD Over the Lifespan Adolescence (2)

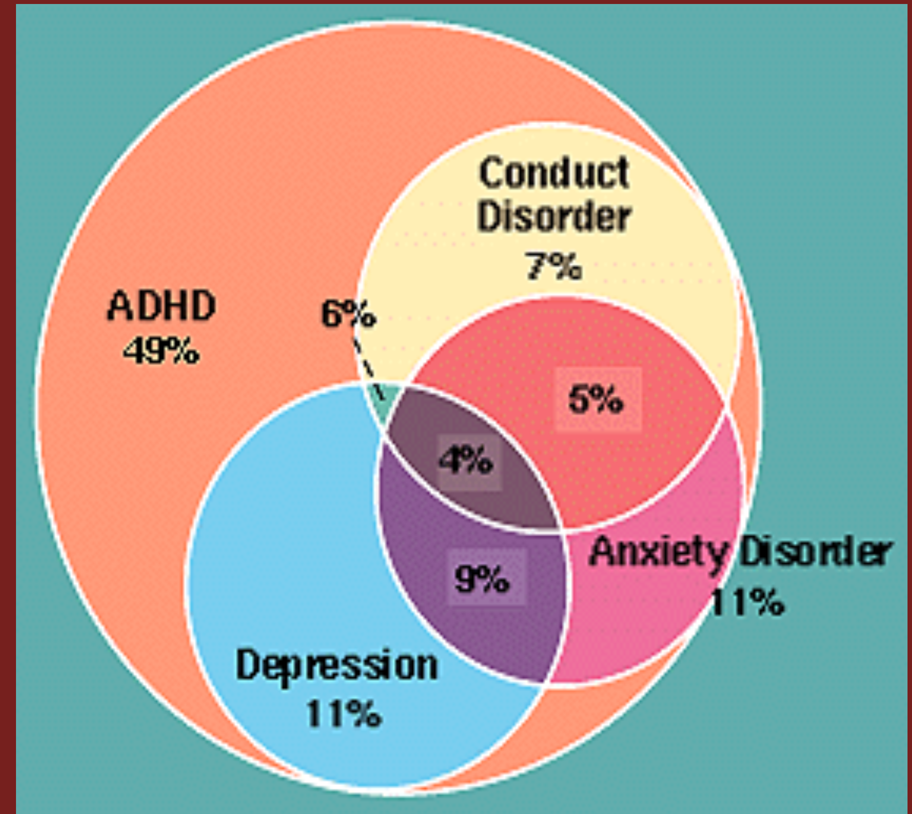
- Acting out behaviors (lying/cheating/legal)
- Increased ETOH use and drug use
  - Not greater in ADHD adolescents
  - EXCEPT nicotine
- Most difficult time
  - School Issues
  - Multiple accidents (car and bike)
  - Suicidal behavior

Course of ADHD Over the Lifespan
Adulthood

- 70-75% have some symptoms of hyperactivity, distractibility, impulsivity, and aggression
- 30% full ADHD
- 12% substance use
- 25% antisocial
- Immature, difficulty maintaining goals
- Low self-esteem
- Disorganized

Co-Morbidities

- Depression (30%),
- Anxiety Disorders (30%)
- Oppositional Defiant Disorder or Conduct Disorder (50%)
- Learning Disability (40%)
- Bipolar (10-20%)
- Tourettes (2%)



Anxiety

- Often mistaken for ADHD
  - Fidgeting
  - Inattentive (worrying about something else)
  - Difficulty completing schoolwork
    - Too worried about incorrect answers

Learning Disabilities

- Achievement test scores are below what is expected by age, education or IQ
- Categories of LD
  - Reading
  - Math
  - Written Expression

Diagnostic Considerations

- Cannot make the diagnosis in the 1:1 situation in the office
- History from parents and collaborative reports from teachers are essential
- Classroom observation is ideal
- Use the Vanderbilt or Connor's
- Review school records

ETIOLOGY OR RISK FACTORS

Prevalence

- In 2-12% of school-aged children
- Boys 3:1 in community sample
  - 9:1 in clinic sample
- Chronic disorder
  - 75% show symptoms into adolescence
  - 50% have significant symptoms into adulthood

AMA Statement on ADHD

- The Council on Scientific Affairs of the AMA 1998 "ADHD is one of the best-researched disorders in medicine, and overall data on its validity are far more compelling than for most mental disorder and even for many medical conditions"

