The Society for Clinical Child and Adolescent Psychology (SCCAP): Initiative for Dissemination of Evidence-based Treatments for Childhood and Adolescent Mental Health Problems

With additional support from Florida International University and The Children's Trust.

SOCIETY OF CLINICAL CHILD & ADOLESCENT PSYCHOLOGY

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Keynote

Evidence-Based Pharmacological Approaches to Treating ADHD in Children and Adolescents

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Presenter's Disclosure (past 3 years): James Waxmonsky, M.D.

Source	Consultant	Advisory Board	Stock Equity >$10,000	Speaker's Bureau	Research Contract
Novartis				**X**	
Shire					**X**
Noven				**X**	
NIH					**X**

This presentation will discuss treatment options that are not FDA approved.

Current Trends in Psychopharmacology

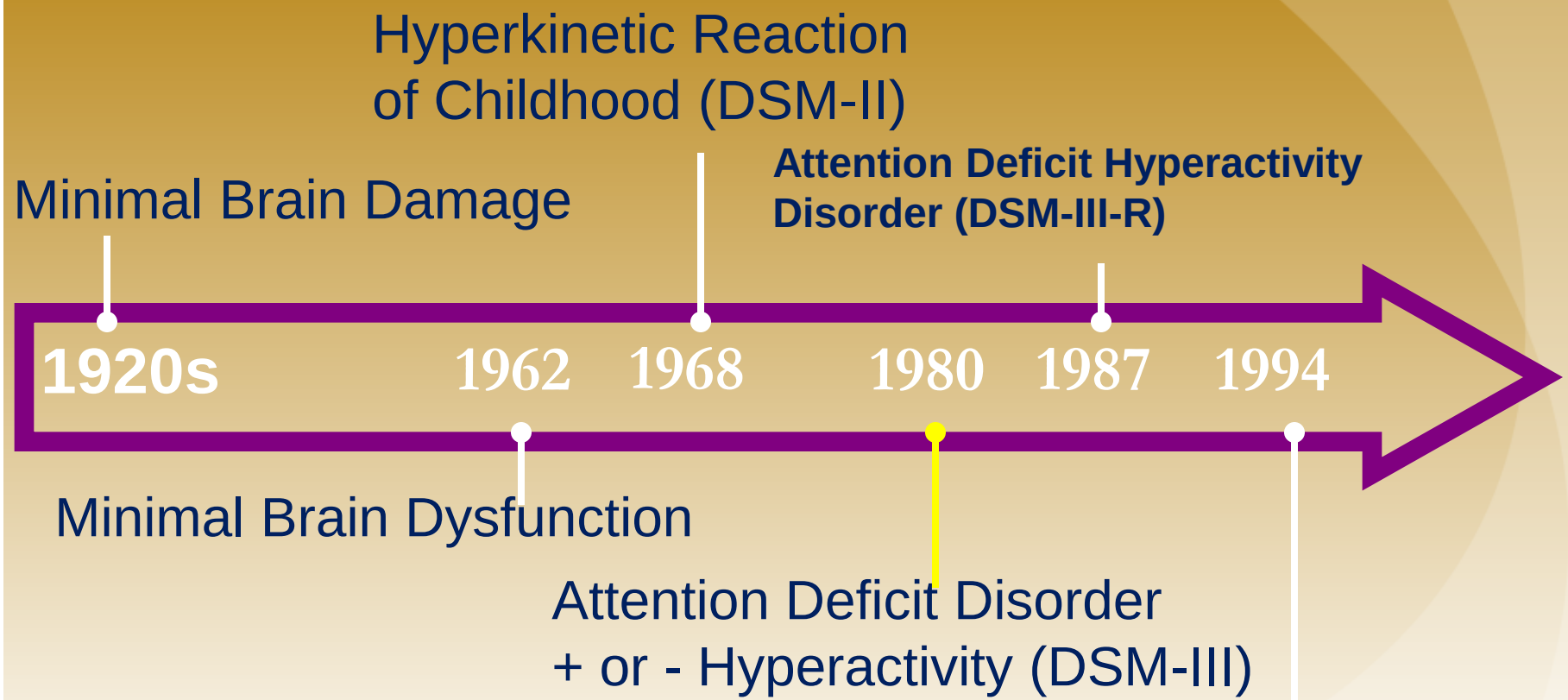
- 7.2% of children ages 4-17 with current diagnoses of ADHD and nearly 5% are medicated for the disorder (CDC, 2010)
- 39.5 million ADHD prescriptions written in 2008 (IMS Health, 2009)
- Stimulants are the most prescribed child psychotropic but use in school aged children has stabilized (Zuvekas, 2011)
- Largest % increase seen in preschoolers, adolescents and adults (CDC, 2010)
- Most psychotropics for youth written by non psychiatrists
- Recent increases in the combination use of stimulants and antidepressants or stimulants and antipsychotics (Comer et al., 2010)

Annual Cost of ADHD and Other Disorders in U.S.

Depression (adults):	**$44 billion**
Stroke:	**$53.6 billion**
ADHD (child)	**$50-60 billion**
ADHD (adult)	**$30 billion**
Alzheimer's	**$100 billion**
Alcohol abuse/dep.	**$180**

Pelham, W.E., Foster, E.M. & Robb, J.A. (2007). The economic impact of attention-deficit/hyperactivity disorder in children and adolescents. Ambulatory Pediatrics, 7(1S), 121-131.

