PRIMARY CARE SKILLS FOR PSYCHIATRISTS

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Heartland Health Centers, Chicago
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Primary Care Skills for Psychiatrists

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Meet Bill…

- 46 yo single, white, male w/ schizophrenia
- Stable psychiatrically w/
  - Intensive case management
  - Long acting Risperidone shot
  - Olanzapine 20mg (added s/p his hospitalization 18m ago)
- Eats at local fast food restaurants
- Smokes cigarettes and marijuana
- Sees his psychiatrist monthly but refuses to see a primary care doctor

Today in clinic…

- Looks like Bill has been gaining weight
- Currently 287lbs w/ BMI of 37.9
- On chart review, you see he was 210lbs b/f starting Olanzapine w/ BMI of 27.7 (18 mo ago)
- You ask yourself:
  - Just how bad is his BMI?
  - What can I do to help Bill with his weight?
OBESITY

Edited from slides prepared by:
Lydia Chwastiak, MD MPH
Associate Professor
University of Washington
Department of Psychiatry

The Epidemic of Obesity

- 68% of US adults are overweight; 35.7% are obese
- 2nd leading cause of preventable death
- $147 billion in medical costs

http://www.cdc.gov/obesity/data/adult.html
### BMI Distribution

<table>
<thead>
<tr>
<th>Percent</th>
<th>&lt; 18.5</th>
<th>18.5-20</th>
<th>20-22</th>
<th>22-24</th>
<th>24-26</th>
<th>26-28</th>
<th>28-30</th>
<th>30-32</th>
<th>32-34</th>
<th>&gt; 34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td></td>
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<td>Acceptable</td>
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<tr>
<td>Overweight</td>
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<tr>
<td>Obese</td>
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</tbody>
</table>


### Management of Obesity

**Interventions**
- Behavioral / Lifestyle Modification
- Pharmacologic
- Surgical

**SMI Obesity-Related Conditions**
- Dyslipidemia
  - 45% with TG > 150 mg/dl;
  - 35% with cholesterol > 200
- Diabetes
  - 33 % with Impaired Fasting Glucose
- Hypertension
  - 51% with BP > 130/85

Correll CU et al. Psychiatr Serv 2010; 61(9): 892-898
**What Can Psych Providers Do?**

<table>
<thead>
<tr>
<th>Behavioral Strategy</th>
<th>Pharmacologic Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patient Education</td>
<td>• Antipsychotic Switching</td>
</tr>
<tr>
<td>• Behavioral Counseling</td>
<td>• Pharmacologic treatment of obesity</td>
</tr>
<tr>
<td>• Peer support</td>
<td></td>
</tr>
<tr>
<td>• Lifestyle Modification</td>
<td></td>
</tr>
</tbody>
</table>

**Nonpharmocologic Treatment Options**

- Follow medication screening guidelines (monitoring BMI, abdo circ, lipids, glucose)

- Behavioral Weight Management
  - Encourage decreased caloric intake
  - Encourage increased physical activity
  - Share CBT strategies to reinforce positive changes in dietary habits and activities
Pharmacological Considerations

- Ideally, choosing a weight neutral medication when applicable
- Reevaluate need for medications that are contributing to weight gain frequently
- Common culprits:
  - AD: Amitriptyline, Paroxetine, Mirtazapine
  - MS: Valproate, Lithium, Gabapentin, Carbamazepine
  - AP: Clozapine, Olanzapine, Quetiapine, Risperidone, Thioridazine, Chlorpromazine

Mean Weight Change With Antipsychotic Medications

* Estimated Weight Change at 10 Weeks on “Standard” Dose

\[ \text{Weight Change (kg)} \]

\[ \text{Weight Change (lb)} \]

Switch to Reduce Metabolic Risk (CAMP)

![Graph showing weight change over weeks for Stay and Switch groups.]

Stay
Switch

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Weight change (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>-0.5</td>
</tr>
<tr>
<td>8</td>
<td>-1.0</td>
</tr>
<tr>
<td>12</td>
<td>-1.5</td>
</tr>
<tr>
<td>16</td>
<td>-2.0</td>
</tr>
<tr>
<td>20</td>
<td>-2.5</td>
</tr>
<tr>
<td>24</td>
<td>-3.0</td>
</tr>
</tbody>
</table>


Pharmacotherapy

<table>
<thead>
<tr>
<th>Agent</th>
<th>Evidence in schizophrenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orlistat</td>
<td>+/-</td>
</tr>
<tr>
<td>Phenteramine-Topiramate</td>
<td>Topiramate: 5 kg weight loss</td>
</tr>
<tr>
<td>Lorcaserin</td>
<td>None</td>
</tr>
<tr>
<td>Metformin</td>
<td>12 clinical trials: BMI decrease of 1.82 (1.44, 2.19)</td>
</tr>
<tr>
<td>Naltrexone</td>
<td>+</td>
</tr>
</tbody>
</table>

Bariatric Surgery

- Indications based on current guidelines¹
  - Class III obesity (BMI > 40 kg/m²)
  - Class II obesity (BMI = 35-39.9) with medical complication (DM, Sleep apnea)
  - Class I obesity with poorly-controlled T2 DM
- Dramatic increase in the past two decades²
  - 350,000 procedures in 2008
  - Mean BMI of those having procedures is > 45³

¹ NHLBI, NIH Publication No. 98-4083, 1998
³ Buchwald H et al JAMA 2004; 292 (14): 1724-1737