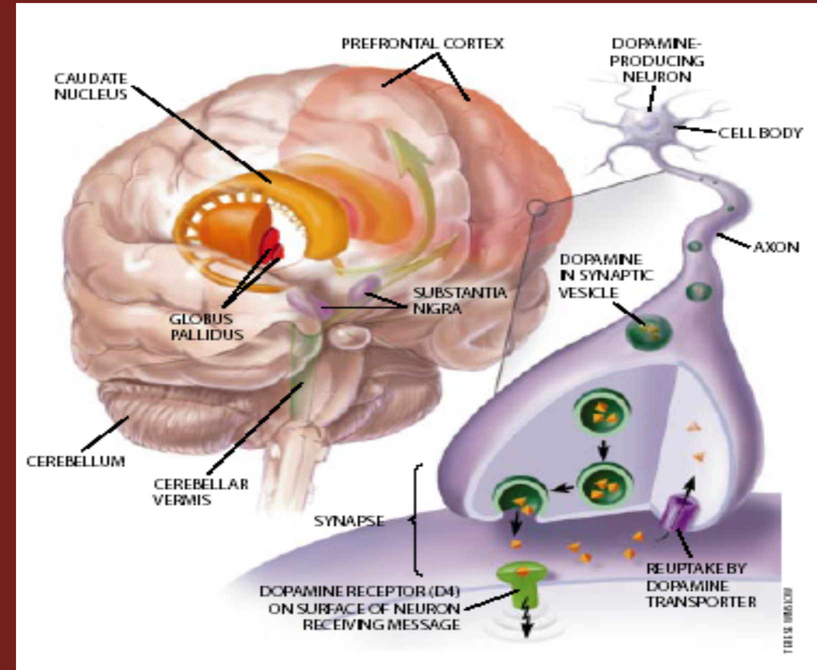
- The Council noted there are volumes of research confirming the short-term efficacy and safety of stimulant medication.

Causes of ADHD

- *Prenatal and postnatal difficulties
  - Maternal smoking or substance use
  - Poor maternal health
- CNS infections
- *Head injuries
- Lead exposure
- *Genetic variation

What neurotransmitters are involved?

- **Dopamine**
  - **Action -> Nucleus Accumbens**:
  - Locomotor activity, reinforcement processes, rate-dependency
- **Norepinephrine**
  - **Locus ceruleus** to **prefrontal cortex**
  - delayed response, working memory
- **Dopamine** & **Norepinephrine**
  - Attention and control of behavior



TREATMENT PLAN FOR ADHD

Multimodal Approach

- Behavioral interventions
- School accommodations
  - Section 504 and IEP
- Multi-Systemic Therapy (MST)
- Parenting Classes
- Medications

School Strategies

- Shorter tasks
- Sit near front of the room
- Often do better 1:1
- Very structured
- Daily journal
  - home w/student signatures required
- Section 504 of American Disabilities Act (ADA)
  - Applies only to federally funded institutions

How to Qualify for Section 504

- Physical or mental impairment that substantially limits one or more major life activities
- Record of physical or mental impairment that limits one or more major life activities
- Regarded as having physical or mental impairment that substantially limits one or more major life activities by the school

What does Section 504 require of schools?

- Does **not** require public school provide student with disabilites with potential-maximizing education, only REASONABLE accommodations that give those students the same access to the benefit of public education as all other students

J.D. by J.D. v Pawlet Sch. Dist. 223F.3d 60,71

Indivdualized Education Plan (IEP)

- 2004 changes to align Individuals with Disabilities Education Act ("IDEA") with No Child Left Behind
- Protects disabled kids' right to <u>Free Appropriate Public Education (FAPE)</u> in the <u>least restrictive environment (LRE).</u>
- Admission and Release Committee (ARC) meeting to determine if child is eligible for IEP

Behavioral Interventions

- The approach involves training parents
  - pinpoint problem behaviors (e.g. aggressive responses, noncompliant responses)
- Identify more appropriate responses
- Utilize various child behavior management techniques to decrease problem behavior and increase desirable behavior

Multi-Systemic Therapy (MST)

