Treating Youth with Psychotropic Medications:

What do they do?
How to integrate into Mental Health Care?

Jeanette M Scheid M.D., Ph.D.
Associate Professor of Psychiatry
Michigan State University

Medical Consultant
Department of Human Services
Medical Unit
Overview/Goals

- Learn about medications used in kids: targets and side effects
- Understand how psychiatrists go about assessing kids and making decisions about medications, then:
  - How to enhance teamwork especially in foster care
  - How to integrate into comprehensive treatment
Neurobiology: Summary

- The brain is separated into functional regions – but working together to organize thinking, emotions and behavior

- Multiple coordinated neurotransmitter systems – also working together to regulate emotions and behavior

- Medications are intended to target specific neurotransmitter systems – we have lots to learn!
Medication Information
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Problems with attention, focus, concentration, planning, impulse control
- Connected to frontal lobe functioning
- Connected closely to dopamine and norepinephrine neurotransmitter systems
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Psychostimulants
  - Types
    - Methylphenidate (Ritalin, Ritalin LA, Metadate ER, Metadate CD, Concerta, Focalin, Daytrana patch, Quillivant)
    - Amphetamine (Dexedrine, Adderall, Vyvanse)
  - Mechanism
    - Increases dopamine by stimulating nerve cells to release, and preventing re-uptake
    - Some increase in norepinephrine as well
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Psychostimulants
  - What to expect
    - Improve target symptoms of ADHD
    - Generally pretty quick onset of action
    - In and out of body within hours
      - Can make for ups and downs during day
      - Can make flexible dosing possible
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Psycho stimulants
  - Side effects
    - Decreased appetite
    - Jitteriness/irritability
    - Wear off difficulties (sad/grouchy/hyperactive)
    - Insomnia
    - Tics
    - Increase in anxiety/compulsive behaviors
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Norepinephrine Reuptake Inhibitor
  - Types
  - Atomoxetine (Strattera)
  - Mechanism
    - Prevents nerve cell “vacuum” from sucking up norepinephrine, so more around between nerve cells
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Norepinephrine reuptake inhibitors
  - What to expect
    - Improve target symptoms of ADHD
    - Generally pretty quick onset of action (not as quick as stimulants – days to weeks)
    - Builds up to steady state in a few days, more even throughout the day – should be able to take just once a day, some need split dosing
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Norepinephrine reuptake inhibitors
  - Side effects
    - Decreased appetite
    - Jitteriness/irritability
    - Sedation/fatigue
    - Insomnia
    - Carries “black box” warning about suicidal thoughts
Attention Deficit Hyperactivity Disorder

- Alpha agonists
  - Types:
    - clonidine (Catpres, Kapvay), guanfacine (Tenex, Intuniv)
  - Mechanism:
    - Not precisely known, may reduce arousal level, “fight or flight”
Medications: Disorders

Attention Deficit Hyperactivity Disorder

- Alpha agonists
  - What to expect
    - Improvement in target symptoms of ADHD
  - Side effects
    - Light headed (drop in blood pressure)
    - Sedated
    - Irritable/moody
    - NOTE: should not stop suddenly (↑ BP)
Attention Deficit Hyperactivity Disorder

- Miscellaneous agents (not FDA approved)
  - bupropion (Wellbutrin) (dopamine)
  - venlafaxine (Effexor) (serotonin and norepinephrine)
  - Tricyclic antidepressants (norepinephrine)
Attention Deficit Hyperactivity Disorder

- Other Treatment: needs to focus on environment too, though medication usually required
  - Behavior management
  - Problem solving
  - Parent training

- Can consider as the first thing in really little kids (3-6)
Medications: Disorders

Depressive Disorders

Anxiety Disorders

- Emotional symptoms, cognitive symptoms, body symptoms
- Connected to serotonin (5-HT) and norepinephrine (NE) regulation
Depressive Disorders