Bariatric Surgery Procedures

Adjustable Gastric Band (AGB)

Sleeve Gastrectomy (SG)

Roux–en–Y Gastric Bypass (RYGB)
Unique Considerations

- Limited data about the efficacy and tolerability of surgery in SMI population
- Preliminary results support outcomes comparable to individuals without serious mental illness (Hamoui et al. 2004; Ahmed et al. 2013).
- How assess for appropriateness of surgery?
  - No uniform guidelines
  - Important to stress maintenance of weight loss & lifestyle change vs. quick fix
- Considerations regarding psychiatric illness after bariatric surgery
  - Impact of fat malabsorption on medication dose
  - Impact on cognition and functional status
  - Impact of body image and altered social role


Summary

- Individuals with SMI are at greatly increased risk of obesity
- Mental health providers should consider providing treatment for obesity
  - There is substantial data for efficacy of lifestyle modification for weight loss in SMI
  - Switching to antipsychotic medications with lower metabolic liability should be considered whenever possible
- Bariatric surgery is the treatment of choice for class III obesity, with substantial evidence of long-term health benefits
So… For Bill’s BMI of 37

- Consider switching his olanzapine
- Encourage lifestyle modifications
  - Ask him to walk to his CMHC visits
  - Stress substituting soda pop with low or no calorie beverages
  - Encouraging cooking or healthy options at the fast food restaurant
- You decide to do some lab work
  - Non fasting glucose 194
  - HbA1C 6.1%
- You wonder:
  - Does Bill have diabetes?
  - What can be done to help Bill avoid further medical complications in the future?

DIABETES

Edited from slides prepared by:
Martha Ward, MD
Assistant Professor
Emory University
Epidemiology of DM: A Growing Problem

Millions of Individuals with DM in the US by Year

Diabetes in SMI

Bipolar Disorder
- 8-17%
- RR 1.5-2

Schizophrenia
- 10-15%
- RR 2

De Hert, World Psychiatry 2009;8:15-22
Which kind?

**Type 1**
- 5 to 10%
- Age < 30
- Autoimmune mediated
- Destruction of islet cells
- Absolute insulin deficiency
- Low C peptide

**Type 2**
- 90 to 95%
- Age > 40
- Insulin resistance
- Inadequate insulin secretion
- Complex interaction of genes and environment
- Normal/High C Peptide

Risk Factors for Diabetes

- **Overweight adult** with one or more of the following:
  - Family history
  - Race/Ethnicity
  - History of gestational diabetes
  - Hypertension
  - Abnormal lipid levels
  - IGT or IFG
  - Signs of insulin resistance
  - Vascular disease
  - Inactive lifestyle
- **If none of above**, age over 45
### Risk Factors for Diabetes: SMI

<table>
<thead>
<tr>
<th>Risk factors for Diabetes</th>
<th>Schizophrenia % (RR)</th>
<th>Bipolar disorder % (RR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>45-55 (1.5-2)</td>
<td>21-49 (1-2)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>19-58 (2-3)</td>
<td>35-61 (2-3)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>25-69 (&lt;=5)</td>
<td>23-38 (&lt;=3)</td>
</tr>
<tr>
<td>Metabolic syndrome</td>
<td>37-63 (2-3)</td>
<td>30-49 (1.5-2)</td>
</tr>
</tbody>
</table>


### Risk Factors for Diabetes: SMI

<table>
<thead>
<tr>
<th>Drug</th>
<th>Weight Gain</th>
<th>Risk for Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clozapine (Clozaril)</td>
<td>+++</td>
<td>++</td>
</tr>
<tr>
<td>Olanzapine (Zyprexa)</td>
<td>+++</td>
<td>++</td>
</tr>
<tr>
<td>Risperidone (Risperdal)</td>
<td>++</td>
<td>+/-</td>
</tr>
<tr>
<td>Paliperidone (Invega)</td>
<td>++</td>
<td>+/-</td>
</tr>
<tr>
<td>Quetiapine (Seroquel)</td>
<td>++</td>
<td>+/-</td>
</tr>
<tr>
<td>Aripiprazole* (Abilify)</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>Ziprasidone* (Geodon)</td>
<td>+/-</td>
<td>-</td>
</tr>
</tbody>
</table>

ADA/APA Consensus Conference on Antipsychotic Drugs
Risk Factors for Diabetes: SMI

Weight Gain with Newer Atypical Antipsychotics

- **Short term:**
  - Iloperidone +2.50 kg
  - Paliperidone +1.24 kg
  - Asenapine +1.16 kg
  - Lurasidone +0.49 kg

- **Long term:**
  - Paliperidone +0.50 kg
  - Asenapine +1.30 kg


Diabetes and Antipsychotics: Is it all about weight gain?

- 20-25% of antipsychotic-associated DM2 *does not* appear to be due to weight gain

- Antipsychotics can affect beta-cell function without weight gain (Houseknecht et al, 2005)

- Insulin resistance in non-obese tx w/ olanzapine and clozapine (Henderson 2006)
Screening:

- Screen at baseline, 12 weeks and 12 months on anyone started on atypical antipsychotic.
- Screen every 1 to 3 years IN THOSE AT RISK:
  - Sustained Blood pressure 135/80
  - Hypertension or hyperlipidemia
  - Risk factors: Gestational diabetes, over 45 years old, BMI >25, family history, sedentary lifestyle, acanthosis nigricans, PCOS, clozapine and olanzapine.