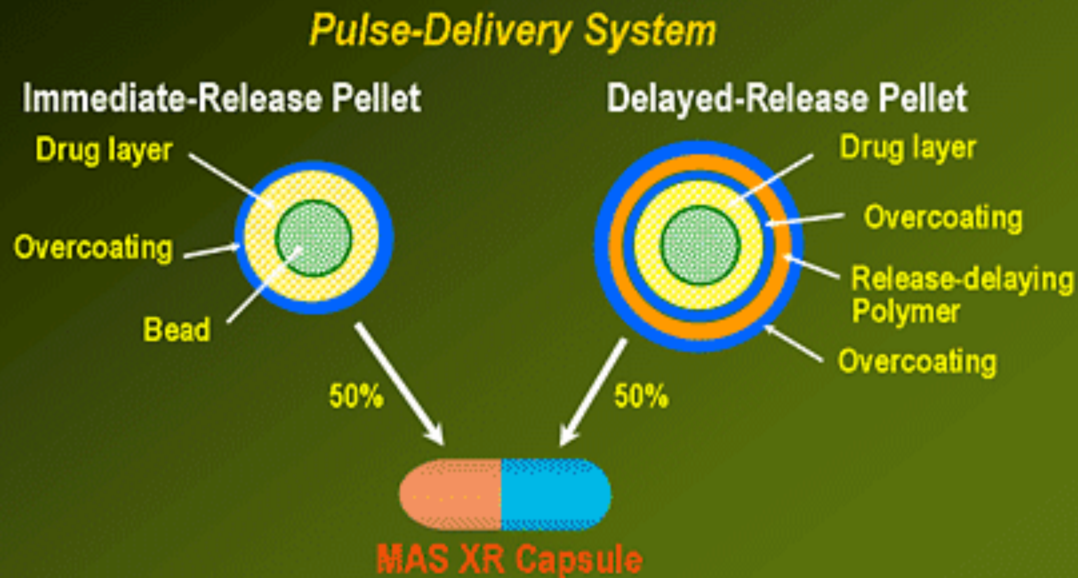
- Address the role of multiple, interconnected systems in which the adolescent is embedded (Henggeler & Lee 2003)
- This approach recognizes
  - Effects of family, school, work, peer, community and cultural institutions on the adolescents
  - Seeks to intervene therapeutically on multiple levels
- KIDS DON'T OPERATE IN A VACUUM!

Medication Categories

- Amphetamine
  - Short-acting
    - Adderall
    - Dexedrine
    - DextroStat
  - Long-acting
    - Adderall XR
    - Dexedrine Spansules
    - Vyvanse

- Methylphenidate
  - Short-acting
    - Focalin
    - Methylin
    - Ritalin
  - Intermediate-acting
    - Metadate ER
    - Methylin ER
    - Ritalin SR
    - Metadate CD
    - Ritalin LA
  - Long-acting
    - Concerta
    - Daytrana Patch
    - Focalin XR
    - Quillavant XR (NEW SOLUTION)

Adderall XR - 50:50 ratio of IR and delayed-release beads



Amphetamine and Non-Stimulants

Amphetamine Derivatives – Long Acting/Extended Release

Tab #	Medication						
5	Vyvanse® Ɏ (lisdexamfetamine)	20mg	30mg	40mg	50mg	60mg	70mg
	Adderall XR® ‡ (mixed amphetamine salts)	5mg G	10mg G	15mg G	20mg G	25mg G	30mg G
7	Dexedrine Spansule® (d-amphetamine)	5mg G	10mg G	15mg G			

Amphetamine Derivatives – Short Acting/Immediate Release

Tab #	Medication							
1	Adderall® (mixed amphetamine salts)	5mg G	7.5mg G	10mg G	12.5mg G	15mg G	20mg G	30mg G
8	Dextroamphetamine	5mg G		10mg G				
8	ProCentra® (Bubblegum Flavor)	5mg/5ml						

Non-Stimulants

Tab #	Medication							
3	Intuniv® † (guanfacine, extended release)	1mg	2mg	3mg	4mg			
3	Kapvay™ † (clonidine, extended release)	0.1mg	0.2mg (only in dose pack)					
5	Strattera® † (atomoxetine)	10mg	18mg	25mg	40mg	60mg	80mg	100mg

Administration Key

† Must be swallowed whole
Ɏ Can be dissolved in liquid
§ Chewable
‡ Capsule can be opened and medication sprinkled on applesauce

Ages for Which Medications Have an FDA Indication for Treatment of ADHD

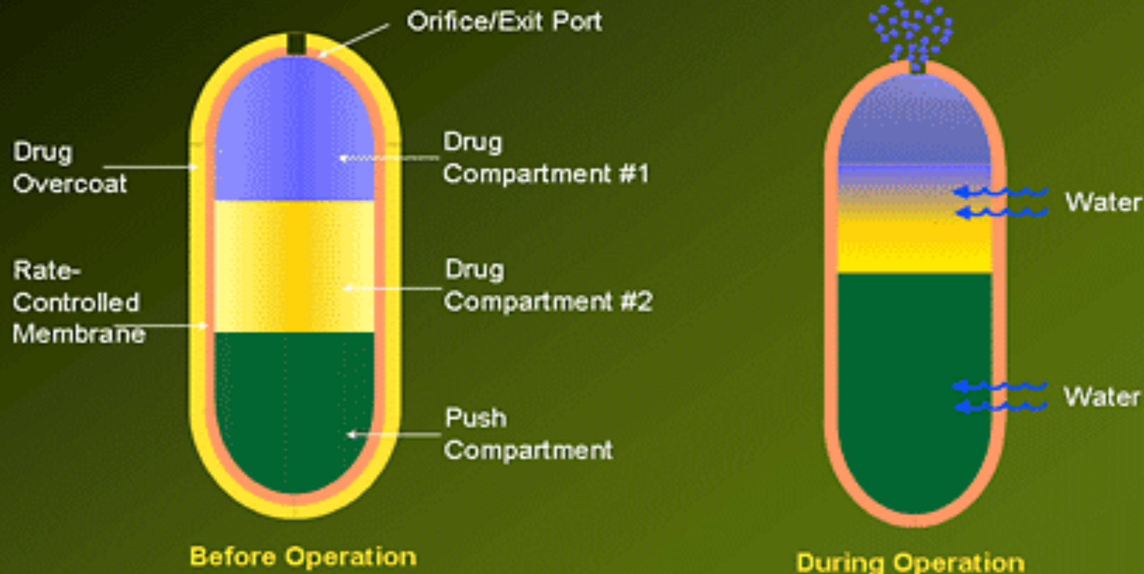
Tab #	3-5 Years	6-12 Years	13-16 Years	17 Years	Adults
1	✔	✔			
2		✔			
3		✔	✔	✔	
4		✔			✔
5		✔	✔	✔	✔
6			✔	✔	✔
7		✔	✔		
8	✔	✔	✔		
9					✔