A History of ADHD:
1937 Dr Bradley prescribes benzedrine



Attention-Deficit/Hyperactivity Disorder (DSM-IV and IV-TR)

DSM-IV Definition for Attention-Deficit/Hyperactivity Disorder

- A. 6/9 inattentive or hyperactive impulsive symptoms
- B. Some symptoms that caused impairment were present before age seven.
- C. Some symptoms that cause impairment are present in two or more settings (e.g. at school, work, and at home).
- D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
- E. Not better accounted for by another disorder

DSM IV Symptoms of ADHD

Six (or more) of the following symptoms of inattention:

a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

b) Often has difficulty sustaining attention in tasks or play activities

c) Often does not seem to listen when spoken to directly

d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

e) Often has difficulty organizing tasks and activities

f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

g) Often loses things necessary for tasks or activities (eg, toys, school assignments, pencils, books, or tools)

h) Is often easily distracted by extraneous stimuli

i) Is often forgetful in daily activities

DSM IV Symptoms of ADHD

Six (or more) of the following symptoms of hyperactivity/impulsivity:

a) Often fidgets with hands or feet or squirms in seat

b) Often leaves seat in classroom or in other situations in which remaining seated is expected

c) Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

d) Often has difficulty playing or engaging in leisure activities quietly

e) Is often "on the go" or often acts as if "driven by a motor"

f) Often talks excessively

g) Often blurts out answers before questions have been completed

h) Often has difficulty awaiting turn

i) Often interrupts or intrudes on others (eg, butts into conversations or games)

Reward Deficit Theory of ADHD

(Volkow, et al., 2009)

- When you get a reward, dopamine (DA) gets released
- More DA= stimuli experienced as more rewarding
- DA fires in response to anticipated reward
- Over time, the expectation alone triggers the DA burst
- In ADHD, this is thought not to happen so they do not experience any anticipatory motivation.
- Children with ADHD **more dependent on external motivation** because of these deficits
- Failure to provide reward decreases DA release

Dopamine

(Swanson et al., 2007)

- DA projections originate in the midbrain
- Project to caudate, putamen, nucleus accumbens, amygdala, hippocampus and cortex
- Dopamine neurons have a tonic release (baseline state) and a phasic response to stimuli
- Theorized that ADHD patients have low tonic state (under aroused) and excessive phasic bursts (distractibility)
- Dopamine Transporter (DAT) clears DA from synapse terminating the DA signal
- Glut, GABA, 5HT, noradnergic and cholingeric inputs to DA cells in midbrain so More complex than just synaptic DA levels

MPH Imaging Studies

- .5mg/kg of MPH blocks 60% or more of the available DAT which leads to greater stimulation of DA receptors
- Unlike cocaine, it continues to occupy DAT for hours (Spencer, 2006)
- Rapid release of cocaine from DAT = euphoria
- When paired with food or academic tasks (but not in resting state), 20mg of oral MPH causes greater increase in striatal DA than placebo (Volkow et al 2004)
- Increased DA was associated with subjects finding the task more interesting/more rewarding
- Meshes with clinical data showing that stimulants reduce hyperactivity more in classroom than on the playground (Swanson et al 2002)

The Multimodal Treatment Study of Children with ADHD (MTA)

(*Arch Gen Psych*, 1999.56:1073-86)

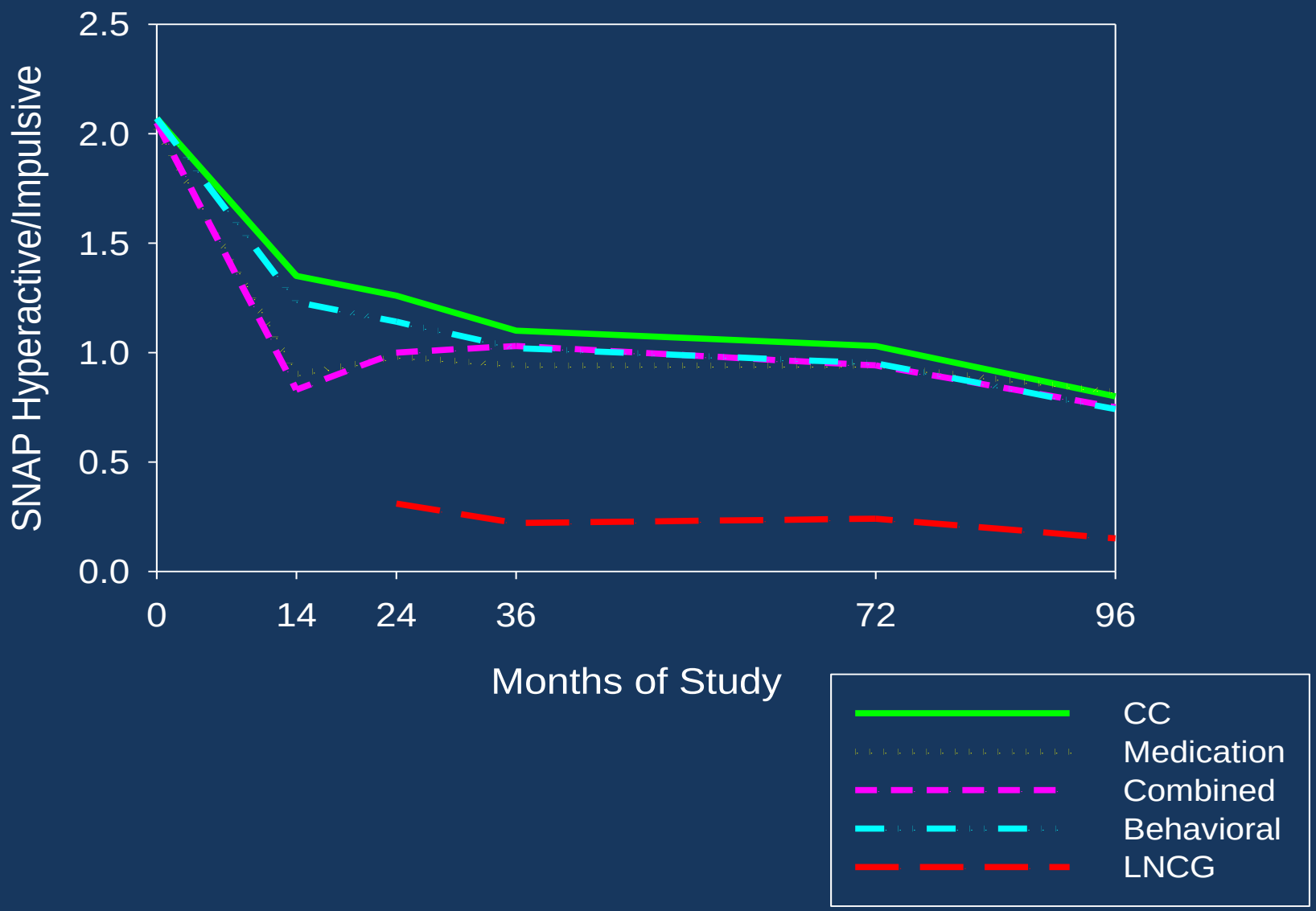
- 14 month clinical trial at 6 different sites
- 579 children ages 7-10 years all with ADHD with about 25% previously medicated
- Subjects randomized to 1 of 4 conditions:
  - Medication management (mostly TID methylphenidate)
  - Behavior management (parent, school and individual)
  - Combined treatment (meds plus behavior)
  - Community-based treatment (mostly BID stimulant)