Diabetes: Diagnosis

Random glucose >200 with symptoms
polyuria, polydipsia, polyphagia, weight loss

OR

<table>
<thead>
<tr>
<th>A1C (percent)</th>
<th>Fasting Plasma Glucose (mg/dL)</th>
<th>Oral Glucose Tolerance Test (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>6.5 or above</td>
<td>136 or above</td>
</tr>
<tr>
<td>Prediabetes</td>
<td>5.7 to 6.4</td>
<td>100 to 125</td>
</tr>
<tr>
<td>Normal</td>
<td>About 5</td>
<td>99 or below</td>
</tr>
</tbody>
</table>

Nonpharmacologic Treatment

• Diet
• Exercise
• Treatment of comorbid conditions
• Foot care
• Dilated eye exam
• Smoking cessation
• Immunizations

Pharmacologic Treatment

• **Metformin** is first line
  • Works well if HbA1c <9
  • Some nausea and diarrhea 1st week
  • Start at 500mg bid and titrate slowly to 1000mg bid (Max dose 2550mg daily)
• Contraindications
  • Creatinine > 1.4 mg/dL in women, > 1.5 mg/dL in men
  • During and for 48 hours after major surgery or radiologic contrast use
Pharmacologic Treatment

- After **metformin** (or not tolerated): start **sulfonylurea**
  - Consider glipizide (glucotrol)
    - Start 5mg daily (2.5mg in elderly)
    - Optimal dosing BID
    - Max daily dose 40mg
- **Risk of hypoglycemia**
  - Avoid long-acting formulas
  - Caution w hepatic or renal insufficiency but no absolute cutoff

Goals of Care

- A1c 7-8
- BP less than 130/80
- ACE-I for proteinuria
- Statin
- Aspirin?
- Eye exam/foot exam annually
Monitoring

- **Every 6 months** (3 months if changing therapy)
  - HbA1c
- **Yearly**
  - Lipids
  - Creatinine
  - LFTS
  - Electrolytes
  - Urine microalbumin, Urine Cr, U/A
  - TSH
Self-Monitoring of Glucose

- **Metformin**: No need to monitor
- **Sulfonylurea**: 1-2 times daily while titrating
- **Insulin**: QID

For sulfonylureas and insulin monitor for:
- Heavy exercise
- Illness

Back to Bill…

- Falls in pre-diabetic range (HgbA1C of 6.1%)
- You consider…
  - Further lifestyle interventions
  - Referral to local self-management group
  - Adding Metformin or Topirimate for helping with weight loss
  - Switching his antipsychotic therapy
- After discussion w/ Bill, you decide to:
  - Switch Olanzapine to Aripiprazole
  - Check in on psych symptoms regularly
  - Plan to recheck labs in 3 months
  - Consider adding Metformin 500mg bid at that time if no improvement
On review of his other labs…

- You note on a non-fasting lipid panel:
  - Total cholesterol 260 mg/dL
  - HDL 33 mg/dL
  - Triglycerides 258 mg/dL
  - LDL *calculated* 175 mg/dL

- You wonder:
  - Does Bill have high cholesterol, and does it put him at risk for CVD?
  - Can I use these labs to diagnose high cholesterol or monitor treatment?
  - What can I do to help Bill address his cholesterol values?

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**CHOLESTEROL**

Edited from slides prepared by:
Erik Vanderlip, MD
University of Washington
Department of Psychiatry
2013: Out with the old, in with the new

### NCEP ATPIII:
- LDL (bad cholesterol) was the focus
- Treat to pre-specified target LDL based on risk
- Calculate risk on Framingham cohort
- Add drugs to treatment regimen until the target was met

### ACC/AHA
- Appropriate placement on a statin is target
- Calculate risk based on pooled cohort equations
- Ensure that therapy is effective (patients adherent) by checking cholesterol panels
- No evidence for alternative lipid-lowering treatments

### Screening: Who and When?

- US General Population at Average Risk
  - Males: *Every 5 years*, beginning age 35
  - Females: *Every 5 years*, beginning age 45
- Those at elevated risk could be screened beginning at age 20

**Risk for CVD**

<table>
<thead>
<tr>
<th>CVD Risk Equivalents (10-year risk of CVD ~20%, risk-class high):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>Previous personal history of CVD</td>
</tr>
<tr>
<td>Abdominal Aortic Aneurysm</td>
</tr>
<tr>
<td>Peripheral Arterial Disease</td>
</tr>
<tr>
<td>Carotid Artery Stenosis</td>
</tr>
</tbody>
</table>

**Major Risk Factors:**
- *Family history* of CVD in 1st deg relative (male < 55, female < 65)
- *Cigarette smoking*
- *Hypertension*, treated or untreated
- *Age* (male > 45, female > 55)
- *HDL* < 40 mg/dL

USPSTF 2008
Bill—Lipid Profile Interpretation

- **46 YO** white male with:
  - Schizophrenia, controlled with **Atypical Antipsychotics**
  - **Hypertension**, (last 155/94)
  - Smoker
  - Non-diabetic

**Lipid Profile**
- Total Cholesterol: 260 mg/dL
- HDL Cholesterol: 33 mg/dL
- Triglycerides*: 258 mg/dL
- LDL Direct Measure: 185 mg/dL
- LDL Calculated*: 175 mg/dL

*Non-fasting

**Non-Fasting Lipid Profile**
- Total Cholesterol: 260 mg/dL
- HDL Cholesterol: 33 mg/dL
- **Non-HDL**: 227 mg/dL
- Triglycerides*: 258 mg/dL

Since **Non-HDL** is greater than **220 mg/dL**, that is considered extremely high and alone warrants high-intensity statin (**slide**).

