Objectives

- At the conclusion of the session, participants will be able to:
  - Recall disease states that mental health medications are used to treat
  - Demonstrate a general understanding of mental health medications including but not limited to names, classes, mechanism of actions, side effects and interactions
  - Recognize the difference between FDA approved medications and off-label medication use and identify examples of both
  - Demonstrate proper MAR documentation of mental health medications
  - Recognize state and federal regulations related to mental health medications and have full comprehension as to how to stay compliant with those regulations

Mental Health Info

- ‘disorders that affect your mood, thinking and behavior’
- Numbers
  - 1 in 5 adults experience mental illness
  - ½ of all cases develop before age of 14
  - ¾ of all cases before age of 24
  - 60% of adults with a mental illness did not receive treatment during the previous year
### Mental Health Disease States

<table>
<thead>
<tr>
<th>National Alliance on Mental Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
</tr>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>Autism</td>
</tr>
<tr>
<td>Bipolar Disorder</td>
</tr>
<tr>
<td>BPD</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Dissociative Disorders</td>
</tr>
<tr>
<td>Psychosis</td>
</tr>
<tr>
<td>Eating Disorders</td>
</tr>
<tr>
<td>OCD</td>
</tr>
<tr>
<td>PTSD</td>
</tr>
<tr>
<td>Schizoaffective Disorder</td>
</tr>
<tr>
<td>Schizophrenia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PsychCentral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol/Substance Abuse/Dependence</td>
</tr>
<tr>
<td>Alzheimer's Disease</td>
</tr>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>ADHD/ADD</td>
</tr>
<tr>
<td>Bipolar Disorder</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Eating Disorders</td>
</tr>
<tr>
<td>Generalized Anxiety Disorders</td>
</tr>
<tr>
<td>OCD</td>
</tr>
<tr>
<td>Opioid Use Disorder System</td>
</tr>
<tr>
<td>Parkinson's Disease</td>
</tr>
<tr>
<td>Panic Disorder</td>
</tr>
<tr>
<td>Postpartum Depression</td>
</tr>
<tr>
<td>Psychotic Disorders</td>
</tr>
<tr>
<td>PTSD</td>
</tr>
<tr>
<td>Schizophrenia</td>
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</table>

### Dementia?

- Mental Illness = abnormal part of the aging process
- Dementia = normal part of aging process
- 1/3 seniors have Alzheimer's Disease with dementia that would fit into the mental illness category
- Will include dementia in this talk
**Medication**

- Antidepressants
- Anti-Anxiety
- Stimulants
- Antipsychotics
- Mood Stabilizers
- Dementia

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### Antidepressants

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRI</td>
<td>Block reuptake of serotonin</td>
</tr>
<tr>
<td>SNRI</td>
<td>Block reuptake of serotonin and norepinephrine</td>
</tr>
<tr>
<td>Atypical</td>
<td>Multiple</td>
</tr>
<tr>
<td>Tricyclic</td>
<td>Block reuptake of serotonin and norepinephrine</td>
</tr>
<tr>
<td>MAOI</td>
<td>Block breakdown of dopamine, serotonin and norepinephrine</td>
</tr>
</tbody>
</table>
Antidepressants

**SSRI’s**

- **Types**
  - Citalopram, escitalopram, fluoxetine, paroxetine, sertraline, fluvoxamine (approved for OCD, not depression)

- **Side Effects**
  - GI: Prolongation [citalopram], sexual dysfunction, drowsiness, weight gain, insomnia, anxiety, dizziness, headache, bleeding
  - Suicide risk – all carry black box warning
  - Serotonin Syndrome – anxiety, agitation, delirium, tachycardia, hypertension, GI distress, muscle rigidity

- **Used to treat**
  - Depression, panic disorder, OCD, general and social anxiety, PTSD, eating disorders, premenstrual syndrome

- **Other**
  - First line for depression
  - Fluoxetine, Paroxetine, Fluvoxamine = drug interactions
  - 2-4 weeks to see results
  - Must be tapered off of

**SNRI’s**

- **Types**
  - Desvenlafaxine, duloxetine, venlafaxine

- **Side Effects**
  - Suicide risk, nausea, dizziness, increased BP, sexual dysfunction, bleeding, serotonin syndrome

- **Used to treat**
  - Depression, anxiety, chronic pain (duloxetine), OCD, PTSD, hot flashes, urinary incontinence

- **Other**
  - Duloxetine = moderate drug interactions, watch creatinine clearance
  - 2-4 weeks for results
  - Must taper up and down
Antidepressants

Atypical

Types
- Bupropion (inhibits dopamine and norepinephrine reuptake), mirtazapine (alpha2 antagonist – increases release of serotonin and norepinephrine)

