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

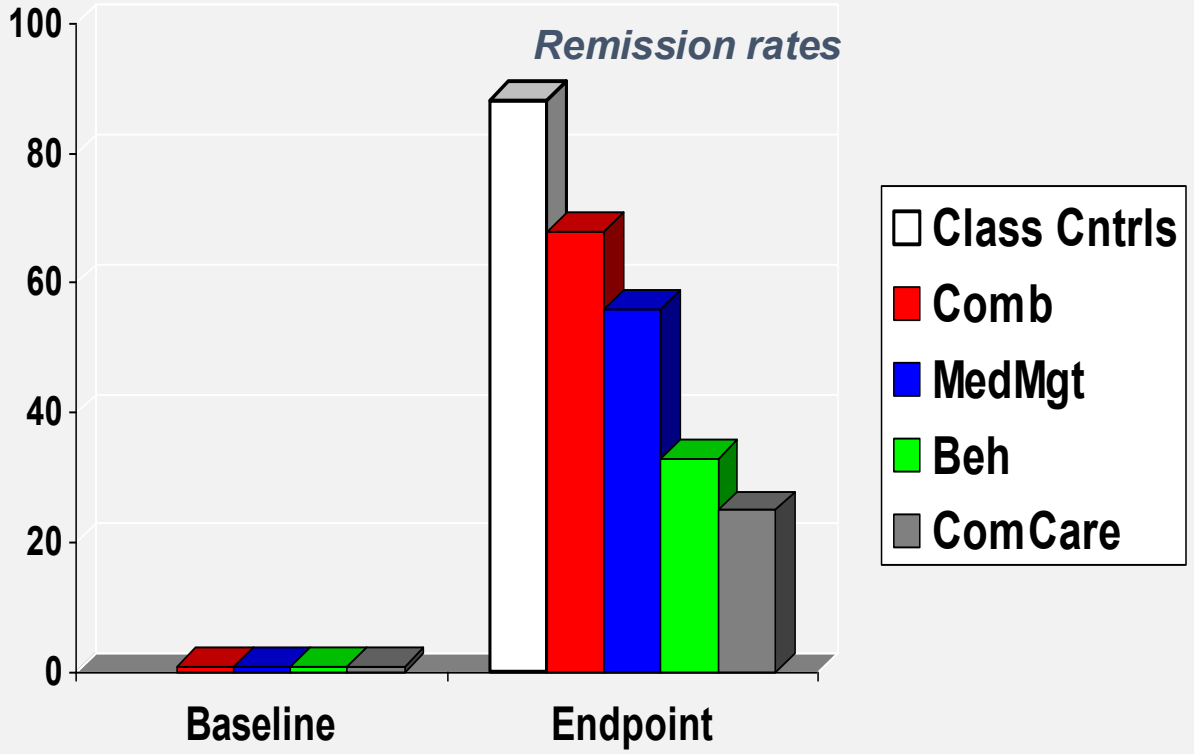
ADHD Medication

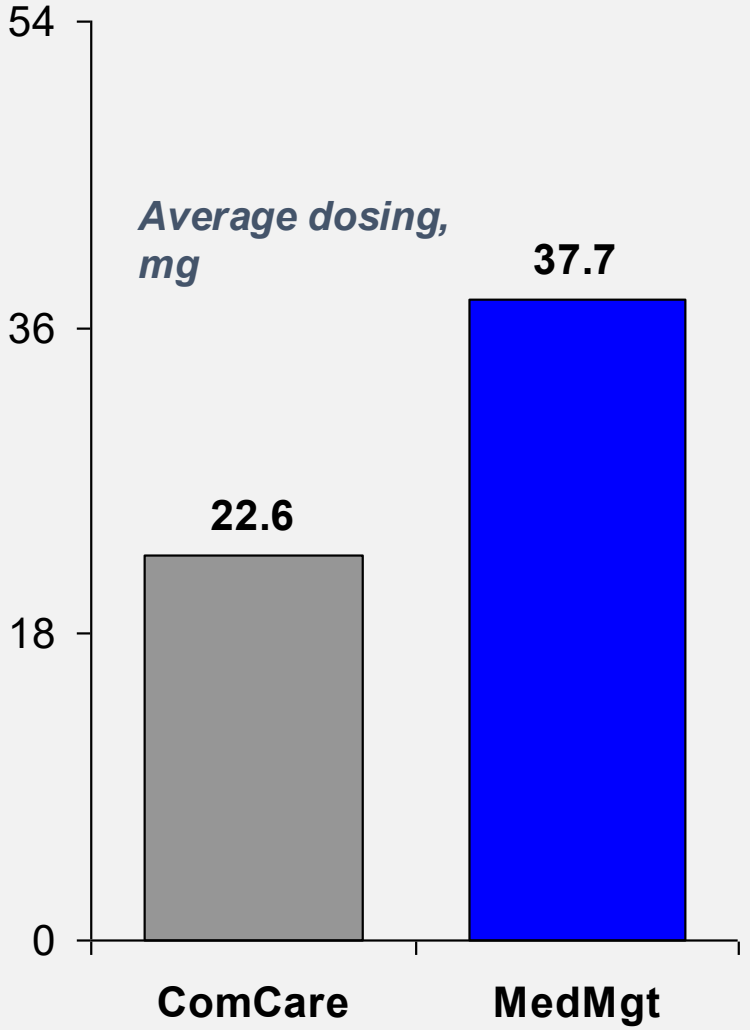
- How did the MTA trial achieve high-rates of remission?
  - Higher stimulant doses
  - Better coverage in the evenings
  - Follow-up visits monthly for 30 minutes
  - Active contact with school and support network
  - Follow-up Vanderbilts from home and school at each visit

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

MTA Study:

Remission Rate Increased with Increasing Dose