Anxiety Disorders

- Selective Serotonin Reuptake Inhibitors
  - Types
    - Fluoxetine (Prozac)*
    - Paroxetine (Paxil)
  - Fluvoxamine (Luvox)^
    - Sertraline (Zoloft)^
  - Citalopram (Celexa)
    - Ecitalopram (Lexapro)*

Note: * approved in kids for depression
      ^ approved in kids for Obsessive Compulsive Disorder
Depressive Disorders
Anxiety Disorders

- Selective Serotonin Reuptake Inhibitors
  - Mechanism
    - Blocks the vacuum for serotonin so that more is present in the space between neurons
    - Not fully clear how this helps with depression and anxiety – but it seems to based on medical trials
  - What to expect
    - Side effects early, planned effects later
    - Improvement might be as early as a week or two, sometimes takes several weeks
Depressive Disorders
Anxiety Disorders

- Selective Serotonin Reuptake Inhibitors
  - Side effects
    - Stomach/intestinal - motor restlessness
    - sedation - sexual side effects
    - jitteriness - suicide thoughts
    - Too much serotonin (flushing, change in blood pressure, pulse, agitation, confusion, muscle twitches)
Medications: Disorders

Depressive Disorders

Anxiety Disorders

- Mixed NE/5-HT Reuptake Inhibitors
  - Types (note: neither FDA approved for kids)
    - venlafaxine (Effexor) (Pristiq – desvenlafaxine)
    - duloxetine (Cymbalta)
Depressive Disorders

Anxiety Disorders

- Mixed NE/5-HT Reuptake Inhibitors
  - Mechanism
    - Blocks vacuums for both serotonin and norepinephrine, so increases concentration of both neurotransmitters
  - Similar expectations as for SSRI
  - Similar side effects as for SSRI
    - Mild/moderate increases in blood pressure
Depressive Disorders

Anxiety Disorders

- Other serotonin-increasing medication
  - Type
    - mirtazapine (Remeron) – Note: not FDA approved for kids
  - Similar expectations for SSRI
  - Side effects
    - Sedation (mirtazapine) - Increased appetite (mirtazapine)
    - Increased weight (mirtazapine) - Increased blood fats (mirtazapine)
    - Nausea (vorloxetine) - constipation (vorloxetine)
    - Too much serotonin (flushing, change in blood pressure, pulse, agitation, confusion, muscle twitches)
Depressive Disorders

Anxiety Disorders

- Other medication
  - bupropion (Wellbutrin) – note: note FDA approved for kids
  - Mechanism of action not clear (dopamine/norepinephrine)
  - Can cause jitteriness
  - Used “off label” for combination of depression/ADHD
Medications: Disorders

Depressive Disorders

Anxiety Disorders

- Tricyclic Antidepressants
  - Not as often used (higher risk, more side effect)
  - Increase norepinephrine and serotonin
  - Need to check heart rhythm during use

Note: clomipramine (Anafranil) approved for OCD in youth

- Newer medications (not approved for kids)
  - Vilazodone (Viibryd)
  - Levomilnacipran (Fetzima)
  - Vortioxetine (Brintellix)
Depressive Disorders

Anxiety Disorders

- Treatment with psychotherapy has a strong evidence base, could argue for use before medications unless severe symptoms
  - Cognitive Behavioral Therapy (CBT)
  - Support and Problem solving
  - Education for kids, families and other supports
  - For trauma-related symptoms (examples):
    - Trauma-Focused CBT
    - Attachment, Self Regulation and Competency (ARC)
Medications: Disorders

Bipolar Disorder

- Mood symptoms include both depression and mania
- Can present in multiple patterns
  - Duration of mood episodes
  - Frequency of mood episodes
- Controversy in terms of how common it is
- Biological reasons not fully understood
Medications: Disorders

Bipolar Disorder

- Treatment: many different kinds of medications
  - Lithium – note: FDA approved for bipolar disorder in teenagers
    - Mechanism is not clear
      - Might work directly at the cell membrane
      - Might work to alter the regulation of neurotransmitters
    - What to expect:
      - Can take a few weeks to see full effect
      - Needs to be monitored carefully, including regular laboratory studies
      - Can be difficult to adjust
Bipolar Disorder

