ProjectTEACH
FAMILIES THRIVE WITH GOOD MENTAL HEALTH

The Treatment of Attention-Deficit/Hyperactivity Disorder

Presenter:

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Disclosures

The REACH Institute – Faculty honoraria (per diem)

ADHD
Rule of Threes

- 3 Main Symptoms
  - Inattention, Impulsivity, Hyperactivity
- Impacts 3 Basic Functions
  - Focus, Motivation, Planning/Organization
- 3 Mainstays of Treatment
  - Pharmacotherapy, Behavioral therapy, Accommodations

Evidence-Based PharmacotherapyTreatment

- First Line: Stimulants
- Stimulants have 70-90% response rate
- May require trials with various formulations to get optimal response
- 65-70% respond to one class; up to 90% respond to either
- Side effects profile similar
- Difference in preparations primarily in duration of action
- Evidence provided by MTA Study

Evidence Based Treatment

The M.T.A study:

- 1) medication alone – methylphenidate
- 2) medication and behavior therapy
- 3) behavior therapy alone
- 4) treatment as usual

Results:

1)MTA style medication management alone – very good outcome

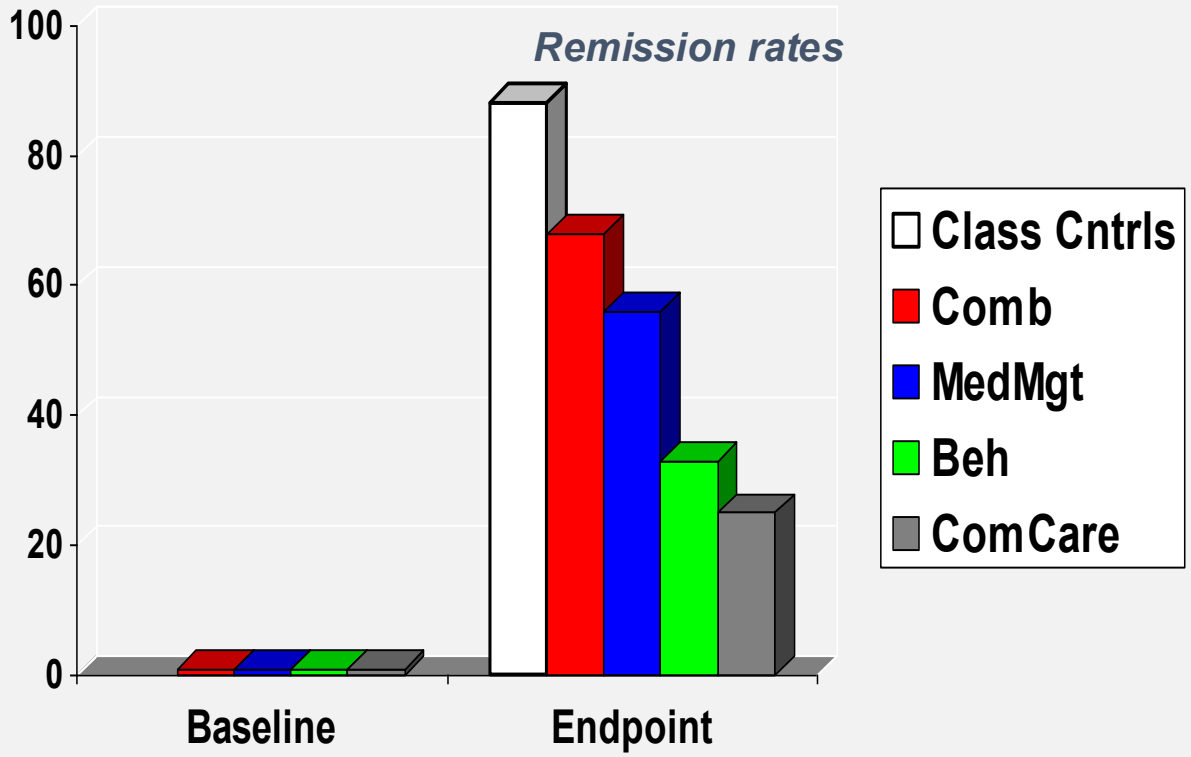
2)Combined with behavioral therapy – even better, 10% advantage , especially for anxious kids

