Treating Complicated ADHD with Co-Morbid Conditions

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Focus-MD
LEARNING OBJECTIVES

1. Understand the clinical importance of common ADHD comorbidities to better identify treatment options

2. Describe how the diagnostic process affects treatment

3. Recognize the importance of multiple co-morbidities (complex ADHD) on treatment process
Disclosures: Dr. Handal

Current Research Grants
- Forest
- Lundbeck
- Pfizer
- Rhodes
- Shire
- Sunovion
- Supernus
- SyneuRX

Owner, Medical Director
- Dothan Behavioral Medicine Clinic
- Harmonex Neuroscience Research
- CliniCom

Chief Medical Officer
- NLS-Pharma Switzerland
Disclosures: Dr. Wiley

- No relevant commercial interests affecting the content of the presentation
- Chief Medical Officer Focus-MD
- Practicing Pediatrician at Focus, Inc
We will Discuss off Label Use of Medications

- We’ll let you know as we go!
Comorbidity Definition

cō·mor·bid (kō-môrˈbīd)
adj.
Coexisting or concomitant with an unrelated pathological or disease process: patients with comorbid diabetes and depression.

What is Comorbidity?

• The term comorbidity first appeared mid 1980's.

• In 1986 there were only two such articles; by 1993 the number had increased to 243, Google today 3,240,000.

• Comorbidity has emerged as perhaps the single most important concept in psychiatry.
ADHD Co-Morbidity
The Rule Not the Exception
<table>
<thead>
<tr>
<th>Number of Comorbid Disorders</th>
<th>Percentage of Children</th>
</tr>
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<tbody>
<tr>
<td>Zero</td>
<td>33%</td>
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<tr>
<td>One</td>
<td>33%</td>
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<tr>
<td>Two</td>
<td>16%</td>
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<tr>
<td>Three or more</td>
<td>18%</td>
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</tbody>
</table>

Percentage of children with ADHD who have comorbid disorders (N = 5028)

Complex ADHD: 67%
ADHD is accepted as an educational disability now under new federal guidelines. It is impairing for many in spite of treatment.

- ADHD with one co-morbidity is more impairing.
- ADHD with two or more co-morbidities is significantly impairing.

We only use the term disability when trying to get services for kids. Our common goal is to enable!
Your Presenters Share This Common Perspective

- If a kid can
- he/she will
If kids can’t, they:

• Shut down
• Become a class clown, or
• Melt down
A Tragic Story Down on the Bayou

15 years old Male
7th grade
Reads on 3rd grade level  Has an IEP to prove it
“Willfully disobedient”
He and GM facing Truancy Court due to his exclusion
Oppositional behavior
Depressed
Anxious about his future
‘I think I’ll probably just wind up in jail.’
It is the Job of the Grown Ups to Figure out the Impairment.

...And not blame the kid for his/her neurology but rather empower him/her to overcome it.
MEDICAL CONDITIONS

SLEEP DISORDERS
OPPOSITIONAL DEFIANT DISORDER/CONDUCT DISORDER
ANGER
HYPMANIA
MANIA
DEPRESSIVE DISORDERS
OBSESSIVE-COMPULSIVE DISORDERS
ANXIETY DISORDERS
TICS/TOURETTE DISORDER