- Treatment: many different kinds of medications
  - Lithium
    - Side effects
      - Thirst
      - Weight gain
      - Nausea
    - Toxicity (toxic range close to therapeutic range)
      - Coarse tremor
      - Stumbling gait/incoordination
      - Confusion
    - Urinary incontinence
    - Tremor
    - Hypothyroidism
    - Kidney damage
    - Brain damage
    - Heart damage
**Medications: Disorders**

**Bipolar Disorder**

- **Treatment:** many different kinds of medications
  - Anticonvulsants – note: none approved by FDA for children/adolescents
    - Types
      - valproate (Depakote)^ - carbamazepine (Tegretol)^
      - lamotrigine (Lamictal)^ – gabapentin (Neurontin)
      - topiramate (Topamax) – oxcarbazapine (Trileptal)

  ^FDA approved in adults
Medications: Disorders

Bipolar Disorder

- Treatment: many different kinds of medications
  - Anticonvulsants
    - Mechanism
      - Not really understood
      - Possibly reduces “irritability” of the neurons
      - Some data indicating act by increasing GABA (an inhibitory neurotransmitter)
    - What to expect
      - Can take some time to establish the best dose
      - Some require laboratory monitoring
Medications: Disorders

Bipolar Disorder

- Treatment: many different kinds of medications
  - Anticonvulsants
    - Side effects – general
      - Sedation
        - Nausea
      - Tremor
        - Irritability
      - Weight gain (some, not all)
Bipolar Disorder

- Treatment: many different kinds of medications
  - Anticonvulsants
    - Side effects – specific
      - Depakote: low blood counts, liver inflammation, pancreatitis, polycystic ovary disease
      - Tegretol: low blood counts, liver inflammation
      - Lamictal: autoimmune rash
      - Topamax: appetite suppression
Medications: Disorders

Bipolar Disorder

- Treatment: **important** to add other elements to medication treatment (some really challenging in teens/young adults)
  - Stress management and reduction
  - Watch substance use!
  - Maintain regular sleep schedule
  - Work to maintain adherence to medication with support and management of side effects
Psychotic Disorders (Schizophrenia)

- Characterized by loss of reality testing
  - Delusions
  - Hallucinations
- Characterized by additional problems
  - Lack of motivation
  - Limited flexibility
  - Emotionally flat
- Leading hypotheses relate to excess dopamine activity
- Not common in kids, usually early adult onset
Medications: Disorders

Psychotic Disorders (Schizophrenia)

- Treatment: focus on dopamine/other brain chemicals
- Antipsychotic medications (some also for peds bipolar)
  - Types
    - Abilify^* (aripiprazole)
    - Geodon (ziprasidone)
    - Invega^ (paliperidone)
    - Zyprexa^* (olanzapine)
    - Haloperidol^-
    - Rexulti (brexpiprazole)
    - Vraylar (cariprazine)
    - Seroquel^* (quetiapine)
    - Risperdal^*+ (risperidone)
    - Saphris (asenapine)
    - Clozaril (clozapine)
    - Latuda (lurasidone)
    - Fanapt (iloperidone)

Note: ^ FDA approved for Schizophrenia, *Bipolar, +autism-aggression
Psychotic Disorders (Schizophrenia)

- Treatment: focus on dopamine/other brain chemicals
- Antipsychotic medications
  - **Mechanism**
    - Block dopamine receptors
    - Variable degree of action on other neurotransmitter systems (accounts for side effects and maybe for main effects – i.e. mood stabilization)
  - **What to expect**
    - Few days to weeks to effectiveness
    - Broad range of dosing and effectiveness
Psychotic Disorders (Schizophrenia)

- Treatment: needs to focus on DA and other neurotransmitters
- Antipsychotic medications
  - Side effects
    - Parkinson-like symptoms (variable)
    - Sedation
    - Weight gain (variable)
    - Extreme restlessness
Psychotic Disorders (Schizophrenia)