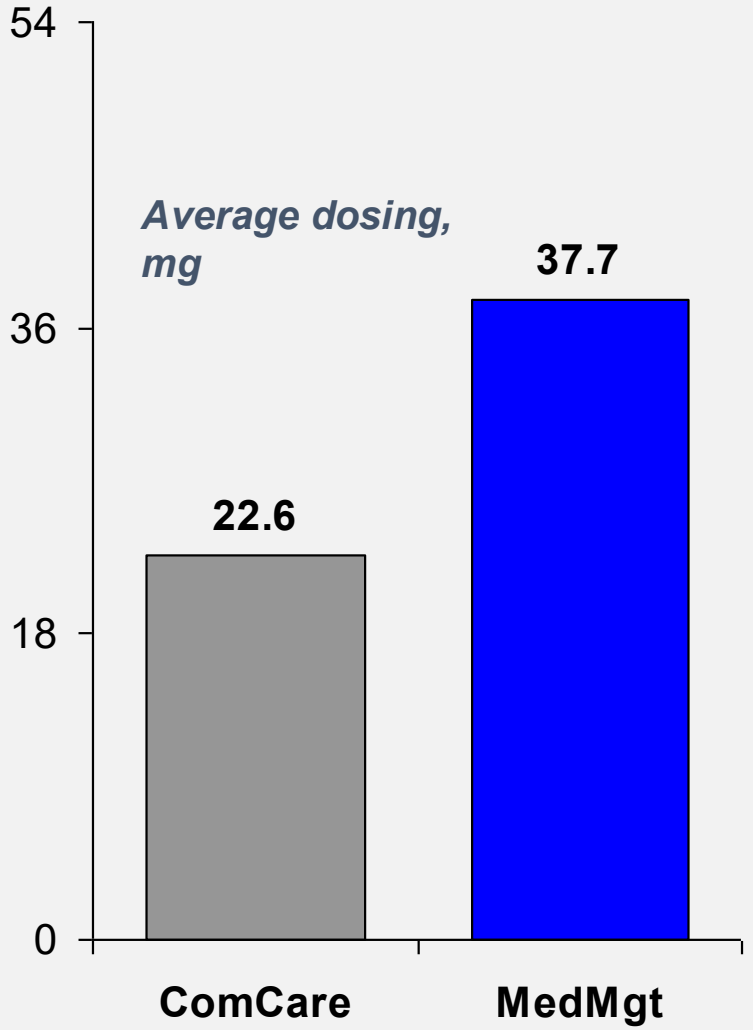
3)Behavior therapy alone - little benefit

4)Community care: Treatment as usual – poor outcome

MTA Study:

Remission Rate Increased with Increasing Dose





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ADHD Medication

- How did the MTA trial achieve high-rates of remission?
  - Higher stimulant doses
  - Better coverage in the evenings
  - Follow-up visits monthly for 30 minutes
  - Active contact with school and support network
  - Follow-up Vanderbilts from home and school at each visit

    Use rating scale data to determine place of optimum response and duration of action of AM dose

Dose Effect Time of Stimulant Preparations (hours)

- Methylphenidate
  - Ritalin/Focalin 4
  - Ritalin LA/Metadate CD/ 6-8
  - Focalin XR 8
  - Concerta MPH 10-12
- Amphetamine
  - Dextro/Levo amphetamine (Adderall) 6
  - Adderall XR 8-12
  - Vyvanse 10-12

**Different charts say different things and people are variable!

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Side Effects

- **Common**
  - Appetite suppression
  - Sleep disturbance
  - Headache
  - GI upset
- **Less common**
  - Tic exacerbation
  - Rebound
  - Irritability/Emotional lability/Social withdrawal
  - Reduction in growth velocity
  - Hypertension/Tachycardia/Arrhythmia
- **Rare**
  - Psychosis
  - Abuse potential/Diversion

Titration and Follow-Up

- Benefits and side effects occur right away
- Seeking maximum effect with minimum side effects.
- Treat for remission — Improvement is not enough!
- Follow up in one week by phone or in–person
- Follow rating scales and side effects
  - Physical exam: height, weight, bp, pulse.
- Follow-up a few days after dose change.
- When initially stable see monthly as multimodal plan is put in place then every three months.
- Reassess every new school year

Alternative to Stimulants

Norepinephrine Reuptake Inhibitor

Atomoxetine (Strattera)

Viloxazine (Qelbree)