*Disclaimer: The ADHD Medication Guide was created by Dr. Andrew Adesman of the North Shore-LIJ Health System. North Shore-Long Island Jewish Health System is not affiliated with the owner of any of the brands referenced in this Guide.

The ADHD Medication Guide is a visual aid for professionals caring for individuals with ADHD. The Guide includes only medications indicated for the treatment of ADHD by the FDA. In clinical practice, this guide may be used to assist patients in identifying medications previously tried, and may allow clinicians to identify ADHD medication options for the future. Medications have been arranged on the card for ease of display and comparison, but dosing equivalence cannot be assumed. Practitioners should refer to the FDA-approved product information to learn more about each medication. Although every effort has been made to depict each medication in its actual size and color, we cannot guarantee that there are not minor distortions in the final image. This Guide is accurate as of March 1, 2013.

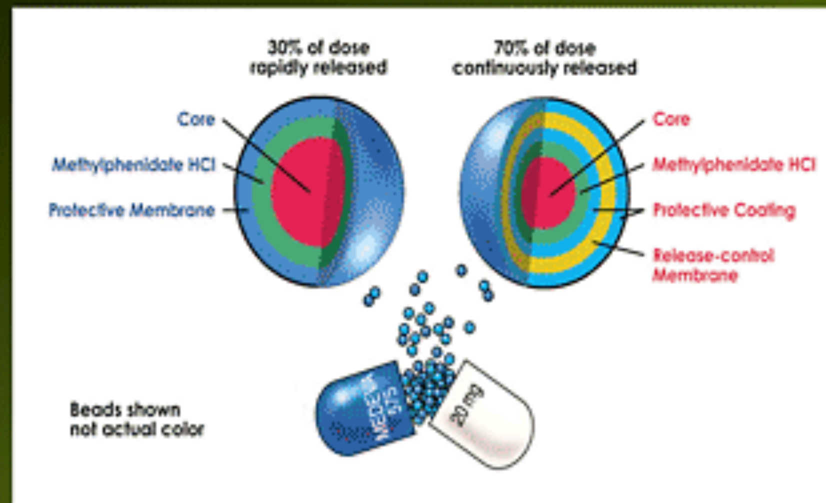
- Updated versions of the ADHD Medication Guide can be viewed at www.ADHDMedicationGuide.com
- Laminated copies of the **ADHD Medication Guide** can be obtained at: www.ADDWarehouse.com
- Contact Dr. Andrew Adesman at ADHDMedGuide@NSHS.edu with any questions, suggestions or comments

Steven & Alexandra Cohen



Concerta - *OROS* (osmotically controlled-release oral delivery system). After ingestion of *OROS* methylphenidate (MPH), an immediate release of MPH occurs in the outer covering of the tablet, followed by a progressive 8-hour release through the action of the osmotic pump.

Methylphenidate HCl (*Metadate*® CD) Extended-Release Capsules: Biphasic Release Bead-Delivery System