Side Effects
- Suicide risk, seizures (bupropion), dry mouth, insomnia, nausea, dizziness, weight loss (bupropion), sedation (mirtazapine), increased appetite and weight gain (mirtazapine)

Used to treat
- Major depression, ADHD, smoking cessation (Zyban), obesity, general anxiety, headaches (mirtazapine)

Other
- 2nd line
- Bupropion = interactions, not for patients with low seizure threshold
- Mirtazapine taken at bedtime

Tricyclic

Types
- Imipramine, amitriptyline, clomipramine, doxepin, nortriptyline

Side Effects
- Weight gain, anticholinergic, orthostatic hypotension, suicide risk (most dangerous in OD), arrhythmias, seizures, bone fractures

Used to treat
- Depression, panic attacks, anxiety, PTSD, bulimia, smoking cessation, pain, headaches

Other
- Many and severe interactions; fast vs slow metabolizers
- Taper on and off
- Take at bedtime (sedation)
- Nortriptyline best tolerated (less H1/M1 affinity = less sedation and weight gain)
- Do not use in pregnancy

MAO inhibitors (Monoamine oxidase inhibitors)

Types
- Selegiline (primarily used in Parkinson’s), phenelzine

Side Effects
- Serotonin syndrome, hypertensive crisis, suicide risk

Used to treat
- Depression

Other
- First class of antidepressants used
- Serious tyramine interaction – hypertensive crisis if consume foods containing tyramine – not seen in patch form
- Must separate these from other antidepressants by 2 weeks
Anxiolytics

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzodiazepines</td>
<td>GABA agonist</td>
</tr>
<tr>
<td>Buspirone</td>
<td>Blocks serotonin receptors</td>
</tr>
<tr>
<td>Pregabalin</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

- **Benzodiazepines**
  - Types: Alprazolam, lorazepam, clonazepam, diazepam, midazolam
  - Side Effects: Sedation, amnesia, withdrawal symptoms (long term), rebound anxiety (short term)
  - Used to treat: General anxiety disorder, adjunct to antidepressant therapy
  - Other:
    - BEERS list
    - Schedule 4 due to dependency
    - Alprazolam, diazepam, midazolam = Interactions
    - Titrate up and down

- **Buspirone**
  - Blocks serotonin receptors

- **Pregabalin**
  - Unknown
Anxiolytics

- Buspirone
  - Side Effects
    - Drowsiness, headache, serotonin syndrome
  - Used to treat
    - General anxiety disorder, adjunct to antidepressant therapy
  - Other
    - Do not use within 2 weeks of MAOI
    - Interactions = major

Anxiolytics

- Pregabalin (Lyrica)
  - Side Effects
    - Peripheral edema, dizziness, drowsiness, weight gain, dry mouth, blurred vision, loss of vision,
  - Used to treat
    - Fibromyalgia, neuropathic pain, partial-onset seizures
    - General anxiety disorder, RLS, social anxiety disorder
  - Other
    - Renal dosing
    - Interactions = major
    - Do not use in pregnancy

Stimulants
### Stimulants

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylphenidate</td>
<td>Blocks reuptake of norepinephrine and dopamine in CNS</td>
</tr>
<tr>
<td>Dextroamphetamine</td>
<td>Promotes release of norepinephrine and dopamine in CNS</td>
</tr>
<tr>
<td>Lisdexamphetamine</td>
<td>Promotes release of norepinephrine and dopamine in CNS</td>
</tr>
<tr>
<td>Strattera</td>
<td>Blocks reuptake of norepinephrine</td>
</tr>
<tr>
<td>Alpha-2 Agonists</td>
<td>Blocks alpha-2 receptors in CNS</td>
</tr>
</tbody>
</table>

#### STIMULANTS

- **Methylphenidate**
  - **Types**
    - IR tab: Ritalin, Generic
    - ER tab: Concerta, Metadate ER, Ritalin SR, Generic
    - 24hr ER tab: Generic
    - ER capsule: Metadate CD, Generic
    - 24hr ER capsule: Aptensio XR, Ritalin LA, Generic
    - Patch: Daytrana
    - Other: Chewable, Solution, ODT
  - **Side Effects**
    - Headache, insomnia, irritability, decreased appetite, dry mouth
  - **Used to treat**
    - ADHD, Narcolepsy, Fatigue (cancer related)
  - **Other**
    - Controlled 2 substance – need hard copy script with every fill