Alpha 2-Agonists

Clonidine (Catapres,Kapvay)

Guanfacine (Tenex, Intuniv)

- Although there is evidence to support their relative effectiveness compared to placebo, the gold standard is the stimulants due to a much larger **effect size**

Atomoxetine

- Dosing based on weight
- Common AEs: irritability, sedation or insomnia, decreased appetite, GI
- Rare accounts of liver damage, suicidal ideation: boxed warning
- Advantages:
  - Once Daily dosing (max 10 Hours)
  - Little abuse potential (adolescents)
  - No apparent effects on growth
  - Does not seem to exacerbate tics
- Disadvantages:
  - Delayed onset (takes 3-6 weeks)
  - Generally not as effective

Atomoxetine Dosing

- 1. Starting dose 0.5mg/kg for first 4 days
- 2. Advance to TARGET dose as close to 1.2 to 1.4mg/kg as you can get. (typical max is 100mg)
- 3. Can be given ONCE or TWICE a day
- 4. Stay at target dose for a month

How supplied: 10, 18, 25, 40, 60, 80, 100mg

Viloxazine (Qelbree)

Dosing for children 6 to 11

- 100mg week 1
- 200mg week 2
- 300mg week 3
- 400mg week 4

Supplied as 100, 150, 300 & 400 capsules
Can be sprinkled on soft food.

Dosing for Adolescents 12 to 17

- 200mg week 1
- 400 mg week 2
- Can go to 600mg week 3

Alpha-2-Adrenergic Agonists

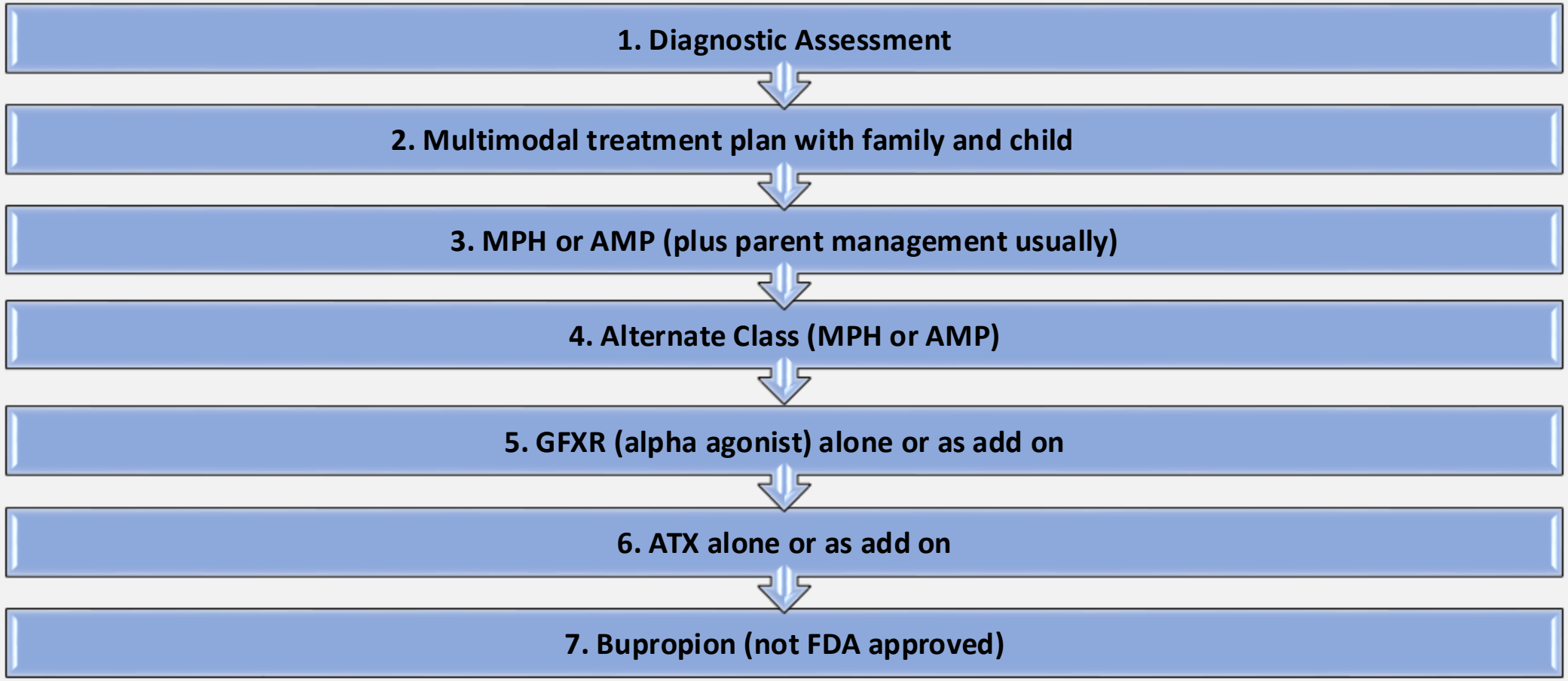
- Guanfacine - start at 0.5mg once or twice a day, 6mg max
- Intuniv (Guanfacine ER) start at 1mg daily- advance weekly, max of 6mg
- Clonidine- start at 0.05mg once at bedtime, advance weekly, 0.4mg max
- Side effects: sedation, lower BP therefore MUST taper when stopping and daily compliance is a safety issue
- Advantages
  - Sedating (sleep difficulties)
  - LA forms given once daily (Kapvay may need BID)
  - Better for hyperactivity and impulsivity than inattention
  - Adjuncts for children with partial response to stimulant