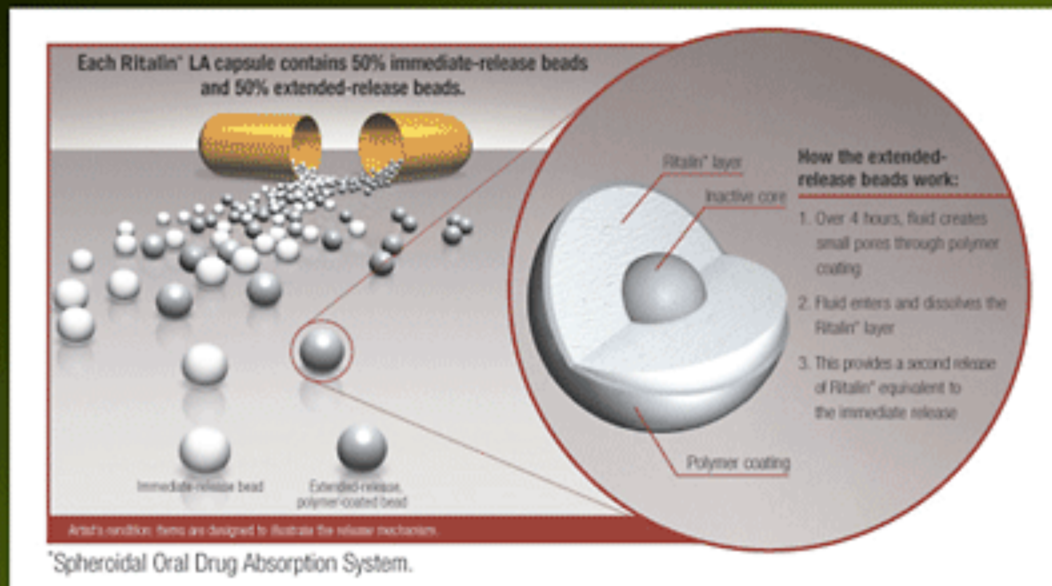


Metadate® CD (methylphenidate HCl) extended-release capsules [package insert]. Rochester, NY: Celltech Pharmaceuticals; 2003.

Metadate CD – *Diffucaps*

Biphasic release of MPH with 30% immediate release (IR) and 70% ER beads included in a capsule. The design produces higher plasma concentrations than *OROS* MPH over the first 6 hours, followed by a more rapid decline. It can also be sprinkled over food.

Ritalin LA and Focalin XR - *SODAS* (spheroidal oral drug absorption system) Contains 50% IR beads and 50% ER beads covered by polymer overcoat. The first peak in its bimodal plasma concentration profile occurs after 1 to 3 hours, and the second peak is approximately 6 hours post-dosage.



Methylphenidate Products

Methylphenidate Derivatives – Long Acting/Extended Release

3 Quillivant XR® 25mg/5ml (5mg/ml) (Banana Flavor)	Dose	Bottles
	Dose: 10mg 2ml	1 Bottle: 300mg 60ml
	Dose: 20mg 4ml	1 Bottle: 600mg 120ml
	Dose: 30mg 6ml	1 Bottle: 900mg 180ml
	Dose: 40mg 8ml	2 Bottles: 600mg 120ml
	Dose: 50mg 10ml	2 Bottles: 750mg 150ml
	Dose: 60mg 12ml	2 Bottles: 900mg 180ml

Product									
Concerta® †	18mg G 5	27mg G 5	36mg G 5	54mg G 5	72mg (36mg + 36mg) G 6				
Focalin® XR ‡ (dexmethylphenidate)	5mg 5		10mg 5	15mg 5	20mg 5	25mg 5	30mg 5	35mg 9	40mg 9
2 Ritalin® LA ‡	10mg		20mg G	30mg G	40mg G				
3 Metadate® CD ‡	10mg G		20mg G	30mg G	40mg G	50mg G	60mg G		
2 Methylin® ER	10mg		20mg						
4 Ritalin® SR			20mg G						
3 Daytrana®									

Methylphenidate Derivatives – Short Acting/Immediate Release

Product				
3 Focalin® (dexmethylphenidate)		2.5mg G	5mg G	10mg G
4 Ritalin®		5mg G	10mg G	20mg G
2 Methylin®		5mg	10mg	20mg
2 Methylin® Chewable § (Grape Flavor)	2.5mg	5mg	10mg	
2 Methylin® Solution (Grape Flavor)		5mg/5ml G	10mg/5ml G	

G indicates a generic formulation is available; generic products are not shown.

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This Guide should not be used as an exclusive basis for decision-making. The user understands and accepts that if the health system were to accept the risk of harm to the user from use of this Guide, it would not be able to make the Guide available because the cost to cover the risk of harm to all users would be too great. Thus, use of this ADHD Medication Guide is strictly voluntary and at the user's sole risk.

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Medication Categories

- Selective Norepinephrine Reuptake Inhibitors (SNRI)
  - atomoxetine (Strattera®)

- Antidepressants
  - buproprion (Wellbutrin®)
  - imipramine (Tofranil®)
  - nortriptyline (Pamelor®)

Medication Categories

- Alpha-2-Adrenergic Agonists
  - clonidine (Catapres®)
  - guanfacine (Tenex®)