**Note:** Both Total Cholesterol and HDL vary by less than 2% with respect to fasting status (Sidhu 2012).

Calculated LDL is artificially low if non-fasting (**slide**).

**Non-HDL** is much more reliable with respect to fasting vs. non-fasting, cut-offs are set **30 pts higher than LDL**.
Cardiovascular Risk

What you need to calculate risk:

1. Gender
2. Age
3. Race (w/nw)
4. Smoking Status
5. Recent BP and +/- tmt
6. DM status
7. Total Cholesterol
8. HDL Cholesterol

You do not need LDL values for this calculation.

Bill’s Risk

- **ASCVD Risk Evaluation**
  - 10-yr risk of ASCVD: 29.4%
  - 10-yr risk in pt w/ optimal risk factors: 1.3%
  - Goal LDL <130mg/dL

- **ASCVD Risk Interpretation**¹ ²
  - Elevated 10-year risk (≥ 7.5%) for atherosclerotic cardiovascular disease (ASCVD)
  - Consider a high intensity statin
  - In individuals not receiving cholesterol-lowering drug therapy, recalculate the 10-year ASCVD risk every 4 to 6 years
Treatment of Dyslipidemia

**Diet**
- Low saturated fat
- No trans fat
- < 300 mg chol/day
- Fish oil
- Tree nuts
- Soy
- Fiber

**Exercise**
- Aerobic exercise
  - 30 min/day
  - 120 min/week

**Meds**
- Statins

Switching AP’s?

---

Treatment: 4 Types of Statin Candidates

<table>
<thead>
<tr>
<th>Clinical Characteristic</th>
<th>Type of Prevention</th>
<th>Applicable Age Range</th>
<th>Preferred Statin Intensity</th>
<th>Potential Actions</th>
</tr>
</thead>
</table>
| **1**  
Clinical Presence of ASCVD* | Secondary | 21 to 75 | High | -- |
| **2**  
Serum LDL > 190 mg/dL OR non-HDL > 220 mg/dL | Primary | 21 to 75 | High | Work-up potential secondary causes |
| **3**  
Type II Diabetes | Primary | 40 to 75 | Moderate to High | -- |
| **4**  
10-year risk greater than 7.5% | Primary | 40 to 75 | Moderate | |

*ASCVD: prior MI, PVD, stable or unstable angina, AAA or ischemic stroke

Stone 2013, ACC AHA Guidelines
High Cholesterol: Secondary Causes

<table>
<thead>
<tr>
<th>Class</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease/Medical/Genetic</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td></td>
<td><strong>Hypothyroidism</strong></td>
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<tr>
<td></td>
<td>Chronic kidney disease</td>
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<tr>
<td></td>
<td>Nephropathy, proteinuria</td>
</tr>
<tr>
<td></td>
<td>Familial (genetic) hyperlipidemia</td>
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<td></td>
<td>Pregnancy*</td>
</tr>
<tr>
<td>Substance Use</td>
<td>Excessive alcohol intake</td>
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<tr>
<td>Medications</td>
<td>Estrogen</td>
</tr>
<tr>
<td></td>
<td>HIV Anti-retroviral therapy</td>
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<tr>
<td></td>
<td>Anti-psychotic medications</td>
</tr>
<tr>
<td></td>
<td>Steroids, immunosuppressants</td>
</tr>
<tr>
<td>Diet</td>
<td>Extreme obesity</td>
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<td></td>
<td>High saturated and trans-fats</td>
</tr>
</tbody>
</table>

(Stone et al. 2013; Vodnala, Rubenfire, and Brook 2012)

Treatment: Not all Statins are Equal

<table>
<thead>
<tr>
<th>Statin Drug (mg)</th>
<th>Serum Cholesterol Total</th>
<th>Serum Cholesterol LDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosuvastatin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Atorvastatin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Simvastatin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Lovastatin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Pravastatin</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Fluvastatin</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Low potency | Moderate potency | High potency

High potency, AM dosing possible

Source: www.effectivehealthcare.ahrq.gov Published online: May 16, 2013
Treatment: Statin Details

- **Monitoring**:
  - LFT’s should be checked at baseline and 3 mos. if concern about compromised liver exists
  - **Safe with liver co-morbidities**, don’t let transaminases elevate > 3-fold over baseline
  - Myalgias are ~10%
    - If present, hold statin and check CK
    - Myositis/rhabdomyolysis is rare, CK should be > 10-fold above baseline
    - If CK OK, may consider fluvastatin/pravastatin

- **Pregnancy category X**
  - Many psych meds go through CYP450
    - **Consider pravastatin (generic, dual metabolism)**
  - Only rosuvastatin (Crestor) and atorvastatin (Lipitor) may be dosed regardless of time

Follow-Up

1. Recheck lipid profiles periodically (at 3-12 mo. Intervals) to ensure adherence / therapeutic effects
   - **High** Potency 50% Reduction
   - **Moderate** Potency 30-50% Reduction
   - **Low** Potency 30% Reduction
2. Maintain therapy until >75 years, then consider moderation of dose or discontinuation
3. If intolerant of statin, try lower dose or lower potency
   - (OK to start on highest recommended dose – titration not necessary)
4. If general cholesterol goals not met and adherent, consider secondary causes and referral
What do you do for Bill’s Cholesterol?