- **Amphetamines**
  - **Types**
    - Dextroamphetamine – Dexedrine, ProCentra, Zenzedi, IR & ER
    - Lisdextroamphetamine (prodrug) – Vyvanse capsule and chewable tab
    - Mixed – Adderall XR cap, Mydayis cap, Generic XR cap, Adderall tab, Generic tab
  - **Side Effects**
    - Insomnia, Dry Mouth, Upper Abdominal Pain
  - **Used to treat**
    - ADHD, Narcolepsy
  - **Other**
    - Vyvanse = renal dosed
    - Controlled 2 medication
    - Adderall = cardiovascular events black box
Stimulants

- **Strattera**
  - **Types**
    - Capsule once or twice daily
  - **Side Effects**
    - Weight loss, abdominal pain, headache, irritability, cardiovascular events, suicidal thinking
  - **Used to treat**
    - ADHD
  - **Other**
    - Dosed based on weight
    - Major interactions
    - Hepatic dosing

- **Alpha-2 Agonist**
  - **Types**
    - Clonidine (IR and ER), Guanfacine (ER)
  - **Side Effects**
    - Sedation, depression, bradycardia, headache
  - **Used to treat**
    - ADHD, Adjunct to ADHD
  - **Other**
    - Takes 2 weeks to see results, must taper off
    - IR and ER not interchangeable
    - Not controlled
    - Guanfacine better side effect profile

Antipsychotics
Antipsychotics

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Generation</td>
<td>Block dopamine receptors in brain (D2); variant activity on serotonin, alpha-1, histaminic, muscarinic receptors</td>
</tr>
<tr>
<td>2nd Generation</td>
<td>Block dopamine receptors in brain (D2); higher affinity for serotonin receptors than 1st generation; partial activity on alpha-adrenergic, muscarinic, histaminic receptors</td>
</tr>
</tbody>
</table>

Antipsychotics

1st Generation (Typical)
- **Types**
  - High potency: haloperidol, fluphenazine, perphenazine, loxapine
  - Low potency: chlorpromazine
- **Side Effects**
  - Extrapyramidal side effects (akathisia [fidgety, inner restlessness], rigidity, bradykinesia [slow movement], tremor)
  - Tardive dyskinesia (involuntary movements [lip smacking, jaw movements])
  - QT prolongation – IV haloperidol high risk
  - Metabolic syndrome (weight gain, diabetes, dyslipidemia)
- **Used to treat**
  - Haldol - Behavioral disorders, psychotic disorders, schizophrenia, Tourette disorder
  - Other
    - Major drug interactions
    - Fluphenazine, haloperidol available in IM and LAI formulations
    - Loxapin oral inhalation available in health care settings

1st Generation (Typical)
- **Used to treat – Off Label for Haldol only**
  - Chemotherapy-associated nausea and vomiting (breakthrough) (adults); Chorea (jerky movements) of Huntington disease; Delirium in the intensive care unit (treatment); Nausea and vomiting in advanced or terminal illness; Obsessive-compulsive disorder; Postoperative nausea and vomiting, prevention; Psychosis/agitation associated with dementia; Rapid tranquilization (agitation/aggression/violent behavior)
Antipsychotics

- **2nd Generation (Atypical)**
  - Types
    - Aripiprazole (tab & IM & LAI), Asenapine (Saphris SL), Brexpiprazole (Rexulti), Cariprazine (Vraylar), Clozapine (tab & ODT), Iloperidone (Fanapt), Lurasidone (Latuda), Olanzapine (Zyprexa tab & ODT & LAI & IM), Paliperidone (Invega), Pimavanserin (Nuplazid), Quetiapine (Seroquel IR and XR), Risperidone (tab & ODT & LAI), Ziprasidone (Geodon & IM)

- **Side Effects**
  - Same as 1st generation but less severe
  - Clozapine, olanzapine highest side effect profiles
  - Aripiprazole, ziprasidone lowest
  - Quetiapine highly anticholinergic
  - Iloperidone and ziprasidone highest risk of QT prolongation
  - EPS = orthostatic hypotension
  - Most = sedating, Aripiprazole = activating

- **Used to treat**
  - Schizophrenia, bipolar disorder, Parkinson's psychosis (Nuplazid)
  - Off label: dementia psychosis/agitation, Parkinson's psychosis, PTSD, Tourette syndrome, major depressive disorder

- **Other**
  - Interactions — most metabolized through CYP enzymes
  - Clozapine — Must monitor labs through REMS website

**Black box warning**

- “Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death compared to placebo”
## Mood Stabilizers

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium</td>
<td>Unknown – many theories</td>
</tr>
<tr>
<td>Valproate</td>
<td>Enhances GABA receptors</td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>Inhibits release of glutamate (excitatory);</td>
</tr>
<tr>
<td></td>
<td>slight serotonin inhibitor</td>
</tr>
</tbody>
</table>