Summary of MTA Results

- **All** four groups **improved** dramatically during the 14 months of active treatment (treatment works)
- **Medication** (40mg MPH/day) was superior to Behavior therapy for ADHD **symptoms** at 14 months
- **Combo** (31 mg MPH/day) was more likely to "**normalize**" at lower doses than Med group and was much **preferred by parents** (Conners et al., 2001)
- Intensive behavior therapy worked as well as the Community treatment (BID MPH)
- 8 years out, no differences between children who were medicated vs. those who were not—all subjects were still more impaired vs. those without ADHD (Molina, 2009)
- Meds quicker to work but not clearly more effective
- Need better treatments using a maintenance model

Parent-Rated Hyperactivity-Impulsivity

(8 year data, Molina et al., JAACAP 2009)



MTA 8 Year Outcomes

(Molina, 2009 JAACAP, p 497)

- "data fail to provide support for long term advantage of medication treatment beyond 2 years for the majority of children- at least as medication is monitored in community settings…Decisions about medication may have to be made on an individualized basis avoiding untested assumption about continuing benefit and using periodic trial discontinuations to check for need and benefit."

Stimulants

- 70 years of data on them
- Two classes: methylphenidate (MPH) and amphetamine (AMPH)
- Similar efficacy but up to 40% of children have preferential response to either MPH or AMPH (Arnold, 2000)
- 75% will respond to one stimulant and 85% will respond to either MPH or AMPH (Arnold, 2000; Greenhill, 1996)
- No way to tell which children will do best on which medication
- Decide based on duration of effect, cost, past experience and family preference
- Pliszka 2007 or Greenhill 2002 (Journal of The American Academy of Child and Adolescent Psychiatry)

Attention-Deficit/ Hyperactivity Disorder
d-, l-methylphenidate: Delivery vehicles

Immediate release tablets (30 min to 4-6 hours)	•Methylphenidate* (5-20mg TID) •Ritalin** •Focalin** (2.5mg-10mg TID) •Methylin** (liquid also)
Osmotic pump (1-12 hrs)	•Concerta* (18-72mg)
Double pulse beaded (1-10hrs)	•Ritalin LA (10-40mg) (50/50 ratio) •Focalin XR (5-40mg) (D-MPH) •Metadate CD (10-60mg) (30/70)
Transdermal patch (2 hrs – flexible endpoint)	•Daytrana (10,15,20,30mg)
Wax matrix	•Ritalin SR** •Metadate ER •Methylin ER •Methylin**

*generic **available generic

Attention-Deficit/ Hyperactivity Disorder
d-, l-amphetamine: Delivery vehicles

Immediate release tablets (30 min to 6hrs)	•Dextroamphetamine (5-20mg bid) * •Dexedrine** (d only) •Dextrostat** •Adderall** : (mixed salts; 5-30mg)
Osmotic pump	Not available
Double pulse beaded (1-12 hrs but variable across patients)	•Dexedrine Spansule (5-15mg BID)** •Adderall XR (5-30mg)**
Transdermal patch Lysine bound soluble (1-13hrs) Liquid	• in development • Vyvanse (20-70mg) • LiquADD