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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

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Alpha-2-Adrenergic Agonists

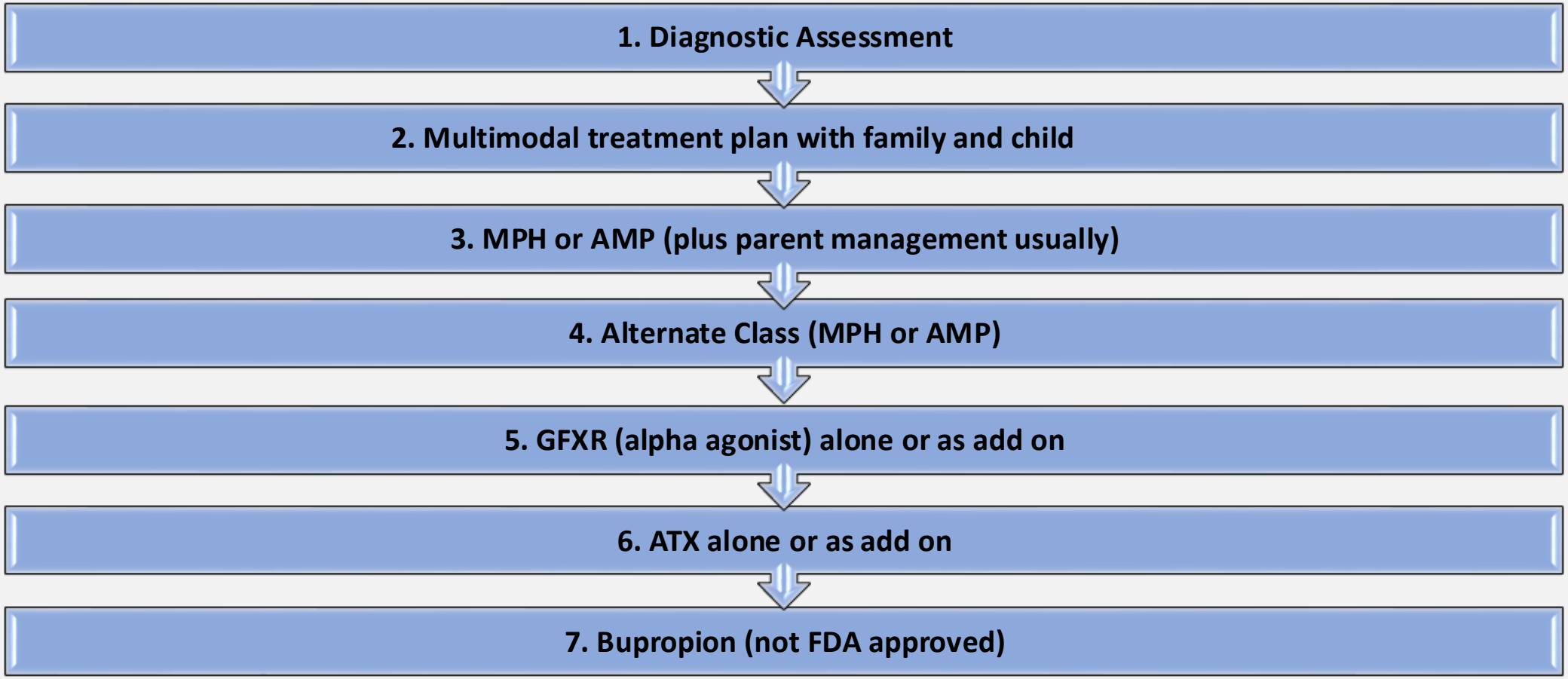
- Guanfacine - start at 0.5mg once or twice a day, 6mg max
- Intuniv (Guanfacine ER) start at 1mg daily- advance weekly, max of 6mg
- Clonidine- start at 0.05mg once at bedtime, advance weekly, 0.4mg max
- Side effects: sedation, lower BP therefore MUST taper when stopping and daily compliance is a safety 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