Medication Treatment Responsive Groups

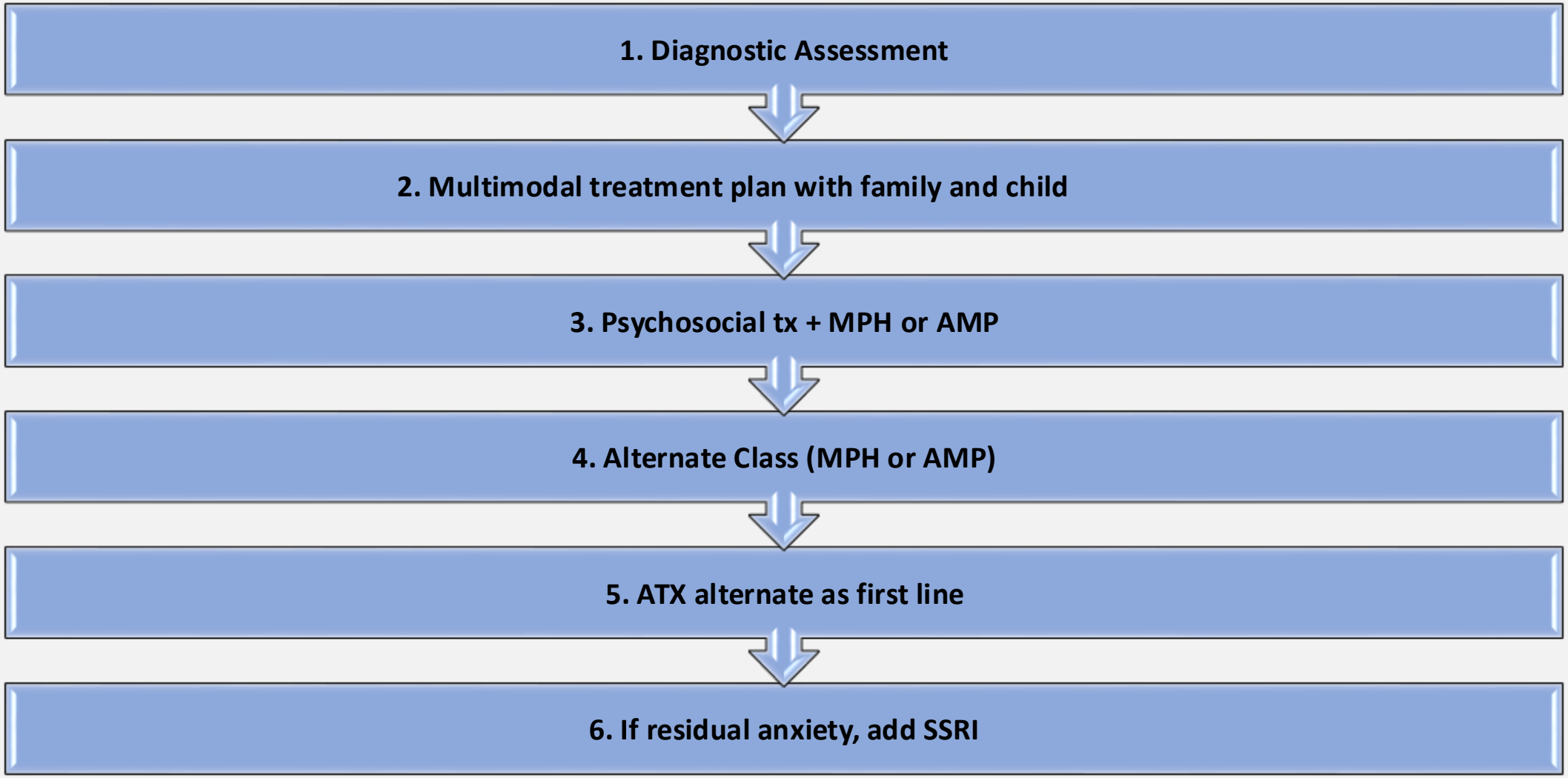
- Children
- Teenagers
- Adults
- Preschoolers (Short et al . 2004, Greenhill et al., 2007)
- Individuals with Intellectual Handicaps (Pearson et al.2004)