*generic **available generic

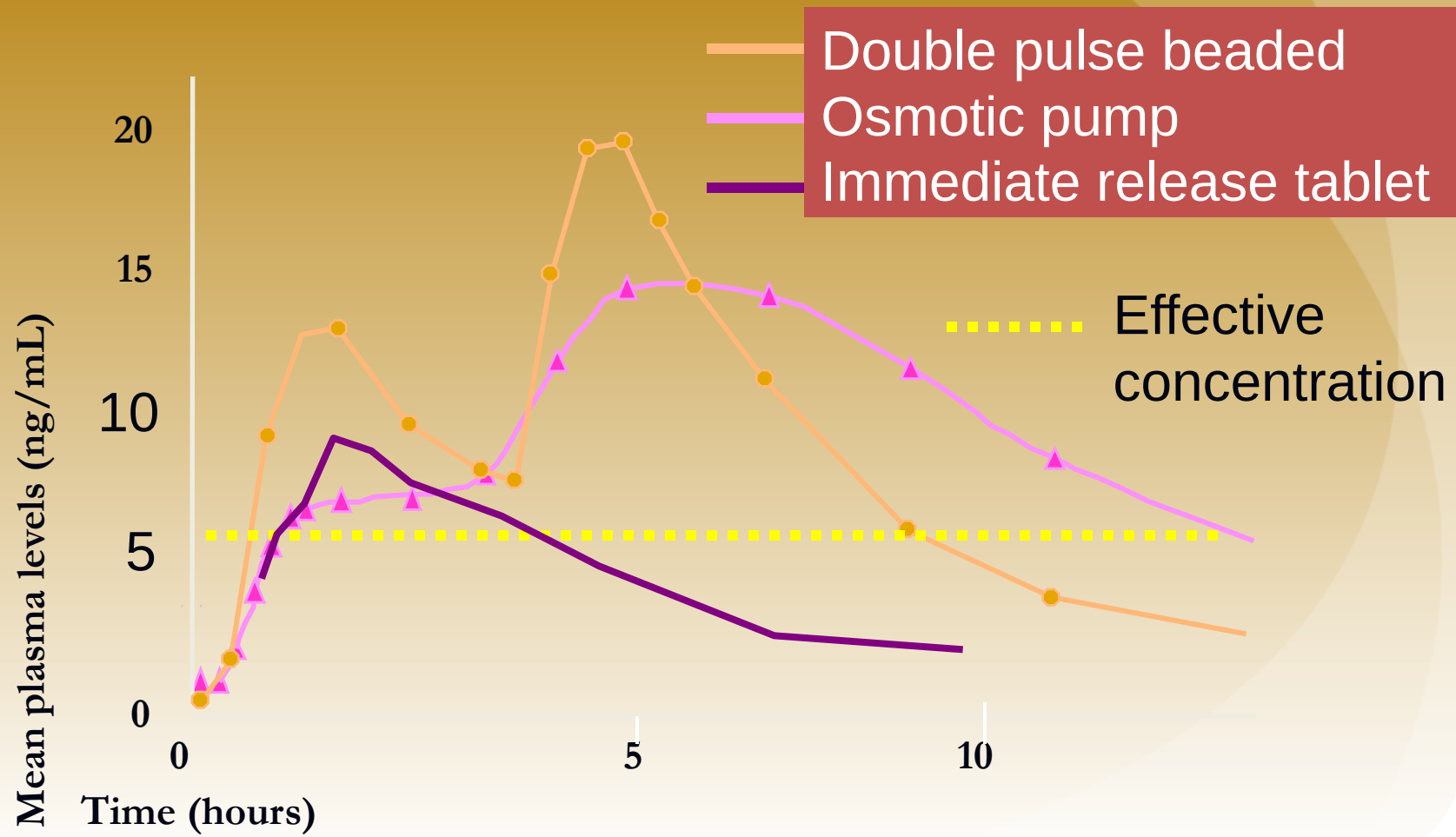
Methylphenidate (MPH)

- Dex isomer is only active enantiomer
- Starting dose of .3mg/kg/day or 5-10mg per day
- Standard dose range of .5mg to 1.5mg/kg/day
- Works by blocking DAT and increasing synaptic DA
- Branded extended release caps vs. generic: ITS ALL THE SAME ACTIVE MEDICINE
- ER Preps: **same immediate effect**, differential duration, possibly some differences in side effect profile
- Key is finding the time of day that symptoms cause the most problem (Comacs Study, 2004)

MPH Preparations

- IR MPH works in 30 mins and last 3-4 hours
- OROS-MPH (Concerta) is meant to mimic 3xday short acting MPH with 10-12 hrs of effect
- Beaded Capsules (Metadate CD, Ritalin LA, Focalin XR) closer to 2xday MPH with 8-10hrs of effect with > AM symptom relief
  - Question of tachyphylaxis
- Patch (Daytrana)- lasts up to 4 hours post removal but slower to start working (Wilens, 2009)
- DexMPH (Focalin)- dexmethylphenidate isomer only in IR and ER forms

Extended Release MPH Preps



Amphetamine (AMPH)

- Dex isomer is provides predominant CNS effects while exact role of L isomer is unclear
- Twice as potent as MPH (5mg=10mg MPH)
- Longer therapeutic duration than IR MPH by 25-33%
- Enhances synaptic dopamine through multiple pathways unlike MPH (at best slight efficacy advantage- Faraone, 2002)
- Starting dose of .15mg/kg/day or typically 2.5-5mg
- Standard dosing is .25mg to 1mg/kg/day
- Similar side effects to MPH except for possibly more appetite loss and feeling “medicated”

AMPH Preparations

- Mixed Amphetamine salts XR (Adderall XR)= BID IR AMPH
  - Double beaded capsule with highly variable duration
- Dexedrine Spansule- R isomer only; comparable to IR AMPH
- Lisdexamfetamine (Vyvanse): pro-drug version initially designed to decrease abuse risk but also provides more consistent and possibly longer therapeutic duration
  - Onset prior to two hours is not well established
- Patch form under development

Starting Doses of Stimulants

(child/teen or adult)

- IR methylphenidate (MPH) 5/10mg (1/2 for d-mph)
- IR dextroamphetamine (DEX) 2.5-5/5 mg
- Double pulse beaded MPH 10/20mg
- Double pulse beaded MAS 5-10/10mg
- Double pulse beaded *d*-MPH 5/10mg
- Osmotic pump MPH 18mg
- Transdermal MPH 10 mg
- *lis*dexamfetamine 20/30mg
- Titrate once weekly in the increments above
- *Recommended starting doses drop by half if under age 6 and only DEX is FDA approved under 6*