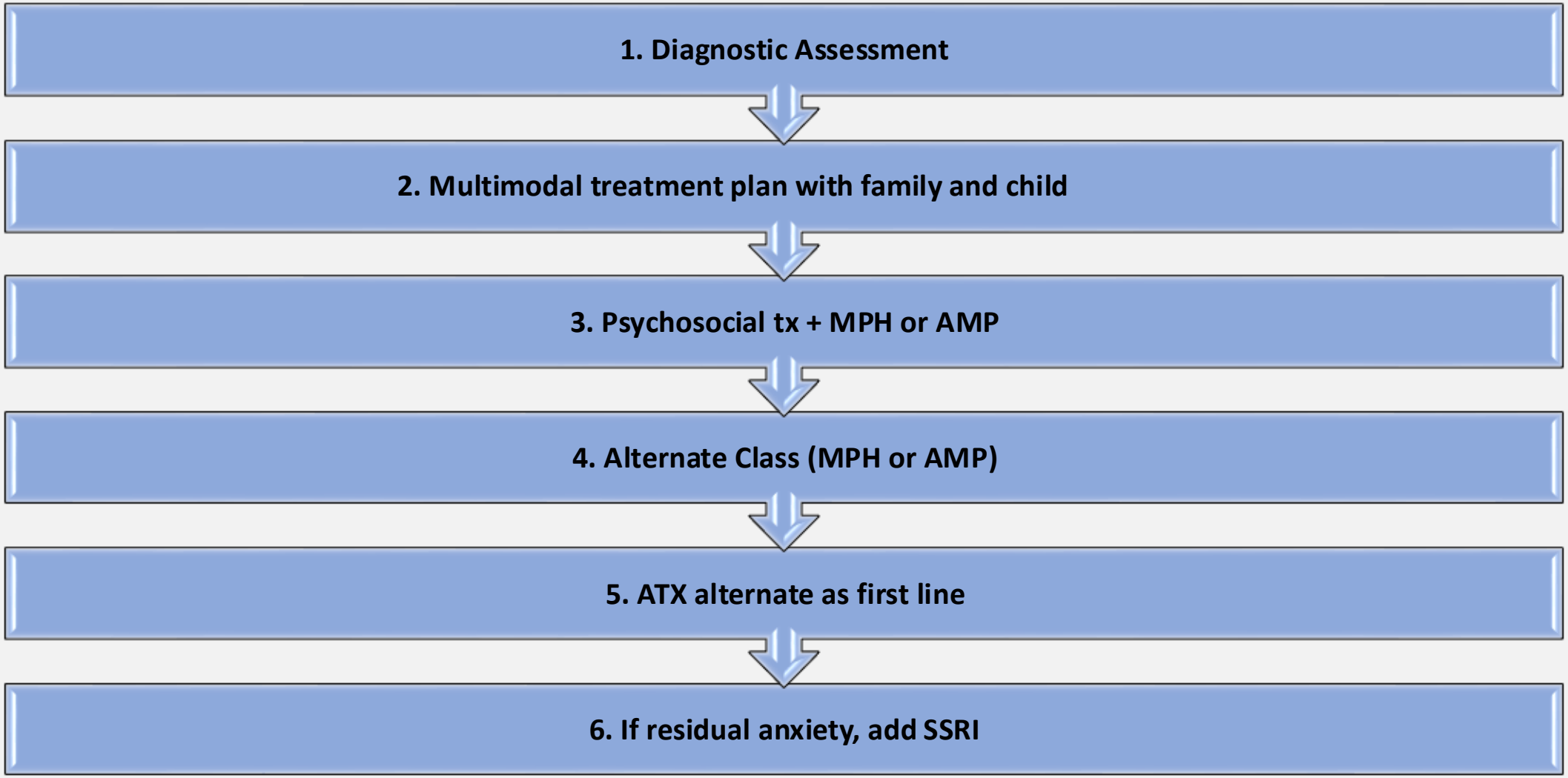
- Children
- Teenagers
- Adults
- Preschoolers (Short et al . 2004, Greenhill et al., 2007)
- Individuals with Intellectual Handicaps (Pearson et al.2004)