- ADHD co-morbid with Other Diagnoses
  - Tourette's Disorder
  - Autism Spectrum Disorder
  - Anxiety/Mood Disorder
  - Conduct Disorder
  - Oppositional Defiant Disorder
  - Substance Abuse Disorder

Garden Variety ADHD



ADHD + Anxiety/Depression



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Principles of Behavior Therapy

- Positive reinforcement is much better than negative reinforcement
- Motivation can be improved with pairing preferred and non-preferred activities- work before play!
- Most of us thrive with structure and routine ADHD child needs lots of this!
- Tight collaboration with school- behavior plan, daily report card
- Avoid shaming and excessive punishment

Non-pharmacological Interventions

- Organizational skills training, Peer tutoring
  - Computer assisted instruction – targets attention and working memory- popular in research sector and commercially. Evidence not clear- reviewed by Rutledge 2012
  - EndeavorRx FDA authorized video game. Cost $100- 25 minutes, 5 days a week for at least 4 consecutive weeks
- Homework focused interventions
- School accommodations
  - Eligibility for a 504 plan
    - Additional time for exams, quiet setting for exams, training interventions at school
  - IDEA (Other Health Impairment) creating an Individual Education Plan (IEP)
    - for appropriate class placement, instructional and behavioral support
- Dealing with co-morbid conditions
- Social skills training if needed

Social Supports

- Support groups (e.g. CHADD)
- Online
  - www.teachingkidstolisten.com
  - www.Help4ADHD.org
- Books
  - 1-2-3 Magic (Tom Phelan)
  - Making the System Work for Your ADHD Child (Peter Jensen)
  - Taking Charge of ADHD: The Complete Authoritative Guide for Parents (Russell Barkley)
  - ADHD: What Every Parent Needs to Know (M Reiff)

Why Should I Treat My Patient's ADHD

Risk of Not Treating

- Academic struggles
- Difficult family and peer relationships
- Risk of injury
- Teen risk-taking and impulsive behavior
- Poor vocational performance
- Dangerous driving

Risk of Treating

- Possible adverse side effects
- Medication misuse/abuse

Bottom Line

- Titrate closely and relatively quickly
- Use your algorithms
- Higher stimulant dose is usually the first step
- Follow up every 3 months only after stable
- Remember psychosocial treatments and school interventions

What would you do for this patient?

- Medication
  - Which one?
  - Dose?
  - How soon to follow up
  - What about sleep?
- Behavior Therapy
  - Suggestions for parents
- Accommodations
  - School-based suggestions?