How to Optimize Medication

- If lack of effect/partial effect, increase dose (if under1to 1.5mg/kg/day for MPH or .5 to 1mg/kg for AMPH)
- If duration too short, add extra dose (IR) or switch preps
- True rebound (worse symptoms than before med is rare (<5%) but may happen the next morning with some ER preps as they accumulate over time
- Some data that increasing dose of AMPH or Dex-MPH will increase duration of effect
- For OROS-MPH, increasing dose will reduce onset of effect
- If side effect at peak, decrease dose
- If evening side effects, move dose earlier in the day
- Works right away so titrate quickly – as soon as you can get feedback from school and home

Main Beneficial Short-term Effects

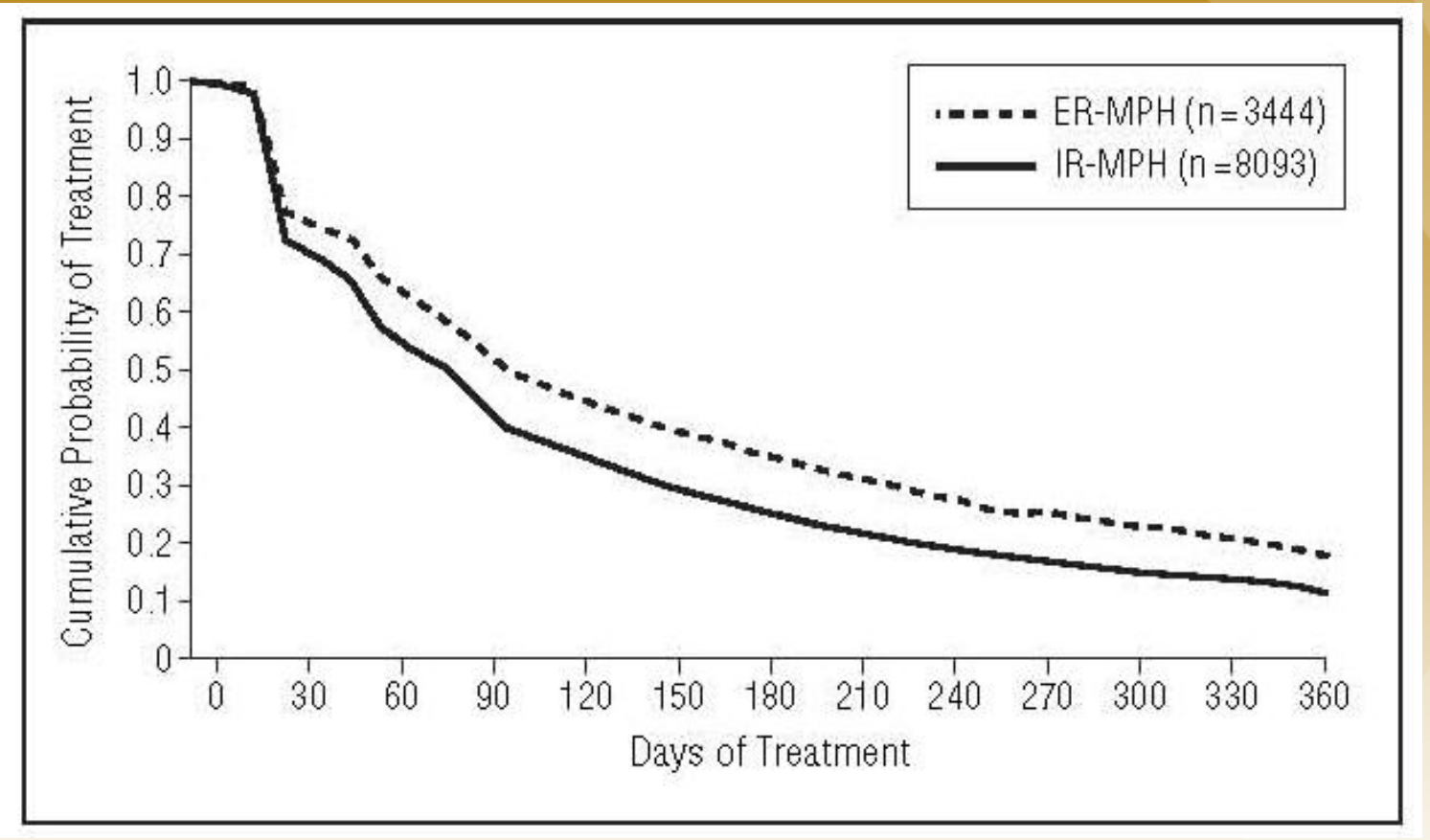
(Greenhill & Ford, 2002)

1. Decrease in classroom disruption
2. Improvement in teacher ratings of ADHD and ODD behavior
3. Improvement in compliance with adult requests and commands
4. Increase in on-task behavior and academic productivity and accuracy (but no long-term effect on academic achievement)
5. Improvement in negative peer interactions (but not sociometric nominations)
6. Improvement in performance on a variety of lab measures, including attention, impulsivity, working memory, story comprehension, and learning

Common Adverse Effects of CNS Stimulants

- 1. Insomnia
- 2. Loss of appetite, growth suppression
- 3. Stomachaches, headaches
- 4. Irritability, moodiness (high placebo rates)
- 5. Blood pressure, pulse elevations
- 6. Tics
- 7. Evening rebound (meds wear off)
- 8. Noncompliance

Noncompliance is the #1 “Adverse Event”



Marcus, S.C., Wan, G.J., Kemner, J.E., & Olfson, M. (2005). Continuity of methylphenidate treatment for Attention Deficit/Hyperactivity Disorder. *Archives of Pediatric and Adolescent Medicine, 159*, 572-578.