Table 3A. Medications Used to Treat ADHD (alphabetical by class)

ieneric Class Brand Name	Dosage Form	Typical Starting Dose	FDA Max/Day	Off-Label Max/Day	Comments
hort-acting					• Short-acting stimulants often used as initial treatment in small children (< 16 kg) but have disadvantage of bid–tid dosing to control symptoms throughout day • Longer-acting stimulants offer greater convenience, confidentiality, and compliance with single daily dosing but may have greater problematic effects on evening appetite and sleep • Adderall XR cap may be opened and sprinkled on soft food
*Adderall**	5, 7.5, 10, 12.5, 15, 20, 30 mg tabs	3–5 yr: 2.5 mg qd ≥ 6 yr: 5 mg qd–bid	40 mg	> 50 kg: 60 mg	
*Dexedrine**	5 mg tab	3–5 yr: 2.5 mg qd ≥ 6 yr: 5–10 mg qd			
*DextroStat**	5, 10 mg tabs				
ong-acting					
Adderall XR	5, 10, 15, 20, 25, 30 mg caps	≥ 6 yr: 10 mg qd	30 mg	> 50 kg: 60 mg	
Dexedrine Spansule	5, 10, 15 mg caps	≥ 6 yr: 5 mg qd–bid	40 mg	> 50 kg: 60 mg	
Vyvanse	30, 50, 70 mg	30 mg qd	70 mg	Not yet known	
hort-acting					• Short-acting stimulants often used as initial treatment in small children (< 16 kg) but have disadvantage of bid–tid dosing to control symptoms throughout day • Longer-acting stimulants offer greater convenience, confidentiality, and compliance with single daily dosing but may have greater problematic effects on evening appetite and sleep • Metadate CD, Ritalin LA, and Focalin XR may be opened and sprinkled on soft food • Concerta tab should be swallowed whole with liquids • Concerta nonabsorbable tab shell may be seen in stool.
Focalin	2.5, 5, 10 mg tabs	2.5 mg bid	20 mg	50 mg	
*Methylin**	5, 10, 20 mg tabs	5 mg bid	60 mg	> 50 kg: 100 mg	
*Ritalin**					
ntermediate-acting					
Metadate ER	10, 20 mg tabs	10 mg q am	60 mg	> 50 kg: 100 mg	
Methylin ER	10, 20 mg tabs				
*Ritalin SR**	20 mg tab				
Metadate CD	10, 20, 30, 40, 50, 60 mg caps	20 mg q am	60 mg	> 50 kg: 100 mg	
Ritalin LA	10, 20, 30, 40 mg caps				
ong-acting					
Concerta	18, 27, 36, 54 mg tabs	18 mg q am	72 mg	108 mg	
Daytrana (transdermal system)	10, 15, 20, 30 mg patches	Begin with 10 mg patch qd, then titrate up weekly by patch strength	30 mg	Not yet known	
Focalin XR	5, 10, 15, 20 mg tabs	5 mg q am	30 mg	50 mg	
tomoxetine *Strattera*	10, 18, 25, 40, 60, 80, 100 mg caps	Children and adolescents < 70 kg: 0.5 mg/kg/d for 4 d; then 1 mg/kg/d for 4 d; then 1.2 mg/kg/d	Lesser of 1.4 mg/kg or 100 mg	Lesser of 1.8 mg/kg or 100 mg	• Not a Schedule II medication • Consider if active substance abuse or severe side effects of stimulants (mood liability, tics) • Give qam or divided doses bid (effects on late evening behavior) • Do not open cap • Monitor closely for suicidal thinking and behavior, clinical worsening, or unusual changes in behavior

Table 3B. Alternative Medications Used to Treat ADHD (Not Approved by FDA)

ieneric Class Brand Name	Dosage Form	Typical Starting Dose	Max/Day	Comments
uproprion *Wellbutrin** *Wellbutrin SR* *Wellbutrin XL*	75, 100 mg tabs 100, 150, 200 mg tabs 150, 300 mg tabs	Lesser of 3 mg/kg/d or 150 mg/d	Lesser of 6 mg/kg or 300 mg, with no single dose > 150 mg	• Lowers seizure threshold; contraindicated if current seizure disorder • Usually given in divided doses, bid for children, tid for adolescents, for both safety and effectiveness • Obtain baseline ECG before starting imipramine and nortriptyline
nipramine *Tofranil**	10, 25, 50, 75 mg tabs	1 mg/kg/d	Lesser of 4 mg/kg or 200 mg	
ortriptyline *Aventil*, Pamelor**	10, 25, 50, 75 mg caps	0.5 mg/kg/d	Lesser of 2 mg/kg or 100 mg	

Adverse Effects

- Decreased appetite, stomach aches
- Irritability, dysphoria
- Decreased sleep
- Rebound
- Headaches
- Tic controversy
- Hallucinations (rare or in overdose)
- Relationship to other drug use

Alpha 2 Agonists

- Guanfacine (Tenex)
  - Up to 4.0 mg/day in 2 divided doses
  - Less sedating than clonidine
  - Intuniv™ (guanfacine ER)
    - Taken once a day at bedtime
    - Start with 1mg QHS, increase to goal of 4 mg/day
    - Not with high-fat meal
    - 2 weeks to see effects
- Clonidine (Catapres) 0.1, 0.2, 03 mg tabs
  - Oral 3-4 hours for behavioral effects
  - Patch (usually changed every 3 to 5 days)

