Medication, not Magic:
Making Wise Choices for Kids with ADHD

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Kids on Meds:

Up-to-Date Information About The

Most Commonly Prescribed Psychiatric Medications

&

Your Child in the Balance:

Solving the Psychiatric Medicine Dilemma

"Do You Believe in Medicine?"

Medicine is not a belief.
It's a tool.

Our Goal:

The Responsible Use of Psychiatric Medicines in Children

“He who has a decision…
has a problem”

Dutch proverb per Harvey Hubbard Westervelt III

<u>Our Goal</u>

How to decide if medicine can help solve the problem

Kalikow's First Commandment

Start with a Comprehensive Evaluation

Do Psychiatrists do

"evaluations" or "evaluations for medicine"?

A Quick Word About Diagnosis…

Categorical Diagnosis

vs

Spectrum Diagnosis

Biology of the ADHD Spectrum

- Rate of cortical thinning **inversely proportional** to severity of hyperactivity/impulsivity symptoms
  - **ADHD** vs **mod ADHD sxs** vs **mild ADHD sxs** vs **no sxs**
  - ADHD subjects had slowest thinning (Shaw, AJP, '11)
- **Tentative Conclusions**:
  - ADHD is a spectrum
  - Some ADHD symptoms will improve, if slowly

What is ADHD?

- **DSM-V Criteria**
  - Symptoms of (either)
    - Inattention
    - Impulsivity/hyperactivity
    - Combined
  - Impairing symptoms in more than 1 setting
  - Impairing symptoms before 12 yrs old
  - No other cause
  - Clinically significant impairment!!!!!

The Evolution of ADHD

- Dr. Brill: hyper, impulsive, defiant…kids (1902)
- Hyperactivity caused by Flu epidemic of 1918
- Minimal Brain Dysfunction of 1950's
- DSM 2: Hyperkinetic Reaction of Childhood
- DSM 3: ADD-with or without hyperactivity
- DSM 4: ADHD
  - Predominantly hyperactive/impulsive
  - Predominantly inattentive
  - Combined
- DSM 5: no significant change

The Many Faces of ADHD:
All the Same Disorder? Yes…for now

- Impulsivity
- Hyperactivity
- Easily distracted
- Forgetful
- Disorganized
- Loses things
- Procrastinates
- ETC, ETC

Evaluation of ADHD

- **Clinical Diagnosis** based on
  - Extended parent interview
  - Interview with child-**but** don't be fooled!
  - Observations of school staff
  - Rating scales-important, but not diagnostic alone
  - Psychoeducational evaluation-impt info, not diagnostic
  - Medical evaluation
    - Vision, hearing, absence seizure, lead…
  - **No definitive confirmatory biological test**

How Many Really Have ADHD?

- Prevalence
  - 3-5% ADHD-Combined Type
  - ~8% when add ADHD-Inattentive Type
  - **Prevalence varies among US states**
    - Highest in the South, lowest in the West
  - **ADHD is NOT an American disorder**
    - Worldwide prevalence: ~5%

What Causes ADHD?
Think Biology, Not Psychology

- **Biology**
  - **Principle cause** seems to be genetic
  - Multiple genes involved
  - Brain: No single, well localized finding
- **Environment**
  - **NOT a cause**
  - **But can certainly exacerbate!**

Who had ADHD? Youngest in the Class

- **Sept 1 kindergarten cutoff**
  - 10% of children born in Aug dx'd with ADHD
  - 4.5% of children born in Sept dx'd with ADHD
- **Dec 1 kindergarten cutoff**
  - 6.8% of children born in Nov
  - 1.9% of children born in Dec
- 5th grade: young-for-grade children almost **twice as likely to use stimulants**

(Elder, J of Health Economics, '10)

ADHD is not a Benign Stage of Life:

The Many Complications of ADHD

- Medical:
  - More ER visits, hospital admissions, outpatient admissions
  - More severe injuries; twice the medical costs
- Driving: Adolescent drivers have more accidents
- Smoking: Earlier and more often
- More social difficulties and family conflicts
- School: More being left back & hs drop outs
- More STD's, substance abuse, legal problems
- Earlier parenthood, more divorce & work failure