Tics: Not what They Used to Be

- Black box contraindication for stimulants
- 1 in 3 children with ADHD experience a tic but tics add little additional impairment beyond ADHD (Spencer, 1999)
- Tics typically onset when ADHD meds onset
- Use of stimulants not associated with significantly higher rates of tics in children with ADHD or extended duration of tics (Spencer, 1999)
- 20% of children with ADHD and tics experienced tic exacerbation with MPH (placebo-22%) with mean tic severity decreasing with all treatments (TSG, 2002)
- In a child with severe tics, consider nonstimulants as the tic risk is roughly similar risk for all stimulants

Substance Abuse and ADHD

- Misuse is more common than abuse
- Teens/college students most likely to misuse (to stay up), abuse (to get high) (22%) or sell meds (11%) (Wilens et al., 2008)
- Stimulants have been used as replacement therapy for cocaine addiction and to treat ADHD in substance abusing youth (Waxmonsky & Wilens 2005)
- Substance abuse correlates more strongly with delinquency than ADHD (Brook 2010; Charach, 2011)
- However, ADHD predicts earlier nicotine & alcohol use and heavier alcohol use as young adults (Molina & Pelham, 2007)
- Most studies have found no link between stimulants for ADHD and future substance abuse but long-term studies are lacking (Faraone & Wilens, 2007; Volkow & Swanson, 2008)
- Nonstimulants have the lowest abuse risk
- Among stimulants, the longer acting capsules have the least abuse risk

Stimulants and Growth

- ER stimulants may prolong the duration of associated side effects, especially insomnia and anorexia.
- It has been known for 30 years that stimulant medications decrease appetite, but they were not thought to suppress growth (Safer, 1972).
- The largest ADHD study to date (NIH funded MTA) suggests there may be an impact of around ¾ of an inch depending on age of initiation and chronicity of use.
- ADHD also appears to impact growth with the disorder being associated with accelerated growth rates prepubertally in two large NIH funded studies (PATS 2006, MTA, 1999).
- Impact on final height not clear but they are associated with slowing of growth in prepubertal children that does not recover during childhood without stopping medication

American Heart Association Warning

(Vetter 2008)

Do stimulant medications increase risk of Sudden Cardiac Death?

- Before starting med assess:
  - Personal HX – palpitations, syncope
  - Family HX of SCD/cardiac illness
  - Physical Exam- listen to hearts
  - EKG?- "it can be useful to add an ECG to increase the likelihood of identifying significant cardiac conditions. We recognize that the ECG cannot identify all children with these conditions but will increase the probability (pg 2416)."
  - Current standard is targeted screening for those with a risk factor or polypharmacy

Adverse Emotional Effects?

- In 2007, FDA issued warning about aggression, suicidal thoughts and manic symptoms (but no Black Box unlike antidepressants)
- There is very **little controlled data** on this- mostly cases reports and personal testimony
- Children with impulse control problems are prone to over reacting, which improves with treatment
- At high doses, children can become subdued
- Studies of stimulants in children with anxiety, depression or Bipolar Disorder show that they can be safely used to treat ADHD but do not improve comorbid mood symptoms (Daviss, 2008, Findling 2007; Jensen 2001; Scheffer 2005)
- Risk of paradoxical mood reactions is probably **less than with antidepressants**

Preschool ADHD Treatment Study (PATS, 2006)

- 70 week study of 300 preschoolers with ADHD (4.4 yrs)
- All treated with IR MPH doses from 1.25 to 7.5 tid (small)
- All doses outperformed placebo at school including 1.25mg
- Doses of 2.5mg or higher outperformed placebo at home
- Mean dose was 14mg per day (5tid) or .7mg/kg/day (1mg/kg in MTA)
- 30% had noticeable side effects and 11% dropped due side effects: irritability, moodiness which could have been from lack of effect
- ADHD subjects were larger than average (2cm/2kg) but growth rates slowed by about 20% on meds (1.4cm/year) and decreased further over the next year

NEW AAP Guidelines for Preschoolers

(PEDIATRICS Volume 128, Number 5, November 2011)

- Guidelines state it is appropriate to make the diagnosis before the age of 6
- Initial treatment for children under the age of 6 should be behavior therapy
- If behavior therapy is insufficient, then use of MPH is acceptable
- Most evidence for MPH but actually only generic amphetamine carries FDA approval
- In areas where behavioral treatments are not readily available, weigh risks of starting medication against the harm of delaying treatment

Why Use a Non-stimulant?

1) **Lack of effect-** about 15% of children with ADHD are stimulant non-responders

2) **Residual symptoms-** especially before morning dose or after evening dose wears off