- 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

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)

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

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

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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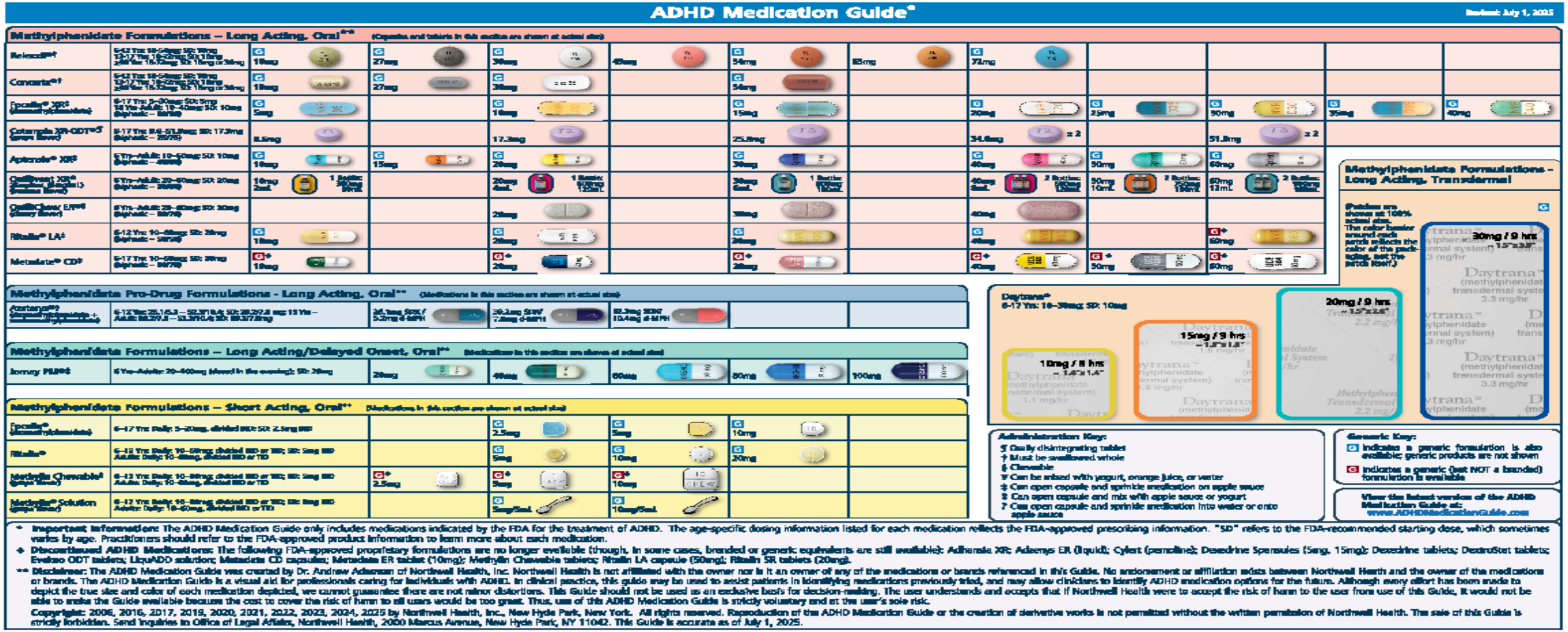