My thanks to Dr. J. Wallace at University of Rochester for the following accommodations menu

Accommodation Menu

Focus and Attention

_____Seat in the front of the classroom
_____Seat away from distractions (fish tank)
_____Seat near quiet peers and away from disruptive peers
_____Increase space between seats
_____Private cue to stay on/return to task
_____Involve student in discussions/activities
_____Make instructions clear and brief
_____Select teachers with energetic, engaging style
_____Pair written and oral instructions
_____Check to be sure assignments are copied correctly
_____Break large assignments into parts with deadlines
_____Make extra eye contact with student
_____Teach in close proximity to student
_____Consider need for smaller environment with more adult support

Accommodation Menu

Impulsivity and Hyperactivity

_____Ignore minor impulsive behavior
_____Keep student occupied and active
_____Supervise closely during transitions
_____Reprimand(s) should be brief and private if possible
_____Seat near good role model
_____Notice and reinforce positive behaviors
_____Set up behavior contract with clear short-term goals
_____Encourage hand-raising and waiting
_____Rewards and consequences should be immediate
_____Implement home/school reward token system
_____Allow student to stand and move at times
_____Provide movement breaks between seated activities
_____Consider need for smaller environment with more adult support

Accommodation Menu

Organization and Planning

_____Use adults to support organization – teachers, parents, resource teachers
_____Create “Homework Loop” to complete daily assignments
_____Check to see that assignments are written down correctly
_____Be sure correct books go home or consider extra copies
_____Encourage parents to set up homework time and place and assistant
_____Have teachers ask for completed assignments
_____Empty and reorganize book bag and locker at least weekly
_____Use colored dividers and folders
_____Consider peer assistant for organization
_____Use multi-sensory approaches for giving assignments and teaching
_____Consider allowing tape recording of assignments and lessons
_____Use consistent repetitive approach to getting organized
_____Ask student to repeat instructions

Accommodation Menu

Academic Struggles

____Consider referral for testing for any learning concerns/disabilities

____Explore other possible impairing conditions (speech, hearing, learning disabilities)

____Use multi-sensory techniques in all phases of teaching

____Use games, songs and chants/raps for rote learning and memorization

____Accommodate weaknesses in learning – math, reading, foreign language

____Be aware that learning weaknesses worsen attentional problems and vice versa

____Schedule regular meetings/communication with parents about learning concerns

____Direct parents to practice skills with student

____Parents can consider private tutoring or after-school homework support

____Consider need for formal 504 accommodations or Special Education support

____Consider different levels of support (resource room, consult teacher, self-contained setting)

____Emphasize any areas of interest in academics content

ADHD Medication Guide (www.ADHDMedicationGuide.com)

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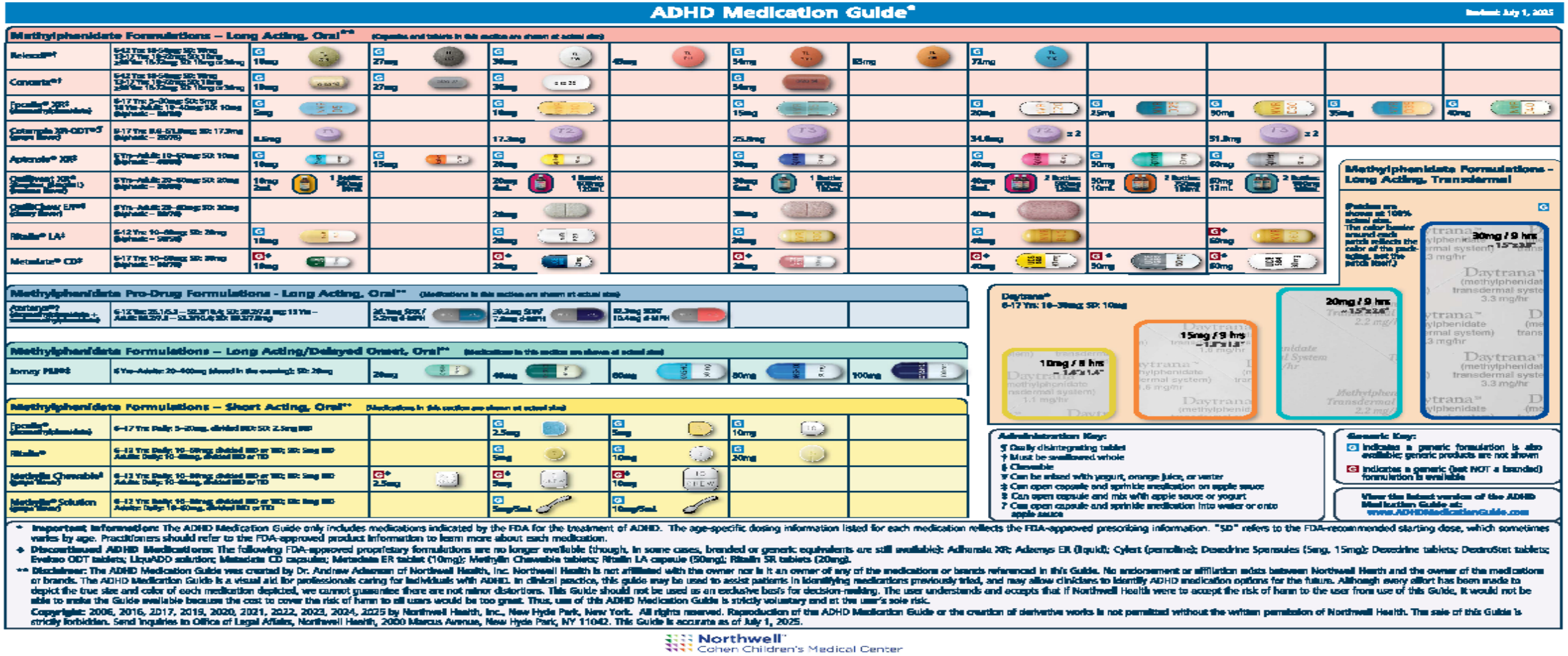