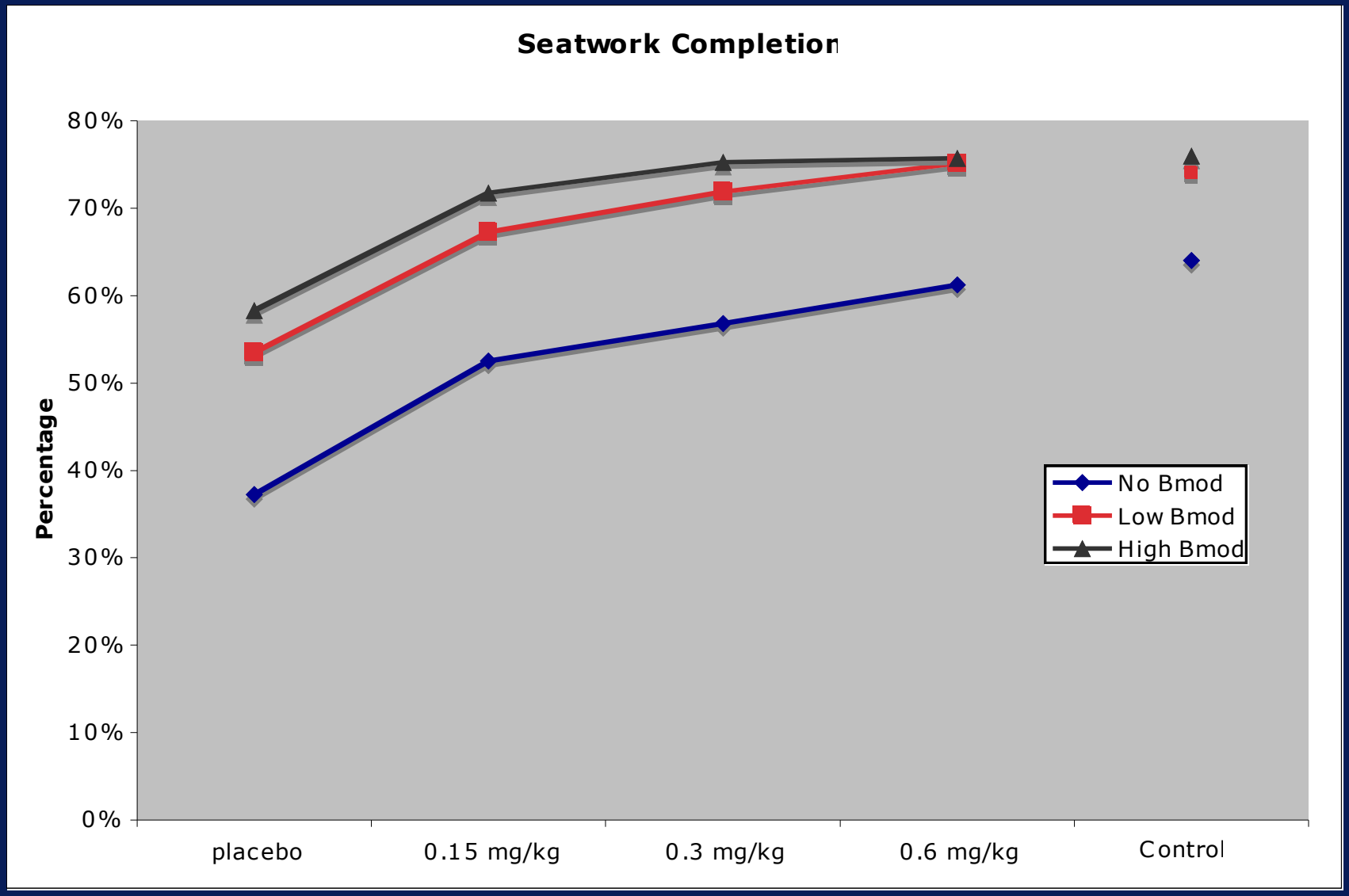
3) **Tolerability-** appetite, growth, sleep, tics, emotional lability, cardiovascular effects

4) **Comorbidity concerns-** how do stimulants impact?

5) **Stigma issues-** abuse and side effect concerns

6) **Absence of long-term effect**—suggests ancillary treatment

❖ Behavior therapy is the most evidence based nonstimulant



(Fabiano et al, School Psychology Review, 2007)

Daily Report Card

- An integral part of all of our school interventions with ADHD children
- Serves as a means of identifying, monitoring, and changing the child's classroom problems
- Doubles as an avenue of regular communication between the parents and the teacher
- Costs little, takes little teacher time, and is highly motivating to the children if parents have selected the right rewards for home back-up
- Effectiveness documented in numerous studies
- Can be used to optimize medication dose

Daily Report Card: Good Example

Sample Daily Report Card

Child's Name: _____ Date: _____

	Special	Language Arts	Math	Reading	SS/Science
Follows class rules with no more than 3 rule violations per period.	Y N	Y N	Y N	Y N	Y N
Completes assignments within the designated time.	Y N	Y N	Y N	Y N	Y N
Completes assignments at 80% accuracy.	Y N	Y N	Y N	Y N	Y N
Complies with teacher requests. (no more than 3 instances of noncompliance per period)	Y N	Y N	Y N	Y N	Y N
No more than 3 instances of teasing per period.	Y N	Y N	Y N	Y N	Y N

OTHER

Follows lunch rules (no more than 3 violations). Y N

Follows recess rules (no more than 3 violations). Y N

Total Number of Yeses _____

Total Number of Noes _____

Percentage _____

Teacher's Initials: _____

____

Comments:

Atomoxetine (Strattera)

- Inhibits presynaptic norepinephrine transporter
- Leads to increase in prefrontal dopamine
- Minimal abuse liability; not a controlled substance
- Less risk of weight loss and no issues with sleep delay or tics
- Somewhat less efficacious than stimulants with about 50% of children responding to it (Newcorn et al. 2009)
- Takes 2-4 weeks for onset of therapeutic effect
- Black Box warning for suicidal thoughts as is structurally similar to some antidepressants but actual rate of occurrence is very low (.5%)
- May work when stimulants fail but little data to support its use as augmenter except to reduce the stimulant dose

Extended Release Guanfacine (Intuniv)

- Approved for children ages 6-17
- Selective a1 agonist
- Onset seen in 1-2 weeks and full effect in 2-4 weeks
- Effective for hyperactive and inattentive symptoms and oppositional behaviors with ES between .6 to .8 (Biederman et al., 2008)
- Strength of effect strongest in in children <9 with failure to separate from placebo in adolescents
- Main side effect is sedation (36%) but no issues with insomnia or weight loss
- Need to watch for drop in blood pressure and possible syncopal episodes (rare)
- Now also extended release clonidine (Kapvay) now available and both are approved for combined use with stimulants
- Adding XR Guanfacine to a stimulant improved ADHD symptoms by 20-25% over placebo (Wilens,2010)

Other ADHD Meds (Not FDA approved)