ADHD
INATTENTIVE PRESENTATION

ADHD
COMBINED PRESENTATION

ADHD
HYPERACTIVE/IMPULSIVE PRESENTATION

SOCIAL
AUTISM SPECTRUM
NON-VERBAL LD
SOCIAL COMMUNICATION

LANGUAGES
EXPRESSIVE
RECEPTIVE
MIXED REC-EXP
STUTTERING
WRITTEN
EXPRESSION
DYSPRAXIA

ACADEMIC
DYSGRAPHIA
DYSLEXIA
DYSCALCULIA

PROCESSING
AUDITORY
VERBAL
SENSORY
INFORMATION

EXECUTIVE FUNCTIONING
CUEING
WORKING MEMORY
TIME PERCEPTION
ORGANIZATION
PRIORITIZATION

NON-MEDICAL CONDITIONS
CASE 1
Dr. Wiley
The Chicken OR The Egg or Something Else

- 7 y/o boy repeating 1st grade
- Described as “Class Clown”
- Mom: “Disruptive in class with excessing talking and blurting out. He has trouble finishing his work and his hand writing is ‘terrible’. His teacher calls him space cadet. He doesn’t follow directions and has never met his AR goal. He loves math. He cries during homework and at bed time but home behavior is otherwise not a significant problem except that mom describes him as irritable and he asks the same questions over and over.”
What’s the Problem Here?

- A  ADHD
- B  ADD
- C  Immaturity in a normal child
- D  Something else is going on
Discussion
What’s the Problem Here?

- A  ADHD
- B  ADD
- C  Immaturity in a normal child
- D  Something else is going on
Something Else is Going on Here!
But what?
More information

- Reading is a real problem for him. He spells phonemically and has trouble remembering sight words. Still reading on K 5 level according to his teacher. Dad had trouble reading.

- He worries about dad who is a policeman and asks mom over and over if she is going to be late to carpool. He doesn’t like for the dog to go outside because he could get run over. Mom takes Xanax for her ‘nerves’.
DSM 5 Symptoms
Generalized Anxiety Disorder

- Restlessness, feeling keyed up or on edge.
- Being easily fatigued
- Difficulty concentrating, mind going blank
- Irritability
- Muscle tension
- Sleep disturbance

With the exception of muscle tension these should sound familiar!
Anxiety and Dyslexia

• SCARED revealed generalized anxiety and separation anxiety symptoms

• Evaluation by school psychometrist confirms dyslexia.

• Not all space cadets and class clowns have ADHD.
Chicken, Eggs and Bears, oh My!

**MEDICAL CONDITIONS**

- Sleep Disorders
- Oppositional Defiant Disorder/Conduct Disorder
- Anger
- Hypomania
- Mania
- Depressive Disorders
- Obsessive-Compulsive Disorders
- Anxiety Disorders
- Tics/Tourette Disorder
- ADHD
  - Inattentive Presentation
  - Combined Presentation
  - Hyperactive/Impulsive Presentation
- Academic
  - Dyslexia
  - Dyscalculia
- Processing
  - Auditory
  - Verbal
  - Sensory
  - Information
- Executive
  - Functioning
  - Cueing
  - Working Memory
  - Time Perception
  - Organization
  - Prioritization

**NON-MEDICAL CONDITIONS**

- Social Autism Spectrum
- Non-verbal LD
- Social Communication
- Languages
  - Expressive
  - Receptive
  - Mixed Rec-Exp
  - Stuttering
  - Written
  - Expression
  - Dyspraxia
At First Blush Most School Problems Suggest ADHD.

It is important to carefully apply the DSM 5 criteria when evaluating patients and look to see if there is a better explanation for the patient’s symptoms.
DSM 5 ADHD Criteria

- A  6 of 12 inattentive and/or 6 of 12 impulsive/hyperactive symptoms occurring too often for more than 6 months
- B  Age of symptom onset under 12 years
- C  Symptoms occur in 2 or more environments
- D  Symptoms cause significant impairment
- E  Symptoms are not better explained by something else
Interventions for Dyslexia

- Multisensory Language Interventions: Orton-Gillingham, Barton Reading, others
- ‘Ear Readers’ - Ben Foss
- Fast For Word
- Accommodations/IEP
- Irlen, ILS, vision therapy are not considered evidence based by relevant professional organizations
Treatment of Anxiety Disorders in Children

- CBT—not counseling  PT analogy?

- MEDS— Next slide
# PEDIATRIC AGE FOR FDA APPROVED SSRIs & TCAs for Psychiatric Care

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<thead>
<tr>
<th>GENERIC</th>
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**GAD** = Generalized Anxiety Disorder  
**MDD** = Major Depressive Disorder  
**OCD** = Obsessive Compulsive Disorder
Does Treating ADHD Make Anxiety Worse?