• You decide to start Bill on Atorvastatin 20 mg
  • Once a day
  • In the morning w/ his Aripiprazole
  • High dose statin (vs weaker Pravastatin) for aim of 50% reduction
  • Monitor for interactions due to cytochrome P450 inhibition w/ Risperidone (which you are considering titrating down over time)
And how about that blood pressure?

- Initially 155/94mmHg
- After 3 months of lifestyle changes: 156/95mmHg

You ask:
- When does he need a medication to treat his blood pressure?
- What type of medication should we use to treat his hypertension?
Hypertension

• Up to 65 million American adults – over 30% -- have hypertension
• Only half have their blood pressure under control
• Treatment of HTN is the most common reason for clinical visits and for the use of prescription drugs

JAMA 2010;303(20);2043
Mental Illness and Hypertension

- Those with severe mental illness (SMI) are more likely to be obese and therefore more likely to have HTN
- Those with SMI are more likely to have HTN and not be diagnosed or treated
- People who are chronically depressed are more likely to have HTN
- HTN is a key contributor to the significant decreased life span in those who have SMI!

Schizophrenia Research 2006(86)
Hypertension --- We Are Missing the Target

Hypertension...Past Definitions (JNC 7)
How We Treat NOW…

Set BP Goal and Treat

General Population (no diabetes or CKD)

≥ 60 years

SBP <150 mmHg
DBP <90 mmHg

< 60 years

SBP <140 mmHg
DBP <90 mmHg

Diabetes or CKD present

All ages

Diabetes present
No CKD

SBP <140 mmHg
DBP <90 mmHg

All ages

CKD present with or without diabetes

SBP <140 mmHg
DBP <90 mmHg

(JNC-8 2013 Guidelines)

The Best Treatment is Prevention…

• Screen if normal blood pressure every 2 years
• Consider checking blood pressure at every visit
• Diagnosis of hypertension is made after 3 abnormal readings, made on separate visits
Initiate BP Lowering-Medication

**Based on Age, Diabetes, CKD**

- **No CKD**
  - Nonblack
    - Thiazide-type diuretic or ACEI or ARB or CCB, alone or in combination
  - Black
    - Thiazide-type diuretic or CCB, alone or in combination
- **CKD present**
  - ACEI or ARB, alone or in combination with other drug classes

Drugs treatment titration strategy

A. Maximize first medication before adding second or

B. Add second medication before reaching maximum dose of first medication or

C. Start with 2 medication classes separately or as fixed-dose combination.
At goal BP?

No

• Reinforce medication lifestyle and adherence.
• For strategies A and B, add and titrate thiazide-type diuretic or ACEI or ARB or CCB (use medication class not previously selected and avoid combined use of ACEI and ARB).
• For strategy C, titrate doses of initial medications to maximum.

Yes

• Continue current treatment and monitoring.
### Lifestyle modifications in the management of hypertension

<table>
<thead>
<tr>
<th>Modification</th>
<th>Recommendation</th>
<th>Approximate systolic BP reduction, range*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight reduction</td>
<td>Maintain normal body weight (BMI, 18.5 to 24.9 kg/m²)</td>
<td>5 to 20 mmHg per 10 kg weight loss</td>
</tr>
<tr>
<td>Adopt DASH eating plan</td>
<td>Consume a diet rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat</td>
<td>8 to 14 mmHg</td>
</tr>
<tr>
<td>Dietary sodium reduction</td>
<td>Reduce dietary sodium intake to no more than 1000 mg/day (2.4 g sodium or 6 g sodium chloride)</td>
<td>2 to 8 mmHg</td>
</tr>
<tr>
<td>Physical activity</td>
<td>Engage in regular aerobic physical activity such as brisk walking (at least 30 minutes per day, most days of the week)</td>
<td>4 to 9 mmHg</td>
</tr>
<tr>
<td>Moderation of alcohol consumption</td>
<td>Limit consumption to no more than 2 drinks per day in most men and no more than 1 drink per day in women and lighter-weight persons</td>
<td>2 to 4 mmHg</td>
</tr>
</tbody>
</table>

For overall cardiovascular risk reduction, stop smoking. The effects of implementing these modifications are dose and time dependent and could be higher for some individuals; they are not all additive.

BMI: body mass index; BP: blood pressure; DASH: Dietary Approaches to Stop Hypertension.


### Considerations for individualizing antihypertensive therapy

<table>
<thead>
<tr>
<th>Indication</th>
<th>Antihypertensive drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestive heart failure</td>
<td>ACE inhibitors or ARB, beta blocker, diuretic, aldosterone antagonists</td>
</tr>
<tr>
<td>Hypertensive heart failure</td>
<td>ACE inhibitors, beta blocker, aldosterone antagonists</td>
</tr>
<tr>
<td>End-stage renal disease</td>
<td>ACE inhibitors and/or ARB</td>
</tr>
<tr>
<td>Angina</td>
<td>Beta blocker, calcium channel blocker</td>
</tr>
<tr>
<td>Renal failure</td>
<td>Beta blocker, nonselective calcium channel blocker</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>Beta blocker, nonselective calcium channel blocker</td>
</tr>
<tr>
<td>Likely to have a favorable effect on symptoms in converted condition</td>
<td></td>
</tr>
<tr>
<td>Diabetic peripheral neuropathy</td>
<td>Sodium channel blockers</td>
</tr>
<tr>
<td>Essential tremor</td>
<td>Beta blocker (nonselective)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Beta blocker</td>
</tr>
<tr>
<td>Migraine</td>
<td>Beta blocker, calcium channel blocker</td>
</tr>
<tr>
<td>Diastolic</td>
<td>Thiazide diuretic</td>
</tr>
<tr>
<td>Perioperative hypotension</td>
<td>Beta blocker</td>
</tr>
<tr>
<td>Aortic valve</td>
<td>Dihydropyridine calcium channel blocker</td>
</tr>
</tbody>
</table>