- **Treatment:** needs to include other supports
  - Education about the disorder, what to expect over time
  - Likely to need part time work because of cognitive limitations
  - Supportive therapy, reality checks
Medications:
Special Topics
Suicidality:

- Ongoing reports of increased risk of suicidal thoughts and self harm in adolescents on SSRI/SNRI/Strattera
- Some data to support this for most SSRI
- FDA did not ban, recommends very careful monitoring
- Balance between suicidal risk from the mental health problem and meds
Medications: Special Topics

Unique medication characteristics, e.g.:

- Lithium and ibuprofen-like medications
- Lurasidone (Latuda) and taking with food
- Several medications and grapefruit juice
- Medication-medication interactions
- Thyroid replacement and taking on empty stomach

Note: **always** good to ask the prescribing provider, also the pharmacist!!!
Medications: Special Topics

FDA approval and “off-label” use:

- Some medications have been approved for a specific indication, many have not – still prescribed/used “off label”
  - Does not mean not effective, just means not enough controlled studies to convince FDA to approve
  - In some cases, studies in adults indicate effectiveness, in others it is not so clear
Medications: Special Topics

Special populations:
Autistic Spectrum Disorders
- Autism
- Asperger’s
- PDD NOS

- Multiple symptom clusters
  - Anxiety/OCD-like
  - Anger/aggression
  - Mood instability
  - Perception/sensory
Special populations:
Autistic Spectrum Disorders

- Very few studies specifically looking at medication treatments (really aren’t any for the problem itself)
- Tend to look to associated symptom clusters
  - Anxiety: SSRI
  - Aggression: antipsychotics (some FDA approved)
  - Mood instability: anticonvulsants
  - Hyperactivity: stimulants or alpha agonists
Medications: Special Topics

Special populations:

- Disruptive Disorders
  - Oppositional Defiant Disorder
  - Conduct Disorder

- Also show symptom clusters
  - Anger - Aggression
  - Mood instability - Little empathy
Medications: Special Topics

Special populations:

- Disruptive Disorders
  - Some evidence (not FDA approval) for:
    - Aggression: Lithium
  - Other alternatives (not FDA approved)
    - Aggression: antipsychotics
    - Aggression/mood instability: anticonvulsants
Medications: Special Topics

Special populations:

- Developmental Disabilities (e.g. Mental Retardation, now called Intellectual Disability or Cognitive-Adaptive Impairment)
  - Can have associated aggression, repetitive self-injury, and co-existing mood disorder, psychotic disorder, seizure disorder
  - Limited data, but anticonvulsants and antipsychotic medications sometimes used
Medications: Special Topics

Special populations:

- Pregnancy
  - Need to think about in any female after puberty
  - Best to talk about this before a pregnancy and to consider contraception alternatives
  - Once pregnancy happens need full discussion of:
    - Risks to pregnant woman on and off medication
    - Risks to developing fetus on and off medication
Special populations:

- Foster Care
  - Data show kids in foster care are prescribed medications more and prescribed more/more complex medication regimens
  - Not sure of all the reasons for this
    - More complex histories, risk factors, problems
    - Lack of access to non-medication interventions especially trauma-informed
    - Result of shifting between treatment providers
Medications: Special Topics

Special populations:

- Foster Care
  - Practices (assessment/treatment) should follow SAME path as for any kid - but
  - More complicated/more folks involved
    - DHS Policy re: informed consent - WHO
      - Temporary wards, parent/legal guardian
      - MCI wards, foster care worker
      - County permanent wards, court order
  - DHS Policy re: informed consent - HOW
    - Use of the DHS informed consent form
      - DHS-1643
      - Triggering criteria for oversight purposes
Psychiatric care and wraparound
What do psychiatrists do?