* **Important Information:** The ADHD Medication Guide only includes medications indicated by the FDA for the treatment of ADHD. The age-specific dosing information listed for each medication reflects the FDA-approved prescribing information. "SD" refers to the FDA-recommended starting dose, which sometimes varies by age. Practitioners should refer to the FDA-approved product information to learn more about each medication.

† **Discontinued ADHD Medications:** The following FDA-approved proprietary formulations are no longer available (though, in some cases, branded or generic equivalents are still available): Adhansia XR; Adzenys ER (liquid); Cylert (pemoline); Desoxyn Spansules (5mg, 15mg); Desoxyn tablets; DextroStat tablets; Evekeo ODT tablets; LiquADD solution; Metadate CD capsules; Metadate ER tablet (10mg); Methylin Chewable tablets; Ritalin LA capsule (50mg); Ritalin SR tablets (20mg).

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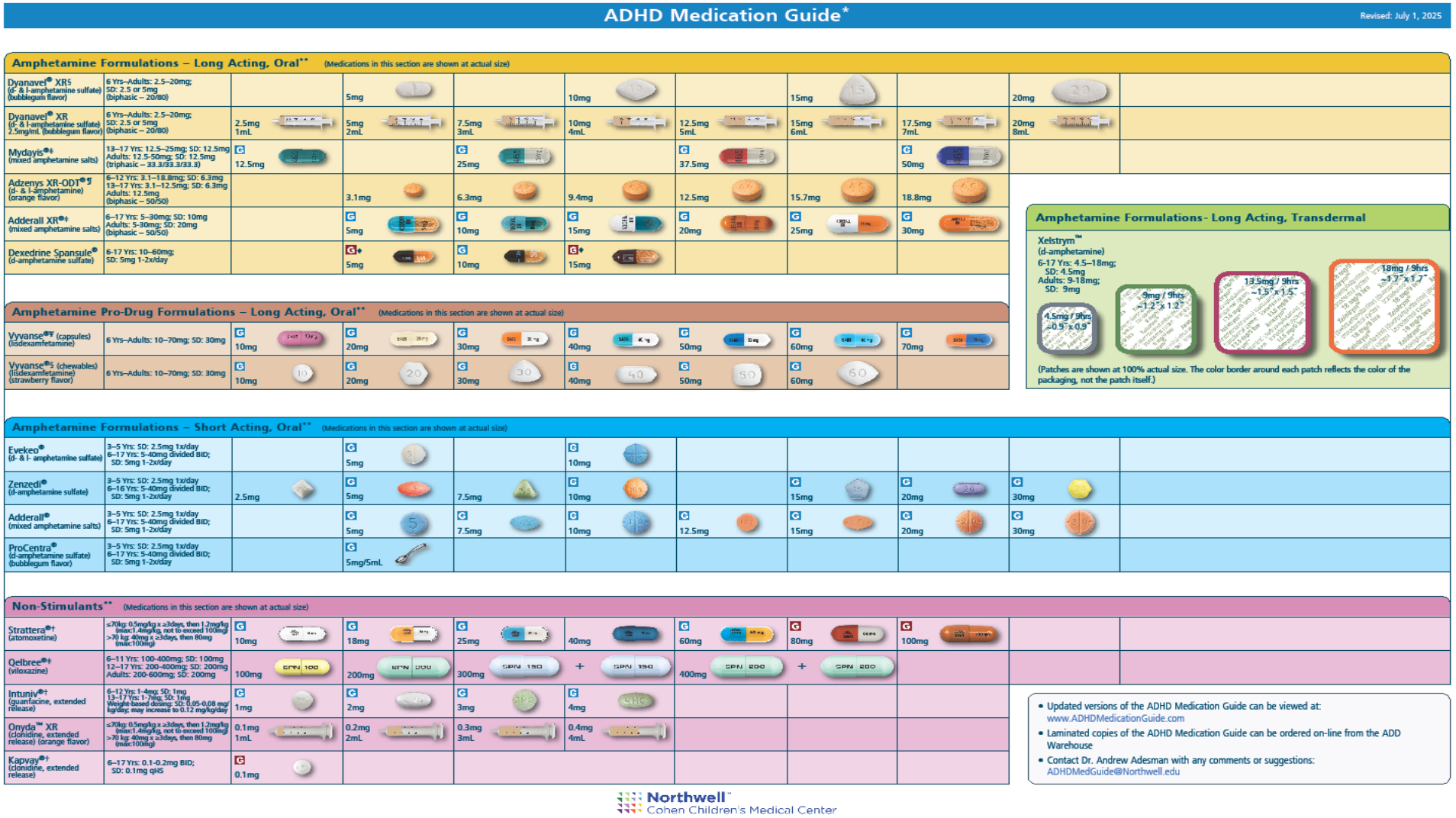