Do Kids Outgrow ADHD?
Kalikow's Rough Rule of Thirds

- **1/3** outgrow ADHD as teens
- **1/3** continue to have ADHD, but their other assets overshadow ADHD
- **1/3** have significant difficulties in long run
  - Last group over represented by Conduct Disorder & Oppos'l Defiant Disorder

Let’s Talk About Treatment…

The Decision to Treat

WEIGH

the risks and benefits of medicine

vs.

the risks and benefits of other treatments

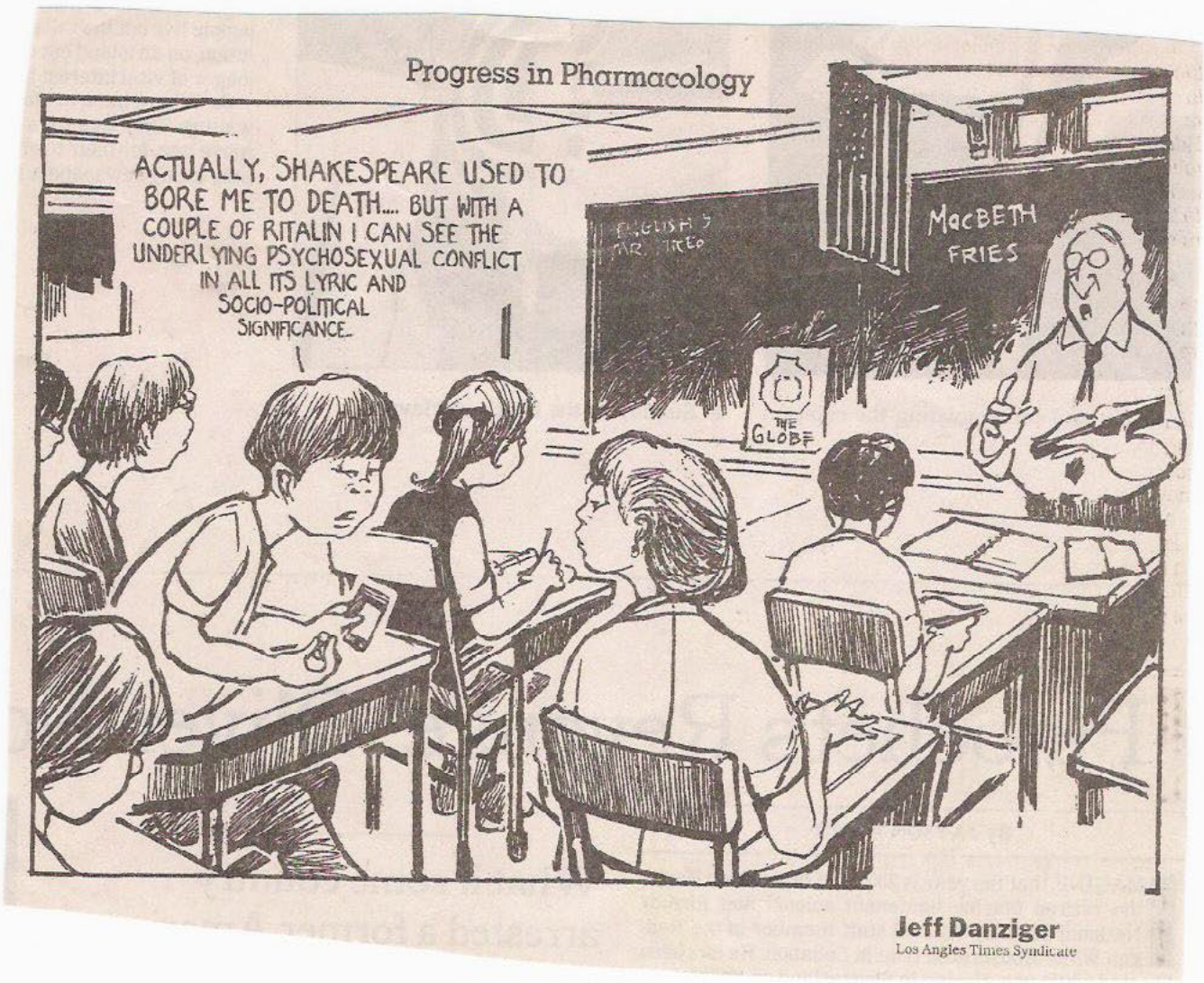
vs.