- 1/3 of the time worse
- 1/3 of the time no change
- 1/3 of the time better
CASE 2
Dr. Handal

Something is Tic-y Here
The Tic-ing Chicken

- 15 y/o young man with ASD and ADHD and athletic helicopter parents
- He presents with increasing tics and declining grades
- ADHD treated with Methylphenidate ER with stable tics and school performance previously
- Mom is worried about depression and that he is going to fail
- Dad thinks he needs to get it together and quit being lazy
What Now?

- A Stop the methylphenidate
- B Treat the tics with medication
- C Change to Strattera
- D Consider why school is so stressful
Discussion
What Now?

- A Stop the methylphenidate
- B Treat the tics with medication
- C Change to Strattera
- D Consider why school is so stressful
Evidence

- Patients with ADHD and tics can be safely treated with stimulants, especially MPH. Find the right medication and the right dose, delivery system/time release technology to minimize tics.

- Strattera can exacerbate tics.

- Alpha 2 agonists can improve tics and are FDA approved for monotherapy and in combination with stimulants for treating ADHD but not Tourette Disorder.
FDA Approved for Tourette Disorder

- FDA Approved
  - Orap (pimozide) age 12+, 1-20 mg QD
  - Haldol (haloperidol)
    age 3-12, 0.05-0.075 mg/kg/day
    age 12> 0.5-5 mg BID-TID Max 100mg QD

- Abilify (aripiprazole) age 6+
  <50 Kg 2-10 mg QD
  >50 Kg 2-20 mg QD

- Not FDA Approved but studies suggest efficacy
  - Risperidone
  - Zyprexa
  - Tetrabenazine (Canada but not in US)
  - Clonidine
Behavioral Interventions

- CBIT Cognitive Behavioral Intervention for Tics
  - Studies suggest as effective (more effective?) than medication

- HRT Habit Reversal for Tics
ADHD/TD/OCD

ADHD/TD/OCD/Anxiety

- What is the approach when Kids with ADHD/TD also have OCD behavior and/or Anxiety
- Tics are OCD, right
- Treating OCD/Anxiety—with therapy, medication or decreasing stressful environment can decrease tics
CASE 3
Dr. Wiley
What kind of egg is this chicken laying?

- 12 year old boy comes in for second opinion for his oppositional behavior. Previously diagnosed with ADHD and ODD but he worsened on treatment for the ADHD.
- He was treated Concerta and Vyvanse. Concerta seemed to help his focus and school performance but his meltdowns and anger got worse on both.
- Previous evaluation revealed normal IQ, no LD but significant oppositional behavior including arguing with authority figures, blaming others, refusing to comply with directions, losing his temper, being touchy/irritable, he can be vindictive when he feels wronged by a peer.
It’s Obviously ADHD and ODD, Right?

A. Yes
B. No
C. Not sure
D. No clue
Discussion
It’s Obviously ADHD and ODD, Right?

- A. Yes
- B. No
- C. Not sure
- D. No clue
Symptoms

ODD

- Oppositional
- Argues
- Anger/irritable
- Any way but your way

OCD

- Oppositional
- Argues
- Anger/irritable
- Has to have the last word
- My way or the highway
Treatment of OCD

• CBT
  Two general components.
  - Exposure and response prevention
  - Cognitive Restructuring

• Medication
  - FDA approved medication
    - Luvox (fluvoxamine), Age 8+, 50-200mg QD
    - Anafranil (clomipramine), Age 10+, 25-200 mg/day or 3mg/kg/day
    - Prozac (fluoxetine), Age 7+, 10-60mg QD
    - Zoloft (sertraline), Age 6+, 25-200mg QD
  - Non-FDA approved for peds, but some positive studies in C&A
    - Paxil (paroxetine), Age 7+, 10-60 mg QD
    - Celexa (citalopram), Age 9+, 10-40 mg QD
    - Second generation antipsychotics
# Pediatric Age for FDA Approved SSRIs & TCAs for Psychiatric Care