### Lithium
- **Types**
  - IR capsules, solution, IR and ER tabs
- **Side Effects**
  - CNS depression, heart failure, hypercalcemia, hypothyroidism, change in renal function, serotonin syndrome, lithium toxicity (nausea, vomiting, tremor, drowsiness, ataxia)
- **Used to treat**
  - Bipolar disorder
  - Off label: bipolar depression, depression,
- **Other**
  - Monitored and dosed per lithium levels
  - Renally dosed
  - Warn of dehydration – lithium toxicity
  - ARBs (losartan, valsartan), ACE-I (lisinopril, enalapril), Diuretics call all increase serum concentration (toxicity)
Mood Stabilizers

- **Valproate**
  - **Types**
    - Capsule (IR, ER, sprinkle), solution, tablet (IR and ER)
  - **Side Effects**
    - Headache, dizziness, insomnia, alopecia (hair loss), nausea/vomiting, peripheral edema, weight gain
  - **Used to treat**
    - Bipolar disorder, migraine prophylaxis, seizures
  - **Other**
    - Do not use while pregnant
    - Hazardous drug – use precaution when handling
    - Do not use in hepatic failure
    - Drug interactions

Mood Stabilizers

- **Lamotrigine**
  - **Types**
    - Tab (IR, chewable, disintegrating, ER), Starter kits
  - **Side Effects**
    - Steven-Johnson’s syndrome (fever with rash that blisters and peels), nausea, insomnia, drowsiness, CNS depression
  - **Used to treat**
    - Bipolar disorder
    - Off label: bipolar depression
  - **Other**
    - Hepatic dosed
    - Drug interactions

Dementia Medication
Dementia Medication

<table>
<thead>
<tr>
<th>Type</th>
<th>Mechanism of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholinesterase Inhibitors</td>
<td>Increase acetylcholine</td>
</tr>
<tr>
<td>Memantine</td>
<td>NMDA receptor antagonist (blocks glutamate)</td>
</tr>
</tbody>
</table>

Dementia Medications

- **Cholinesterase Inhibitors**
  - **Types**
    - Donepezil (tablet & ODT), Rivastigmine (capsule (BID), solution (BID), patch (dailly)), Galantamine (IR tablet & solution, ER capsule)
  - **Side Effects**
    - Upset stomach, nausea, diarrhea, bradycardia, hypotension, insomnia/vivid dreams (donepezil)
  - **Used to treat**
    - Alzheimer's dementia, vascular dementia, Parkinson's dementia
  - **Other**
    - Galantamine dose adjust with renal and/or hepatic dysfunction
    - Exelon patch dose adjust for low body weight and hepatic dysfunction

- **Memantine**
  - **Types**
    - Namenda & generic XR, Namenda & generic IR, Namenda & generic solution
  - **Side Effects**
    - Dizziness, confusion, headache
  - **Used to treat**
    - Alzheimer's dementia, vascular dementia
  - **Other**
    - Hepatic dosing
    - Namzaric – memantine and donepezil capsule
      - Approved for Alzheimer's dementia
Long Term Care Regulations

DHS 132.65 “Pharmaceutical Services”

- (c) Psychotropic drugs. Based on a comprehensive assessment of a resident, the facility must ensure that:
  - (1) Residents who have not used psychotropic drugs are not given these drugs unless the medication is necessary to treat a specific condition as diagnosed and documented in the clinical record;
  - (2) Residents who use psychotropic drugs receive gradual dose reductions, and behavioral interventions, unless clinically contraindicated, as an effort to discontinue these drugs;
  - (3) Residents do not receive psychotropic drugs pursuant to a PRN order unless that medication is necessary to treat a diagnosed specific condition that is documented in the clinical record; and
  - (4) PRN orders for psychotropic drugs are limited to 14 days. Except as provided in §483.45(e)(5), if the attending physician or prescribing practitioner believes that it is appropriate for the PRN order to be extended beyond 14 days, he or she should document their rationale in the resident’s medical record and indicate the duration for the PRN order.
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- (f) Medication errors. The facility must ensure that—
  - (1) Medication error rates are not 5 percent or greater; and
  - (2) Residents are free of any significant medication errors.

Long Term Care Regulations

CFR 483.45

- (d) Drug regimen review
  - (1) Each program must ensure that the drug regimen of each resident is reviewed at least once a month by a licensed pharmacist.
  - (2) The review must include a review of the resident’s medical record.
  - (3) In the presence of adverse consequences which indicate the dose should be reduced or discontinued; or
  - (4) Without adequate indications for its use; or
  - (5) Without adequate monitoring; or
  - (6) For excessive duration; or
  - (1) In excessive dose (including duplicate drug therapy); or
  - (2) Residents are free of any significant medication errors.

- (e) Psychotropic drugs. Based on a comprehensive assessment of a resident, the facility must ensure that:
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