the risks and benefits of "no treatment"

Measuring Benefits

- **What's your Goal?**
  - Save a life
  - End a tantrum
  - Make a friend
  - Get into college
- **How do you know meds will help you reach it?**
  - Meds helped your cousin, neighbor, hairdresser
  - Double Blind/Placebo Controlled Study

The Effectiveness of Stimulants



Evaluating the Risks of Medicine

- Probability of risk from medicine
- Probability of risk from placebo
- Probability of risk in general population
- Short term side effects
- Long term side effects
- **Just remember…**

Evaluating Risks & Benefits: A Riddle

When is a side effect

a therapeutic effect?

The story of Obetrol

Synopsis of Treatment of ADHD

- **Medication is the mainstay**
  - Stimulants, Selective NE reuptake inh's , Alpha Agonists
- Behavior Therapy
  - initial treatment of mild, uncomplicated ADHD
  - add benefit for oppositional symptoms
- Parenting: Decrease criticism, hostility
- Diet, CBT, biofeedback: not supported by research
- Social skills training-not supported by research
  - But "everybody's gotta have a gang" (Andy Devine, 1950's)

School & the Treatment of ADHD

- **HUGE!! A lecture of its own**
- **Education**: Teachers must understand ADHD
  - Embarrassment is not an effective treatment
  - What child SHOULD be able to do is (almost) irrelevant
  - **Maximize stimulating**; **Minimize boring**
  - **Lots of hands on help**: organizing supplies, managing time, remembering homework…
- **Behavioral treatments**
  - **Ongoing** communication between teacher & parent
  - Short feedback loop
  - Use of rewards…
- **Lose the homework…please!**
  - Would minimize use of stimulants
  - Would minimize family conflict

FDA-Approved for ADHD

- **Stimulants**
  - Amphetamines
  - Methylphenidate
- **Selective Norepinephrine Reuptake Inhibitors**
  - Qelbree (viloxazine)
  - Strattera (atomoxetine)
- **Alpha Agonists**
  - Intuniv (guanfacine extended release)
  - Kapvay (clonidine extended release)
- **All patients do not respond to all medicines**

What about generics??

Forms of Stimulants

- Tablets-immediate release
- Beads-extended release
  - Examples: Ritalin LA, Adderall XR
  - Beads in capsule release medicine at 2 different times
  - Can be opened and sprinkled on food
- Others: Skin Patch, Long-acting liquid, OROS
  - Have even longer duration

Long Acting (Extended Release) Stimulant Caps

- **Advantages**
  - Long duration
  - Difficult to abuse (ie-crush/snort)
  - Improved compliance
  - Can be opened & sprinkled (except Concerta)
- **Disadvantages**
  - Not everyone experiences optimal durations
  - Irritability for some
  - Can’t take late in day or if need short duration

How Stimulants Work

- Increase synaptic NE & DA
- **MPH & Amph work differently**
  - ~70% of patients respond to first stimulant tried
  - ~90% of patients respond to one of the two

NE=norepinephrine

DA=dopamine

What Is Clinical Effect of Stimulants?

- **Strongest effect**: Diminish impulsivity & hyperactivity
- **Strong effect**: Improve focus; tasks more interesting
- Also:
  - Improve some exec funct'n skills (ie work'g memory)
  - Improve social skills
  - Improved academic performance (short, ?long, term)
  - Improve teens' driving, decrease cig initiation…

REMEMBER

Stimulants improve the attention of those

with and without ADHD

Benefit of Stimulants in ADHD

- MPH & Amphetamine
  - FDA approved for use in children
  - Over 200 controlled studies proving efficacy
  - MTA Study
  - Preschool ADHD Treatment Study (PATS)
- **Comorbid disorders complicate tx**

MTA Study of the Treatment of ADHD

- N=579 at multiple sites
- First follow up at 14 months
- **Four Treatment Groups**
  - Combo Tx (Methylphenidate & Behavioral Tx)
  - Methylphenidate (MPH) Only
  - Behavioral Tx Only
  - Community Care