**Contraindications:**

- Angina
- Renal insufficiency
- Maternal severity
- Pregnancy
- Concurrent use of diuretics

**May have adverse effect on cardiovascular conditions:**

- Intolerance
- Hypersensitivity
- Antidysrhythmics
- Pregnancy

* A personal benefit from an aldosterone antagonist has only been demonstrated in patients with advanced heart failure. In patients with less severe disease, an aldosterone antagonist is primarily used for heart failure.
Common Drug Class Interactions

<table>
<thead>
<tr>
<th>Anthyptensive Medication Class</th>
<th>Psychotropics</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuretics</td>
<td>Lithium</td>
<td>Watch for dehydration and increased serum lithium level</td>
</tr>
<tr>
<td>Multiple taken at the same time</td>
<td>Venlafaxine</td>
<td>Potential for increased blood pressure</td>
</tr>
<tr>
<td>Multiple taken at the same time</td>
<td>Psychotropics with high α-1 blockade</td>
<td>Potential for hypotension</td>
</tr>
<tr>
<td>Any class</td>
<td>MAOI's</td>
<td>1) Hypotension (α-1 block) 2) Hypertension (food with tyramine might cause a catecholamine surge and hypertensive crisis)</td>
</tr>
<tr>
<td>Any class</td>
<td>Stimulants</td>
<td>Potential for increased blood pressure</td>
</tr>
</tbody>
</table>

For Bill’s Blood Pressure

- You decide to:
  - Start Hydrochlorothiazide (HCTZ) 12.5mg
  - If he had DM, you would have started an ACE Inhibitor
- Two weeks later his BP is 148/93
  - Increase his HCTZ to 25mg
- One month later, his BP is 141/90 but his K+ is 3.3mg/dL
  - Add in an ACE inhibitor to help w/ BP control and help spare his potassium
- Two weeks later, BP is 130/85 - Goal!
  - Creatinine and Potassium are normal
- He uses a pill box to help him manage his new medications
What about Bill’s tobacco use?

• Rolls his own q 20-30min while awake
• Approximately 28/day
• Started at age 16, you estimate 60 pack yr hx
• Tried quitting several times
• Went “cold turkey” for 6 months when he was in a state hospital
• He’s not sure what he’d do to pass time if he didn’t smoke
• You wonder:
  • Can Bill successfully stop smoking?
  • Will smoking cessation impact his mental illness, or have an effect on his medications?
  • Are cessation medications safe or even effective for Bill?
Percentage of smokers by diagnostic group and year of enrollment


Figure Legend:

Tobacco-Linked Standardized Mortality Ratios in SMI Populations

Tobacco Use linked to approximately 50% of total deaths in all three psychiatric conditions

(Callaghan et al 2013)
TOBACCO DEPENDENCE: A 2-PART PROBLEM and MANAGEMENT

Tobacco Dependence

Physiological
- Addiction to nicotine
- Medications for cessation

Behavioral
- Habit of using tobacco
- Behavior change program

National guidelines recommend ALL smokers should be screened, advised to quit and offered treatment that address both aspects of dependence


FIVE A’s for TREATING TOBACCO

AAMC 2005 Survey
Psychiatrists are the least likely to address (vs FM, IM, OBGYN)

<table>
<thead>
<tr>
<th>PSY</th>
<th>IM</th>
<th>ASK</th>
<th>ADVISE</th>
<th>ASSESS</th>
<th>ASSIST</th>
<th>ARRANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>62%</td>
<td>62%</td>
<td>89%</td>
<td>93%</td>
<td>73%</td>
<td>93%</td>
<td>19%</td>
</tr>
<tr>
<td>62%</td>
<td>62%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*medications, cessation materials

(Fiore 2008, AAMC 2007)
Why Psychiatrists?

• Most frequent contact / knows the patient best
• Can combine meds and behavioral/counseling
• Trained in substance abuse treatment
• Can identify / address changes in psychiatric symptoms during the quit attempt

Failure to address tobacco use tacitly implies that quitting is not important or that the patient is not worth helping.

1. ASSESS readiness on “stages of change”

<table>
<thead>
<tr>
<th>Precontemplation</th>
<th>Contemplation</th>
<th>Action</th>
<th>Maintenance</th>
</tr>
</thead>
</table>

Motivational Interviewing

Assist

Behavioral Modification: In-Office
• Educate on withdrawal symptoms
• Set a quit date
• Cognitive- identify / modify reinforcing thoughts
• Behavioral- Modify routine, Identify triggers

OR

Behavioral Modification: Community
Know your community resources!
Expectations and Maximizing Success

It’s a learning process: reframe success!