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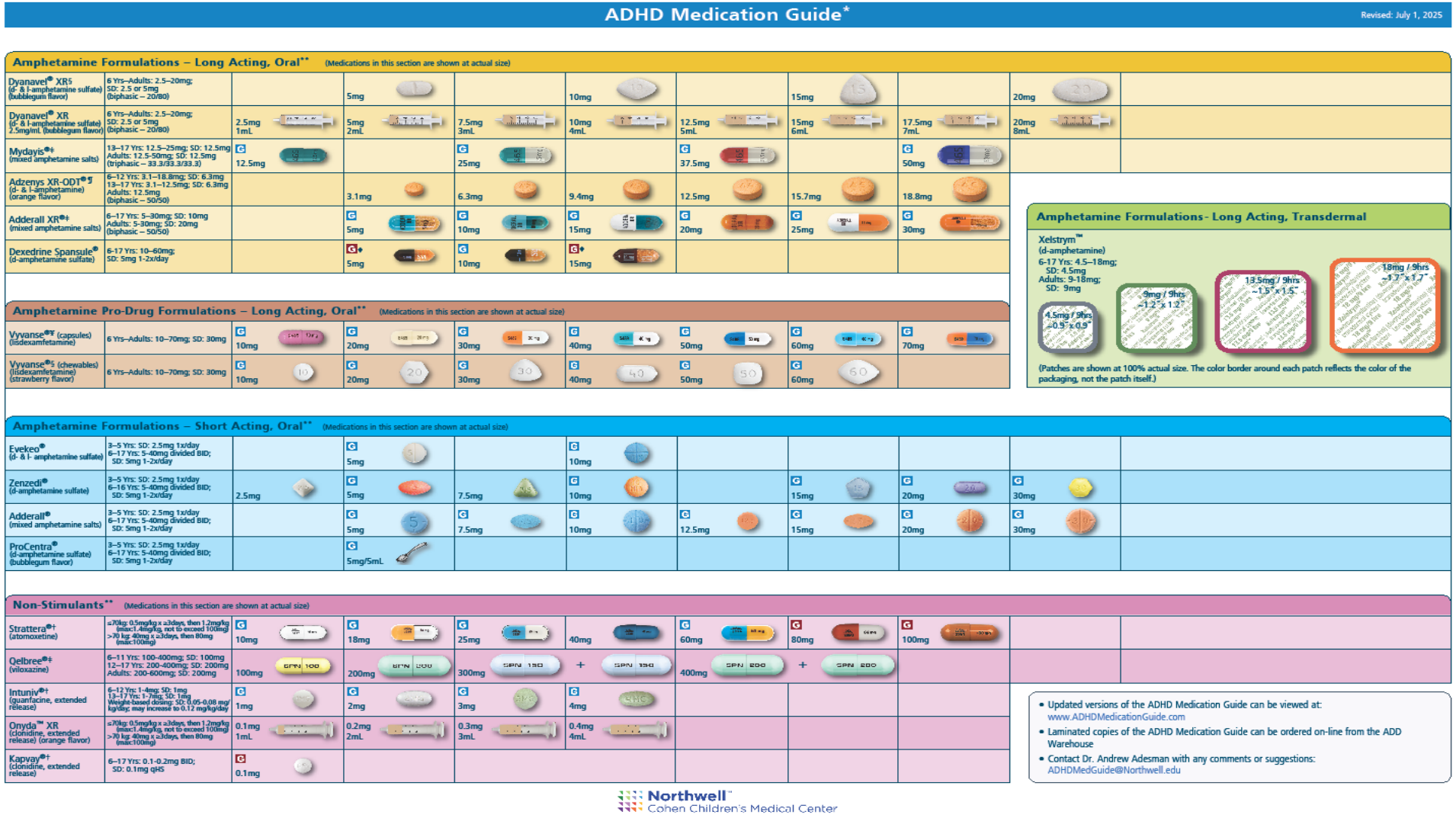