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**GAD** = Generalized Anxiety Disorder  
**MDD** = Major Depressive Disorder  
**OCD** = Obsessive Compulsive Disorder
ADHD and OCD and ODD

- Limited literature and research
- OCD may mimic ODD
- The most common diagnosis: ADHD
- The most common misdiagnosis: OCD
- Stimulants can exacerbate OCD sx
- SSRIs can exacerbate ADHD sx
- Brain imaging suggesting similarities: “qualitatively increased activity in the anterior medial aspects of the frontal lobes compared to the rest of the brain and when compared to the control group”. “These findings indicate there may be an underlying biologic similarity between Oppositional Defiant Disorder and Obsessive-Compulsive Disorder” (Daniel Amen, MD; Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience, Volume 2, Issue 2, 1997 Oppositional Children Similar To OCD on SPECT,)
Treatment of ODD

- Make sure it’s ODD! Neurologically atypical kids can be very oppositional just like a square peg resists a round hole! Is it naughty or neurological??
- Hint: It’s usually neurological!
- Maximize treatment of ADHD
- Concerta and L amphetamine (1970 studies) may have slight edge on Oppositional behavior?
- Behavioral Therapy
The Chicken and The Hidden Egg

16 year old previously diagnosed in Elementary School comes in because her ADHD medication is making her irritable and tearful for the last month. For the last two months the medication hasn’t been keeping her focused.

She has been on Focalin XR 10 mg for 2 years with good results and no side effects.

She stopped the medication about a week ago and the symptoms are no better and perhaps a little worse and her grades dropped.
What Next?

- A  Change the ADHD medication
- B  Change the dose of the medication since she has been on it so long
- C  This is not related to medication
- D  Change to Strattera
Discussion
What Next?

- A Change the ADHD medication
- B Change the dose of the medication since she has been on it so long
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### Symptoms

#### ADHD
- Lack of attention
- Doesn’t complete work
- Procrastinates
- Stressed / irritable
- Shut down
- “Lazy”, apathetic
- Appetite changes on medication only
- Insomnia

#### MDD
- Lack of concentration (brain energy)
- Doesn’t complete work
- May not go to class either
- Stressed /irritable/sad/tearful
- Shut down
- “Lazy”, apathetic, withdrawn
- Appetite changes regardless of medication
- Sleeps changes
- Sleep changes
Evidence

- Co-morbidities emerge over time
- Recognized side effects of ADHD medications are unlikely to emerge after so long.
- Depression is often unrecognized by patients and parents who may consider it ‘teenage angst’ or medication side effects
- Depressed children and adolescents may present with irritability as well as sadness
- Depression is common and so is suicide so it is imperative to treat
- ADHD + MDD very serious co-morbidity
Depressive Disorders

Studies of clinically referred children with ADHD, suggest that between 10 and 30% are likely to show evidence of some sort of mood disorder, usually major depressive or dysthymic disorder (Johnson, et al, 2009).
The evidence for the co-occurrence of mood disorders, such as major depression or dysthymia (a milder, chronic form of depression), with ADHD is now fairly substantial (Daviss, 2008; Faraone & Biederman, 1997; Jensen, Martin, & Cantwell, 1997; Spencer, Wilens, Biederman, Wozniak & Crawford, 2000 for reviews).

Between 15% and 75% of those with ADHD may have a mood disorder, though most studies place the association between 20% and 30% (Barkley, 2006; Barkley et al., 2008; Biederman et al., 1992; Cuffe et al., 2001; Fischer et al., 2002).