12 Month Abstinence

(Zhu et al 2000, Hall et al 2004)

ASSIST: Ready to Quit
FDA Approved Pharmacotherapy
LONG-TERM QUIT RATES

Consider Combination NRT

- Start with one slow-release NRT form (i.e. patch) and add short-acting NRT (e.g. gum/inhaler/lozenge) for break-through cravings
- Achieve sustained levels of nicotine w/ rapid adjustment for acute needs for withdrawal symptoms
- Recipients report greater levels of comfort
- More efficacious than single NRT

FDA Label Change: decreased safety concerns, increased flexibility

Safe to use before quit day
Safe to use > 12 weeks
May use during a lapse or relapse and improve outcome

(Zapawa 2011)
BUPROPION SR

ADVANTAGES

• Can be used with NRT
• May be beneficial in patients with depression and schizophrenia
• Taper not necessary

DISADVANTAGES

• Avoid if risk for seizures, eating d/o, unmanaged bipolar
• Common side effects:
  dry mouth, anxiety, insomnia (avoid bedtime dosing)

BUPROPION SR:
DOSING for SMOKING CESSATION

Begin therapy 1 week PRIOR to quit date

Initial treatment

• 150 mg po q AM x 3 days, then:
• 150 mg po qam & qafternoon x 7–12 weeks

If 300 mg is not well tolerated:

• Reduce dose to 150 mg and reassure that 150 mg dose is still efficacious

(Swan 2003)
VARENICLINE: DOSING

- Begin therapy 1 week PRIOR to quit date
- Take after eating, with full glass of water to reduce nausea.

<table>
<thead>
<tr>
<th>Treatment Day</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days 1–3</td>
<td>0.5 mg qd</td>
</tr>
<tr>
<td>Days 4–7</td>
<td>0.5 mg bid</td>
</tr>
<tr>
<td>Day 8 – Week 12</td>
<td>1 mg bid</td>
</tr>
</tbody>
</table>

Can simply write for “Month Starter PAK,” then 2 months of 1 mg bid

Varenicline: Warning label in package insert

“Serious neuropsychiatric events including, but not limited to, depression, suicidal ideation, suicide attempt, and completed suicide”
- Based on case reports, Led to FDA alert in 2/08

Since then...
- No association in most retrospective studies (Stapleton 2009, Williams et al 2011)
- No association in prospective cohort (Thomas et al 2013) and prospective DB randomized studies (Anthenelli et al 2013) and may actually improve mood (Cinciripini 2013)
- No association in reanalysis of 17 RCT’s and Dept of Defense observational data (Gibbons et al 2013)
Cost of Treatment

- American Lung Association has state by state tobacco cessation coverage listed
- http://lungusa2.org/cessation2/
- Specifically discusses which NRT, pharmacotherapy and counseling options are covered
  - Medicaid coverage
  - State employee health plan coverage
  - Private insurance resources
  - What NRT 1-800-QUIT-NOW can dispense

Pharmacotherapy Summary

<table>
<thead>
<tr>
<th></th>
<th>NRT (Patch)</th>
<th>Bupropion SR</th>
<th>Varenicline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation</td>
<td>On quit date</td>
<td>1-2 w before quit date</td>
<td>1 w before quit date</td>
</tr>
<tr>
<td>Dosing</td>
<td>&lt; 10 cigs/d: 14 mg x 6 w, 7 mg x 2 w</td>
<td>150 mg qam x 3 d, then 150 mg qam and qafternoon (8 hours later)</td>
<td>0.5 mg qd x 3 d, then bid x 4 d, then 1 mg bid</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 cigs/d: 21 mg x 6 w, 14 mg x 2 w</td>
<td>7 mg x 2 w</td>
<td>14 mg x 2 w</td>
</tr>
<tr>
<td>Duration</td>
<td>12 w</td>
<td>12 w</td>
<td>12 w</td>
</tr>
<tr>
<td>Precautions</td>
<td>Local Reaction</td>
<td>Eating disorder</td>
<td>Seizure disorder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unmanaged bipolar</td>
<td>Monitor for adverse mood and behavior changes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RCT Data specifically for:</th>
<th>NRT</th>
<th>Bupropion SR</th>
<th>Varenicline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression (history of)</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>?</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Bipolar</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

? Insufficient data  + limited data  ++ RCT data support use  NRT Nicotine Replacement Therapy
Electronic Cigarettes
“Vaping”
- Controversial!!
  - Not regulated by FDA
  - Harm Reduction vs “gateway” to smoking
  - Safety concern (FDA 2009) but less safe compared to other NRT?
  - Not cheap
- Some states banning use in minors
- First RCT with e cigarettes:
  - Low abstinence overall, insufficient power to conclude superiority
  - Well tolerated

Percentage quit at 6 months

<table>
<thead>
<tr>
<th></th>
<th>0.0%</th>
<th>5.0%</th>
<th>10.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>E cigarette</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placebo E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Bullen 2013)

Bill wants to quit!
- You set a quit date
- Start Buproprion SR 150mg 2 weeks prior
- Start the Nicotine Patch (21mg) on quit date and increase Buproprion SR to 300mg
- Ask his case manager to check in and encourage him
- He enrolls in a smoking cessation class
- After one month…
  - He is only smoking 2-3 cig/day at times of major craving
  - You add in short acting NRT (gum) for those times
After 6 months…

- Bill has quit smoking and his chronic diseases are under good control
- His 10-year CVD risk is now 4%, down from 29% just 6 months earlier
- You realize that he may be at risk for many other diseases and wonder:
  - What steps can I take to help identify or reduce his risk of infectious diseases?
  - What types of cancer screening would he be a candidate for?