(The MTA Cooperative Group, AGP, 1999, p. 1073)

MTA Response Rates

(% normalized at 14 months)

Combo Treatment	68%
MPH Only	56%
Behav'l Trtm't Only	34%
Community Care	25%

Initial Conclusions of the MTA

- NOT everyone responds
- Combination Treatment is best
- Overall, MPH is better than Behavioral Treatment
- But, **MPH must be used at**:
  - Sufficient dose (avg ~30 mg/day, not 20 mg)
  - Sufficient dosing (avg=3 times daily, not 2)
  - Sufficient follow up (monthly, not 2X/yr for 17 min's)
  - With sufficient contact with school staff

8 Year Follow up of MTA

- Initial 14 mos of tx did not influence outcome
- **Initial presentation is better predictor** of adolescent functioning than initial treatment
  - Severity of ADHD sx's
  - Conduct problems
  - Intellect
  - Social advantage
  - Strength of response to any tx
- **ADHD kids don't do as well as non-ADHD kids**

(Molina, JAACAP, 5/09)

Side effects of Stimulants

- Stomach aches & headaches
- Slight increase in pulse & blood pressure
- Decreased appetite
- Insomnia
- “Mood” changes, incl’g rebound, “zombieism”, etc.
- **Controversial topics**
  - Sudden cardiac death
  - Height/weight concerns
  - Tics
  - Addiction vs misuse

Starting & Stopping Stimulants

- Choose methylphenidate or amphetamine
- Start at the lowest dose
- Increase every ~3-5 days til clear benefit or side eff
- 1st determine dose, then determine duration
- Dr K's preference for young kids-begin w/ immed rel
- **Should school staff be "blind" to med status?**
- Use on weekends-at least initially
- Trial off meds every year (planned vs inadvertent)

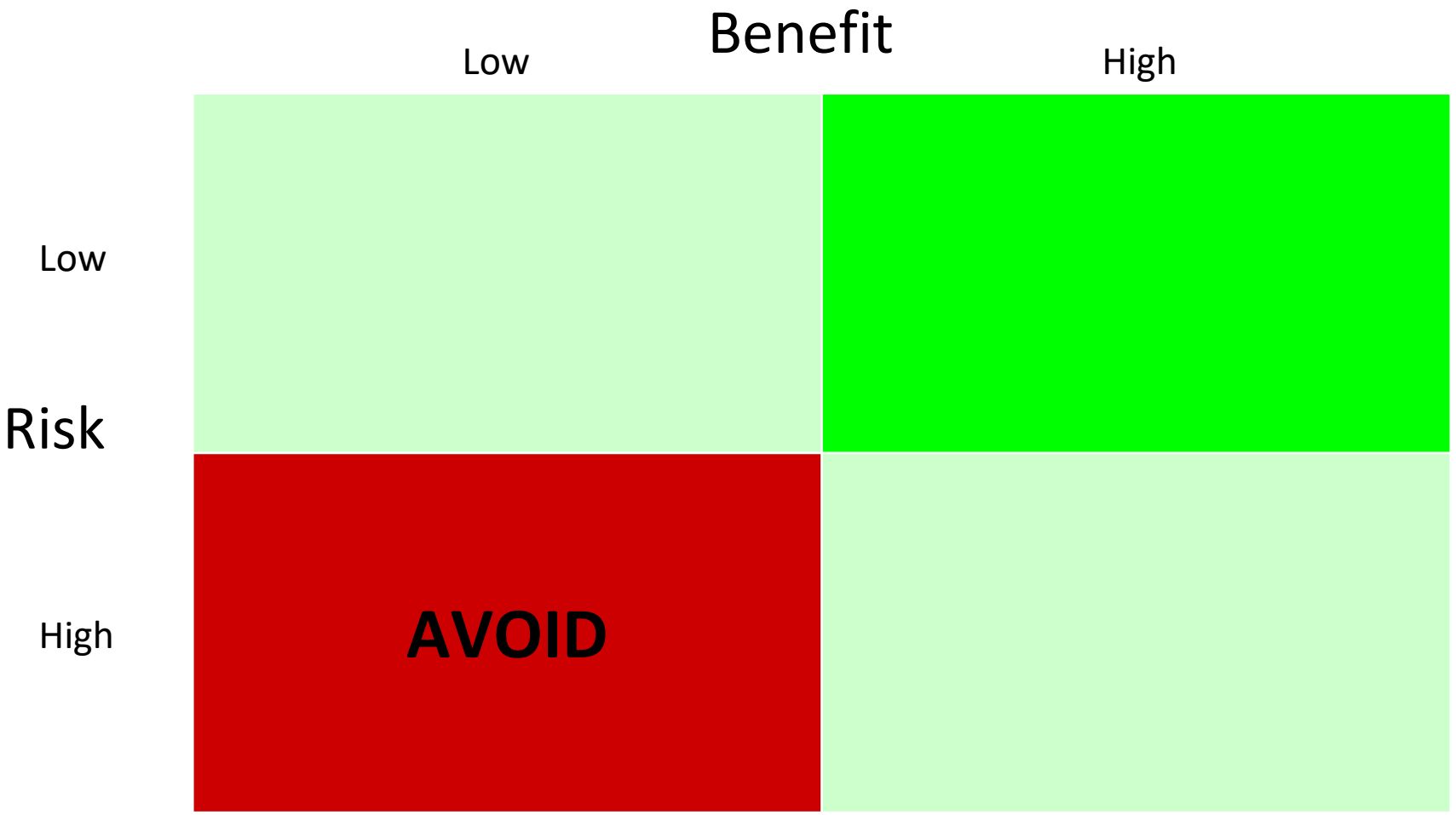
Selective norepinephrine reuptake inhibitors