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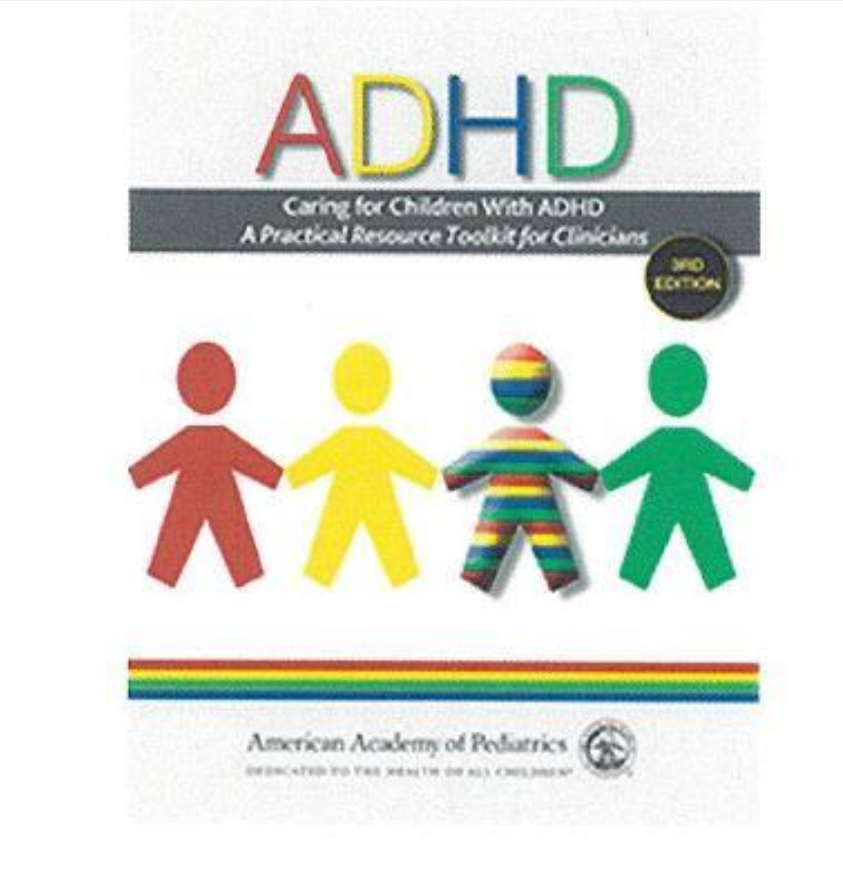

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AAPP Pharmacist Toolkit: Addressing Stimulant Shortages

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Parents Medication Guide

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Attention-Deficit/Hyperactivity Disorder

Prepared by:

American Academy of Child
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