- Assessment: purpose and methods
- Treatment recommendations: how to decide? medications? therapy? both? community supports?
- Ongoing care: how to coordinate?
Purpose:
- To identify differences from that expected for “normal” development
- To find the best explanation (one or more) for these differences
- To determine the strengths and vulnerabilities present in the child’s system

Sounds similar to early Wraparound process, right?
Assessment

Methods:
- Interview is the primary tool for most psychiatric disorders
- Need to talk with child/adolescent, with family/caretakers and with other collateral sources
  - Therapist
  - School personnel
  - Other parties (e.g. PO, family preservation, foster care, others)
Assessment

Methods:

- Standardized tools for some disorders
  - Depression
    - Children’s Depression Inventory
    - Reynolds Adolescent Depression Inventory
  - Anxiety
    - SCARED (Screen for Child Anxiety-Related Emotional Disorders)
    - Yale Brown Obsessive Compulsive Scale
Assessment

Methods:

- Standardized tools for some disorders
  - Attention Deficit Hyperactivity Disorder
    - Conner’s Parent and Teacher scales
    - Continuous Performance Testing
    - ACTeRS (ADD-H: Comprehensive Teacher’s Rating Scale) parent and teacher version
  - Vanderbilt Scales
- Autism
  - Gilliam Autism Rating Scale (GARS)
  - Autistic Diagnostic Observation Schedule (ADOS)
Assessment

Methods:

- Tests done by others (psychologists)
  - Psychoeducational testing
  - Neuropsychological testing
  - Projective testing techniques
  - Personality inventories
Assessment

Outcome:

- Understanding of the problems that the child or adolescent faces
  - DSM diagnosis terms
  - Functional terms
- Understanding the resources/strengths that are available
Assessment

What it *can’t* do:
- Magic ball to tell the “truth” when there are multiple versions of events
- Be 100% sure 100% of the time
  - Some problems/diagnoses evolve in presentation
  - We still have lots to learn, so controversy
- Gain the clearest understanding without access to as much of the data as possible
Assessment

- How to make it work for the child and family:
  - Make the question clear: why assessment? why now? what do we want from the psychiatrist?
  - Get as much collateral information as possible before assessment
  - Let the family know what to expect
    - How much time for the assessment
    - What is the relationship between psychiatrist and rest of the team
    - How might getting the assessment help child/family
  - Empower child and family to ask questions!!!
Treatment Recommendations

Based on:
- Diagnosis (or diagnoses)
- Priorities (where do we need to start?)
- Best available evidence
- Understanding of needs of child and family
- Informed consent
- Negotiation given the possibilities

Again – in theory, consistent with Wraparound model
Treatment Recommendations

- Multifaceted
  - Medications?
  - Therapy (which kind?)
  - How intensive?
  - What is the best way to deliver?
  - What else besides ‘treatment’ will be important?
Ongoing Care

How to evaluate effectiveness
- What is frequency of follow-up?
- What changes will we be looking for?
- How will we decide whether change is happening?
- How will we know if something is not going well?
- How will we know when to stop?
Ongoing Care

- How to work together
  - Who will be on the team?
  - Whose job is whose?
  - How will communication occur?
  - How will we handle conflict?
    - Between child/family and team
    - Between team members
  - How will we make decisions?
Usual Approach

- wraparound
- Youth
- Family
- team
- Psychiatrist
Integrated approach

wraparound

Youth Family

team

Psychiatrist
How to create integration

- Periodically schedule team meetings to include psychiatrist
- Use members of wraparound team (e.g. parent support partner) to support/coach family in shared decision-making (SDM)
- CMH develop training/technical assistance for physicians in Wraparound and SDM
- Include discussions about medication visits during wraparound team meetings
Neurobiological Principals
- The brain is separated into functional regions, with coordinated and regulated neurotransmitter systems
- Medication treatments are based on current understanding of brain and behavior relationships
Medication Use

- Medication use and diagnoses do not have a one to one correspondence
- We have much to learn about medication use for psychiatric problems in pediatric age groups
- Medication treatment will **always** involve balance of benefits and risks
- Medications are one part of treatment
General Treatment Principles

- Decisions about treatment of all kinds must depend on careful and thorough assessment
- It is important to approach treatment with clear expectations and communication
- It is possible (and optimal) for all members of the treatment team to work together
- May need to put in some specific efforts to achieve integration between psychiatrist and full team