PREVENTION

Edited from slides prepared by:
Jeffrey Rado, MD
Assistant Professor
Rush University
Why prevention?

Types of Prevention

- **Primary Prevention**: Prevent disease in individual with no symptoms or diagnosed disease (e.g., sunscreen, vaccines).

- **Secondary Prevention**: Goal is to find and diagnose disease early (before symptoms are evident) so that treatment can be initiated as early as possible (mammography, PAP smears).

- **Tertiary Prevention**: Disease is diagnosed and patient exhibits symptoms; goal is to prevent complications or progression of disease.
What makes a good screening test?

• Disease:
  • Common condition with significant morbidity and mortality (important public health problem).
  • Effective treatment available.

• Screening tool:
  • Available at a reasonable cost.
  • Safe and tolerable to patient.
  • Capable of identifying the disease and shown to lead to improved outcomes.

Where do recommendations come from?

• U.S. Preventive Services Task Force (USPSTF)
• American Academy of Family Practice (AAFP)
• American College of Physicians (ACP)
• American Academy of Pediatrics (AAP)
• American College of Obstetrics and Gyn (ACOG)
• American Psychiatric Association (APA)
• American Academy of Child and Adolescent Psych
• American Medical Association (AMA)
• Centers for Disease Control (CDC)
• Insurance Companies (CMS, Commercial etc.)
• Special Societies (American Cancer Society, American Heart Association)
U.S. Preventive Services Task Force Grading Recommendations

• **A** There is high certainty that the net benefit is substantial. Offer this service.
• **B** There is Moderate certainty that the net benefit is moderate to substantial. Offer this Service.
• **C** “It depends” May be a benefit depending on the individual patient and there symptoms, presentation.
• **D** No benefit and possible harm. Discourage using this service.
• **I** Statement: We don’t know.
• Also quality statement: Good, Fair and Poor

Breast Cancer

• Mammography:
  - Age 40-49: Individualized discussion of risk/benefits
  - Age 50-74: Every two years
  - Age 75+: benefit of screening uncertain.
  - ONLY 70% of eligible women receive mammograms—most common reason women give is that their doctor never told them to get one.

Self Breast Exam: no benefit

Unknown if beneficial:
  - Breast MRI
  - Clinical Breast Exam
Cervical Cancer

• PAP Cytology
  • Up to age 21: do not screen
  • Age 21-65: every 3 years (usually with reflexive HPV testing).
  • Age 30-65: every 3 years or every 5 years with HPV testing
  • Over age 65: do not screen
  • Do not screen HPV before age 30.

Colon Cancer

• No screening recommended prior to age 50 for average risk persons.

• Age 50-75:
  • FOBT yearly
  • Flexible Sigmoidoscopy every 3-5 years
  • Colonoscopy every 10 years

• Age 75+: no screening
  • There may be considerations that support colorectal cancer screening in an individual patient between age 75 and 85.
Lung Cancer

- Low dose CT scan of Chest for individuals age 55-80 with a 30 pack-year history who currently smoke or quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery. (new December 2013—Grade B recommendation)

Other Cancers

- No benefit from screening:
  - Pancreatic
  - Ovarian
  - Testicular
  - Prostate

- Unknown benefit from screening:
  - Bladder
  - Skin
  - Oral
Cardiovascular Disease

- *Hypertension*: every 2 years in adults.
- *Hyperlipidemia*: every 5 years in men age 35 or older and women age 45 and older.
- *AAA*: single screening ultrasound in MEN age 65-75 who have ever smoked.
- *Tobacco*: ask at every encounter.
- Screening for peripheral artery disease or carotid artery disease not recommended.

Endocrine Disorders

- *Diabetes*: screen every three years only if Blood pressure is \( \geq 135/80 \) (Grade B).
- *Thyroid Disorders*: not recommended due to unclear benefit.
- *Osteoporosis*: DEXA scan in women \( >65 \) years older with out known fractures or secondary causes of osteoporosis (Grade B).
Infectious Diseases

• **HIV**: all individuals age 15-65 should be screened.

• **Hepatitis C**: All adults born between 1945 and 1965 should receive one time testing.

• **Chlamydia and Gonorrhea**: screen all sexually active women, including those who are pregnant, for gonorrhea infection if they are at increased risk for infection (that is, if they are young or have other individual or population risk factors).

Vaccines

• **Influenza**: Yearly for everyone age 6 months and older.

• **Pneumococcal polysaccharide**:  
  - One dose after age 65  
  - One or two doses prior to age 65 for individuals with chronic medical illnesses.

• **Zoster** (Shingles): single dose at age 60 or older.

• **Tetanus/Diptheria (Td)**: every 10 years. One dose booster should be TDAP.

• **Hepatitis B**: Recommended if risk factors present.

• **HPV**: three doses before age 26 in females and before age 21 in males.
Resources: CDC website


Resources: http://healthfinder.gov/myhealthfinder/
After reviewing the guidelines...

- You decide to screen Bill for HIV, syphilis, hepatitis B and C, and tuberculosis with a skin test
- You administer a flu shot, TDaP and Hepatitis A and B
- He has no family history of cancers so he is not due for screening until age 50
  - At 50, recommend colon cancer screening and discuss prostate cancer screening
- At age 55, you would consider the low dose CT scan of chest to screen for lung cancer (given < 15 yrs since smoking cessation)
Questions?

Primary Care Skills for Psychiatrists

a collaboration of:

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