- **Guanfacine (Tenex)**- 6 hr generic tablet that requires BID dosing
- **Clonidine**- less selective and more sedating alpha agonist with four hour duration of effect so TID dosing
- **Modafinil (Provigil)**- narcolepsy med that increases synaptic dopamine like stimulants but has possible risk of Steven's Johnson Syndrome
- **Bupropion (Wellbutrin)-** antidepressant and smoking cessation drug
- **Tricyclic antidepressants-** effective but problematic side effect profile

Serotonin Reuptake Inhibitors

- No clinical evidence of efficacy in ADHD
- Some concern that SSRIs worsen hyperactivity symptoms in anxious children
- Helpful with comorbidity and safe with stimulants (watch with atomoxetine)
- Venlafaxine (Effexor): case reports and open data for adult and pediatric ADHD but no controlled data; retrospective analysis (N = 17) showing effect for MDD and ADHD[1]

1. Hornig-Rohan et al. 2002.

Limitations of Pharmacological Interventions When Used Alone

1) Not sufficient to bring many children into the normal range of functioning
2) Works only as long as medication taken
3) Not effective for all children
4) Does not appreciably affect several important variables (e.g., organizational skills, concurrent family problems, peer relationships)
6) Poor compliance in long-term use
7) Parents are not satisfied with medication alone
8) Removes incentive for parents and teachers/schools to work on other treatments
9) Little evidence for beneficial long-term effects of treatment (MTA, 2009)

Combination ADHD Therapy

- Large Open label study of ATX + stim finding 40% reduction in symptoms but increased rates of adverse events (irritability, insomnia, appetite loss, blood pressure increase) (Wilens, 2009)
- One small controlled trial of ATX+stim found no difference vs. placebo but response to placebo was high (Carlson 2007)
- Controlled trial of stimulant plus ER Guanfacine
- 455 partial responders to stims were randomized to receive 9 weeks of GXR AM, GXR PM (Wilens, 2010)
- Both GXR arms significantly outperformed placebo in the evening and the morning (20-25% more than placebo) for ADHD symptoms
- No differences between AM vs. PM GXR
- Headache (21 vs. 13%) and insomnia (14 vs. 5%) most common AEs
- Similar data seen for extended release form of clonidine that is now FDA approved for combo therapy
- CAT study found benefit that clon+ MPH led to improved symptom control at home but not school (sedation was problematic) (Palumbo, 2008)

Atypicals for Aggression

- Despite increasing use of atypicals in combination with stimulants there are no controlled data published except for trial of MPH and Aripiprazole in Pediatric BP (Tramontonia, 2009)
- Controlled data to support effect of Depakote (Blader, 2010) but not Lithium (Dickstein, 2009)
- Most of the data comes from monotherapy trials in BP or autism and risperidone in MR/subaverage IQ
- One year maintenance dose of risperidone in these trials was 1.5mg (Aman, 2004)
- Half of subjects were on stable stimulant dose
- Risperdal led to decreased rates of hyperactivity and disruptive behaviors in those on and off stimulants
- Stimulants did not mitigate weight gain
- Ongoing controlled trial of risperidone (TOSCA)

Conclusions

- The majority of children with ADHD will respond to stimulant medication.
- Stimulant medications are safe to use with preschoolers, older children, and adolescents.
- Pharmacological treatment for youth with ADHD has short-term benefits, including improved behavior in the classroom, with parents, and with other children.
- As children move into the teenage years, adherence to medication is an issue.
- There is an absence of long-term benefits of using stimulant medications.

For more information, please go to the main website and browse for workshops on this topic or check out our additional resources.

Additional Resources

Online resources:

1. Center for Children and Families website: http://ccf.fiu.edu
2. Children and Adults with ADHD (CHADD): http://www.chadd.org/Content/CHADD/AboutCHADD/NationalResourceCenter/default.htm
3. Society of Clinical Child and Adolescent Psychology website: http://effectivechildtherapy.com

Books:

Greenhill, L. (2002). Stimulant medication treatment of children with attention deficit hyperactivity disorder. In P.S. Jensen & J.R. Cooper (Eds.), *Attention Deficit Hyperactivity Disorder. State of the Science. Best Practices*. New Jersey: Civic Research Institute.

Selected Peer-reviewed Journal Articles:

1. American Academy of Pediatrics. Subcommittee on Attention-Deficit/Hyperactivity Disorder and Committee on Quality Improvement ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents. Pediatrics, 2011, 128 (5) 1-16
2. Fabiano, G.A., Pelham, W.E., Gnagy, E.M.,Burrows-MacLean, L., Coles, E.K., Chacko, A.,…Robb, J.A.(2007). The single and combined effects of multiple intensities of behavior modification and methylphenidate for children with attention deficit hyperactivity disorder in classroom a setting. School Psychology Review, 36(2), 195-216.
3. Greenhill, L., Kollins, S., Abikoff, H., McCracken, J., Riddle, M., Swanson, J., …Cooper, T. (2006). Efficacy and safety of immediate-release methylphenidate treatment for preschoolers with ADHD. Journal of the American Academy of Child and Adolescent Psychiatry, 45, 1284-1293.
4. Molina, B. S., Hinshaw S.P., Swanson, J.M., Arnold, L.E.,Vitiello, B.V., Jensen, P.S., … Gibbons L. G. (2009). The MTA at 8 Years: Prospective follow-up of children treated for combined-type ADHD in a multisite Study. Journal of the American Academy of child & Adolescent Psychiatry. 48(5), 484-500.
5. Newcorn, J.H., Sutton, V.K., Weiss, M.D., Sumner, C.R. (2009). Clinical responses to atomoxetine in attention-deficit/hyperactivity disorder: The integrated data exploratory analysis (IDEA) study. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(5), 511-518.

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