- Strattera (atomoxetine) & Qelbree (viloxazine)
- Must take every day
- Does not work immediately
- ADHD: Atomox. response rate ~50%. Hier w/ vil?
- **Most Common Side Effects**
  - Sedation.
  - GI
  - Fewer with viloxazine?

Alpha-2 agonists

- Types:
  - Clonidine: Catapres, Kapvay
  - Guanfacine: Tenex, Intuniv
- FDA approved for children
  - Intuniv & Kapvay for ADHD & as adjunct to stimulants
  - Approved as anti-hypertensive in adults
- Response rate ~50%
- Side Effects
  - Most important: sedation
- Other uses of alpha-2 agonists in children
  - Tourettes
  - Insomnia

Helping Parents Decide



12 year old Aloysius-Off task, but happy

- **IQ**: Bright
- **Behavior**: chatty in class, easily distracted, disorganized, rushes thru homework…on bus, then "I already did it"
- **Video play**: highly competent
- **Social**: very
- **Grades**: B's, occasional C
- **Potential**: A's
- **Parents**: Loving, encouraging, but very frustrated

10 year old Cornelius-Fit to be tied

- **Temperament**: rigid; controlling; fidgety? inatt'n?
- **Explosions**: weekly
- **Fits precipitated by**: frustration, anxiety
- **Parents**: walk on eggshells
- **School**: "ideal"-hard working, diligent, focused

Helping Parents Evaluate Risks & Benefits

- The 4 Pitfalls of Evaluating Risk & Benefit
  - **Underestimating the Benefit**
    - Untreated disorders carry risk & are not stages of life
  - **Overestimating the Benefit**
    - Medicine is not a panacea. May need other treatments.
  - **Underestimating the Risk**
    - Never be cavalier
  - **Overestimating the Risk**
    - We have much experience with some medicines

How About An Encore?

The 10 Commandments of Medicine

(from YOUR CHILD IN THE BALANCE)

- Have your child appropriately evaluated by a trusted professional.
- Before medicine, can you change your child's environment?
- Never use (or avoid) a medicine based simply on your neighbor's response to that medicine.
- A diagnosis is not an excuse…A child is responsible for his/her behavior.
- Know what you're treating…a disorder or a symptom.

The 10 Commandments of Medicine

(from YOUR CHILD IN THE BALANCE)

- Give medicine time to work.
- Medicine must be monitored.
- Avoid the medicine rut…using medicine year after year without re-examining the decision.
- Parents should present a unified stance about medicine.
- Know when to quit the search for the medicine solution. Medicine is not the solution for every problem.

Thank You!

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