The odds of having depression given the presence of ADHD in general population samples is 5.5 (95% CI 3.5-8.4) (Angold et al., 1999).
Chicken or the Egg
Treat ADHD or Depression First

- First assess severity of ADHD and MDD, focus first on the most impairing
  - if ADHD most severe/untreated or inadequately treated
    - optimize treatment + refer to CBT. Stress from underperforming can exacerbate depression

If MDD untreated
- Not causing impairment or suicidal thoughts/behaviors
  - CBT + ADHD Treatment
- Causing impairment and/or suicidal thoughts/behaviors
  - Continue same ADHD treatment and start SSRI plus CBT
- First Do No Harm: Trial off of stimulant to see if that is exacerbating depression
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**GAD** = Generalized Anxiety Disorder  
**MDD** = Major Depressive Disorder  
**OCD** = Obsessive Compulsive Disorder
Which do you TREAT first, the Chicken or the Egg? ...and which Egg

- First line treatment when:
  - ADHD/Depression/Anxiety
  - ADHD/Depression/Anxiety/OCD
Treatment of ADHD and Depression

- **CBT**
- **Medication**—Make sure no family h/o BPD or severe irritability before using SSRIs because they can induce hypomania/mania (Switching)

  - **Plan A SSRIs for pediatric MDD:** (FDA)
    - MDD+ADD+GAD = Lexapro (escitalopram) 5-20 mg QD age 12 +
    - MDD + ADHD + OCD = Prozac (fluoxetine) 5-40 mg QD age 8+
    - MDD (BPD I) + ADHD =Prozac 20-50 mg QD w/ Zyprexa (olanzapine) age 10+
  - **Plan B (Off Label)**
    - ADHD + MDD w/without OCD or GAD = Zoloft (Sertraline) (FDA for OCD)25-200 mg QD 6+
    - ADHD + MDD + GAD = Cymbalta (duloxetine) (FDA for GAD) 30-120 mg, age 7+
    - ADHD + MDD + FH BPD = Wellbutrin XL (bupropion) (No FDA, some studies), 3-6mg/Kg/day, age 12+
    - ADHD + MDD + GAD + Enuresis = Imipramine 1-3 mg/kg/day divided doses TID, age 6+

  - **Plan C if Plan A or B does not work**
    - Referral to psychiatry is imperative if plan A/B don't work or the child is actively suicidal
Studies
Treating Refractory ADHD Associated with Depression

Table 1
Pharmacological Trials Specifically of Youths with ADHD and Depression

<table>
<thead>
<tr>
<th>Reference</th>
<th>n Subjects</th>
<th>Design</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gammon and Brown 1993</td>
<td>32</td>
<td>Youths with ADHD refractory to MPH; 23/32 had DD 6 also had MDD</td>
<td>12-week prospective study, with fluoxetine added and gradually titrated while MPH maintained. Adding fluoxetine helpful for both ADHD and depression in all subjects, and well tolerated.</td>
</tr>
<tr>
<td>Findling 1996</td>
<td>11</td>
<td>Adolescents and adults with MDD and ADHD whose depression had responded to SSRI mono therapy.</td>
<td>SSRI maintained with MPH or Dex added. Combination of SSRI and stimulant was well tolerated and effective for residual ADHD.</td>
</tr>
<tr>
<td>Davis et al. 2001</td>
<td>24</td>
<td>Adolescents with ADHD and MDD or DD</td>
<td>2-week placebo run-in, followed by flexible dosing of bupropion SR for 8 weeks. Overall response rates of 88% for depression and 63% for ADHD; medication generally well tolerated.</td>
</tr>
<tr>
<td>Kraschewski et al. 2005</td>
<td>173</td>
<td>Youths with ADHD and significant depressive or anxiety symptoms</td>
<td>8-week RCT with subjects assigned to ATX/PBO or ATX/fluoxetine. Both treatments well tolerated; both groups anxiety, depressive, and ADHD symptoms improved Subjects on ATX had greater improvement in ADHD (p &lt; 0.001) but not depressive symptoms.</td>
</tr>
<tr>
<td>Bangs et al. 2007</td>
<td>142</td>
<td>Adolescents with ADHD and MDD</td>
<td>9-week, placebo-controlled RCT of ATX.</td>
</tr>
</tbody>
</table>