Alpha-2 Agonists (α2)

- Indications
  - Tourette's Disorder
  - ADHD –particularly those with severe impulsivity and overactivity
  - Tourette's Disorder + ADHD
  - Aggression
  - Post Traumatic Stress D/O
  - Adjunct in Bipolar ???
  - Opiate Withdrawal
  - Sleep aid

Alpha 2 Agonists

- Adverse Effects
  - Sedation
  - Hypotension & Dizziness
  - Headaches
  - Sweating
  - **Can overdose on these medications**
- Withdrawal
  - Increased Blood Pressure
  - Headaches

Clinical Pearls

- Early school-age children
  - Start with Tenex or Clonidine
  - Tenex less sedating
- If starting a stimulant try short-acting FIRST
  - If side effects, they will be short-lived
- Biggest complaint with Daytrana Patch is local irritation

Drug Diversion Issue Talking Points

- Keep medications out of the reach of children
- Keep stimulant medication under lock and key.
- Parents and physicians should be carefully monitoring numbers of pills and times needed by the patient.

T2 ADHD Management Plan—Sample 1

Date: ____________

To the family of ____________, please refer to this plan between visits if you have questions about care.

If you are still unsure, call us at ____________ for assistance.

Patient ____________'s doctor is ____________ Pager # ____________

Parent/Guardian ____________ Relationship ____________

Contact Number(s) ____________

School Name ____________ School Phone No. ____________ Fax No. ____________

Key Teacher Contact Name ____________ Grade ____________ Teacher's E-mail Address ____________

Goals What improvements would you most like to see? Specific behavior you would like to see improve:

At Home: ____________

At School: ____________

Plans to reach these goals:

1. ____________
2. ____________
3. ____________

Medication

1. ____________ Time ______ am/pm Dose 1 ______ mg Time ______ am/pm Dose 2 ______ mg Time ______ am/pm Dose 3 ______ mg

2. ____________ Time ______ am/pm Dose 1 ______ mg Time ______ am/pm Dose 2 ______ mg Time ______ am/pm Dose 3 ______ mg

☐ Medication to be given on nonschool days
☐ School authorization signed by parent and MD
☐ Side effects explained/information given
☐ Medication given for ______ number of days
☐ Rx written for duplicate bottle for administration at school

Common Side Effects: decreased appetite, sleep problems, transient stomachache, transient headache, behavioral rebound

Call your doctor immediately if any infrequent side effects occur: weight loss, increased heart rate and/or blood pressure, dizziness, growth suppression, hallucinations/mania, exacerbation of tics and Tourette syndrome (rare)

Further Evaluation

☐ School testing scheduled date ____________
☐ Parent and Teacher Vanderbilts completed ____________

Additional Resources and Treatment Strategies

☐ F/U Parent Vanderbilt given completed ____________
☐ F/U Teacher Vanderbilt given to parent
☐ F/U Teacher Vanderbilt to be faxed to school completed ____________
☐ Behavioral Modification Counseling Referral to ____________
☐ Parenting Tips Sheet given
☐ CHADD phone number given: 800/233-4050
☐ Community Resources/Referrals: ____________

Next Follow-up Visit: ____________

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The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

NICHQ
National Initiative for Children's Healthcare Quality

McNeil
Consumer & Specialty Pharmaceuticals

Medication Monitoring Form

MEDICATION EFFECTIVENESS REPORT

Child's Name__________________________ Age/ DOB ___________ Sex ________

School Name: __________________________ Grade: ____________________________

Date Form Completed: ____________ Completed By: ______________________________

Medication (s) Dosages / Times Administered Per Day

____________________________ ____

____________________________ ____

History: Target Symptoms	Improved	No Change	Worse
Hyperactivity- motor restlessness	________	________	________
Attention span	________	________	________
Distractibility	________	________	________
Organization	________	________	________
Finishing Tasks	________	________	________
Impulse Control	________	________	________
Frustration Tolerance	________	________	________
Accepting Limits	________	________	________
Peer Relations	________	________	________
Aggression	________	________	________
Disruption in classroom	________	________	________

Side Effects:

Appetite loss	________	________	________
Abdominal Complaints	________	________	________
Sleepiness	________	________	________
Drowsiness	________	________	________
Tiredness	________	________	________
Weepiness	________	________	________
Staring a lot	________	________	________
Irritability	________	________	________
Sadness	________	________	________
Nervousness	________	________	________
Headaches	________	________	________

Comments:

____

____

____

____

ALTERNATIVE TREATMENTS

SPARK

THE REVOLUTIONARY NEW SCIENCE OF EXERCISE AND THE BRAIN

Supercharge Your Mental Circuits to
Beat Stress, Sharpen Your Thinking, Lift Your Mood,
Boost Your Memory, and Much More