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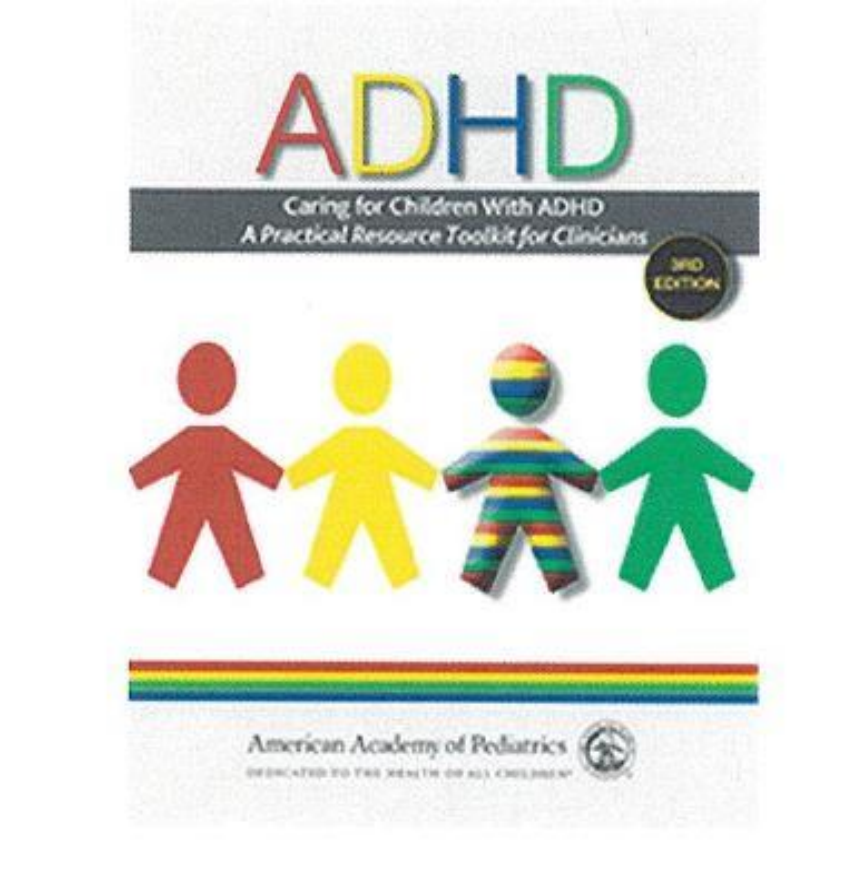

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AAPP Pharmacist Toolkit: Addressing Stimulant Shortages

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Parents Medication Guide

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Attention-Deficit/Hyperactivity Disorder

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