ADHD = attention-deficit/hyperactivity disorder; MDD = major depressive disorder; DD = dysthymic disorder; RCT = randomized controlled trial; MPH = methylphenidate; Dex = dextroamphetamine; SR = sustained release; PBO = placebo; SSRI = serotonin reuptake inhibitor; AE = adverse event; ATX = atomoxetine.
ADHD Bipolar Disorder and other Mood Disorders
The Swinging Chickens

- STATS
  - 75% BPD have ADHD
  - 15% of ADHD have BPD

- So our patient has onset of Bipolar Depression
# ADHD and Bipolar Disorder

<table>
<thead>
<tr>
<th>ADHD</th>
<th>BPD</th>
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<tbody>
<tr>
<td>- Constant</td>
<td>- Cyclical</td>
</tr>
<tr>
<td>- Lifelong</td>
<td>- Later onset</td>
</tr>
<tr>
<td>- Moods triggered</td>
<td>- Moods un-triggered</td>
</tr>
<tr>
<td>- Moods congruent</td>
<td>- Moods incongruent</td>
</tr>
<tr>
<td>- Instantaneous shifts</td>
<td>- Gradual shifts</td>
</tr>
<tr>
<td>- Thoughts jump</td>
<td>- Thoughts race</td>
</tr>
<tr>
<td>- Family Hx of ADHD</td>
<td>- Family Hx of bipolar, very angry folk</td>
</tr>
</tbody>
</table>
Treatment of BPD
ADHD and Bipolar Disorder

Where the two disorders co-exist, the onset of bipolar disorder may be earlier than in bipolar disorder alone (Faraone et al., 1997; Faraone et al., 2001; Sachs, Baldassano, Truman, & Guille, 2000).

In bipolar cases that start in adulthood, comorbidity with ADHD may be only 20% to 25% while it may average 62% and in some studies be as high as 80% to 97% in cases where bipolar disorder begins in childhood (Skirrow et al., 2012; Youngstrom, 2010).

In any case, the overlap of ADHD with bipolar disorder appears to be unidirectional – a diagnosis of ADHD seems not to increase the risk for bipolar disorder, whereas a diagnosis of childhood bipolar disorder seems to dramatically elevate the risk of a prior or concurrent diagnosis of ADHD (Geller & Luby, 1997; Spencer et al., 2000; Skirrow et al., 2012).
## FDA Approved Medications for Pediatric BPD

<table>
<thead>
<tr>
<th>Medication 2GAPs</th>
<th>Brand Name</th>
<th>Daily Dose Range</th>
<th>Indication</th>
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<tbody>
<tr>
<td>Aripiprazole</td>
<td>Abilify</td>
<td>2-30 mg QD</td>
<td>BPD I Age 10+</td>
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<tr>
<td>Risperidone</td>
<td>Risperdal</td>
<td>0.5-6 mg QD/DivD</td>
<td>BPD I Age 10+</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel &amp; XR</td>
<td>50-600 mg QPM</td>
<td>BPD I Age 10+</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>Geodon</td>
<td>30-80 mg BID</td>
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<tr>
<td>Asenapin</td>
<td>Saphris</td>
<td>2.5-10 mg BID</td>
<td>BPD I Age 12+</td>
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<tr>
<td>Olanzapine</td>
<td>Zyprexa</td>
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</thead>
<tbody>
<tr>
<td>Lithium</td>
<td>Several</td>
<td>10-30 mg/kg/day</td>
<td>BPD I Age 10 +</td>
</tr>
</tbody>
</table>

1 Pivotal study conducted at Harmonex Neuroscience Research – Dothan, BPD I+M
Non-FDA Approved Medications Frequently Used for Pediatric BPD