JOHN J. RATEY, MD
COAUTHOR OF *DRIVEN TO DISTRACTION*
with ERIC HAGERMAN

Alternative Treatments

- Be cautious of claims about
  - Vitamin B
  - Feingold Diet
    - Elimination of preservatives, artificial color/flavor
  - Interactive Metronome Training
  - Chiropractic Medicine
  - Neurofeedback/EEG training

GLOBAL CONSIDERATIONS

Trends

- Redshirting: Holding kids back from KGT
- CBS News
  - 60 Minutes Documentary

    http://www.cbsnews.com/video/watch/?id=7400898n
- Standardized Testing

    Teaching to the test?
- Class size and expectations of the system

CASES, CLINICAL PEARLS, AND WHEN TO REFER

Tommy

- 10 yo male with known ADHD on a long-acting stimulant. Significant improvement noted with this medication. Past few weeks he has been experiencing intermittent facial twitching and throat clearing.

- Q. What is most appropriate next step?
- Q. What is connection between tics and stimulants?

Tics and Stimulants

- Seem to correlate with increase in tics
- Usually transient
  – Rarely worsens with treatment
- 50% of children with Tourette Syndrome have ADHD
  – Timing of onset of symptoms
- Stop stimulant? NO in most cases
  – Consider Alpha-2-Adrenergic Agonists
    - Tenex or Clonidine

Jumpin' Jonny

- 8 year old WM who presents with parent complaint of "Jonny just won't sit still in class"
- You proceed to ask questions about his past medical history
  - Premature Birth
  - Mom smoked during pregnancy
- School complaining and telling mom she needs to get an evaluation for medication

What would YOU do?

Susan

- 13 year old WF presents with parent complaint of Susan has really been struggling this year in school.
- Teachers say she looks like she's paying attention but when called on she doesn't know what teacher was just talking about

What would YOU do?

Wild Willy

- 6 year old WM presents to your office with parent complaint of child escaping from the house and climbing on the roof of the nearby shed. He has always jumped from furniture. Several ED visits for injuries.
- Aggressive with neighbors and peers at school.

What would YOU do?

ADHD Information

About Our Kids
http://www.aboutourkids.org/articles/about_adhd.html

ADDitude Magazine for People With ADHD
http://www.additudemag.com

ADDvance Online Resource for Women and Girls With ADHD
http://www.addvance.com

American Academy of Family Physicians (AAFP)
http://www.aafp.org

American Academy of Pediatrics (AAP)
http://www.aap.org

American Medical Association (AMA)
http://www.ama-assn.org

Attention-Deficit Disorder Association (ADDA)
http://www.add.org

Attention Research Update Newsletter
http://www.helpforadd.com

Bright Futures
http://www.brightfutures.org

Center for Mental Health Services Knowledge Exchange Network
http://www.mentalhealth.org

Children and Adults With Attention-Deficit/Hyperactivity Disorder (CHADD)
http://www.chadd.org

Comprehensive Treatment for Attention-Deficit Disorder (CTADD)
http://www.ctadd.com

Curry School of Education (University of Virginia) ADD Resources
http://teis.virginia.edu/go/cise/ose/categories/add.html

Intermountain Health Care
http://www.ihc.com/xp/ihc/physician/clinicalprograms/primarycare/adhd.xml

National Center for Complementary and Alternative Medicine (NCCAM)
http://nccam.nih.gov

National Institute of Mental Health (NIMH)
http://www.nimh.nih.gov/publicat/adhdmenu.cfm

Northern County Psychiatric Associates
http://www.ncpamd.com/adhd.htm

One ADD Place
http://www.oneaddplace.com

Pediatric Development and Behavior
http://www.dbpeds.org

San Diego ADHD Web Page
http://www.sandiegoadhd.com

Vanderbilt Child Development Center
http://peds.mc.vanderbilt.edu/cdc/rating~1.html

Educational Resources

American Association of People With Disabilities (AAPD)
http://www.aapd.com

Consortium for Citizens With Disabilities
http://www.c-c-d.org

Council for Learning Disabilities
http://www.cldinternational.org

Education Resources Information Center (ERIC)
http://ericir.syr.edu

Federal Resource Center for Special Education
http://www.dssc.org/frc

Internet Resource for Special Children
http://www.irsc.org

Learning Disabilities Association of America
http://www.ldanatl.org

National Information Center for Children and Youth With Disabilities (NICHCY)
http://www.nichcy.org

Parent Advocacy Coalition for Educational Rights (PACER) Center
http://www.pacer.org

SAMSHSA
http://www.disabilitydirect.gov

SandraRief.com
http://sandrarief.com

TeachingLD
http://www.dldcec.org

US Department of Education
http://www.ed.gov

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Thank you!
Questions?