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand Name</th>
<th>Daily Dose Range</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valproic Acid</td>
<td>Depakote</td>
<td>N/A</td>
<td>Not indicated</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Tegretol</td>
<td>N/A</td>
<td>Not indicated</td>
</tr>
<tr>
<td>Lomotrigine¹</td>
<td>Lamictal</td>
<td>N/A</td>
<td>Not indicated</td>
</tr>
<tr>
<td>Topiramate</td>
<td>Topamax</td>
<td>N/A</td>
<td>Not indicated</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>All</td>
<td>N/A</td>
<td>Not indicated</td>
</tr>
</tbody>
</table>

¹ Pivotal study conducted at Harmonex Neuroscience Research – Dothan; Bipolar Depression
The Chicken After Rehab

- 19 year old diagnosed with ADHD at age 13 and successfully treated with Concerta 54 mg for the last several years returns having flunked out of the school of his choice. He was discharged from rehab for SUD (marijuana, alcohol and Xanax) last month and has negative urine drug screen.

- He wants to go back to school and is asking to restart medication for his ADHD but would like to change from the Concerta because it ‘lasts too long’
What’s Next?

- A Prescribe Adderall
- B Prescribe a different long acting Methylphenidate medication
- C Prescribe Strattera
- D This patient shouldn’t with ADHD medication
Discussion
What’s Next?

- A  Prescribe Adderall
- B  Prescribe a different long acting Methylphenidate medication
- C  Prescribe Strattera
- D  This patient shouldn’t with ADHD medication
Answer B

- The MPH molecule has been effective and the patient wants shorter duration of action.

- Chronic Care Model - patient driven to a much greater extent. We provide medical evidence wouldn't use IR medication here due to increase risk of abuse/diversion but a different XR Medication with shorter duration addresses patient concern safely.
Evidence
Pharmacotherapy Significantly Reduces Substance Abuse in Adults With ADHD

Onset of Substance Abuse in ADHD Adults (Retrospectively Derived)

ADHD + Substance Abuse

- ADHD is a risk factor for Cigarette Smoking
- ADHD is a risk factor for any and heavy substance use 2-3 X
- Evidence of self medication
  - Caffeine, nicotine, booze, weed, narcotics and Xanax
- Evidence of diversion and misuse of immediate release stimulant medication in ADHD
  - High risk groups (those with ADHD+SUD+Conduct)
  - Need to discuss proper storage and use of medications
Non-medical Co-Morbidities

- Are Common - the rule, not the exception
- Are Over-Looked - even with testing
- Are Confounding - they lead to chronic frustration, erode self esteem, contribute to the punishment/anger cycle and shut down
- Are Exacerbating - they worsen all of the medical co-morbidities due to adding stress
Non-Medical Co-Morbidity

- Dysgraphia/Disorder of Written Expression 60%
- Dyslexia/Specific Reading LD
- Dyscalculia/Specific Math LD
**MEDICAL CONDITIONS**

- Sleep disorders
- Oppositional Defiant Disorder/Conduct Disorder
- Anger
- Hypomania
- Mania
- Depressive disorders
- Obsessive-Compulsive Disorders
- Anxiety disorders
- Tics/Tourette disorder

**NON-MEDICAL CONDITIONS**

- Social
  - Autism spectrum
  - Non-verbal LD
  - Social communication
- Languages
  - Expressive
  - Receptive
  - Mixed Rec-Exp
  - Stuttering
  - Written
  - Expression
  - Dyspraxia
- Academic
  - Dysgraphia
  - Dyslexia
  - Dyscalculia
- Processing
  - Auditory
  - Verbal
  - Sensory
  - Information
- Executive functioning
  - Cueing
  - Working memory
  - Time perception
  - Organization
  - Prioritization

**ADHD**
- Inattentive presentation
- Combined presentation
- Hyperactive/Impulsive presentation
Understood.org
A great resource for ADHD and non-medical co-morbidity.
ADHD Co-morbidity is the rule, not the exception

Co-morbidity complicates treatment because symptoms of each co-morbid condition affect the symptoms of the other(s)

Treating one co-morbid condition can worsen another, not affect it or make it better

The more co-morbid conditions the more the impairment