Are we Ready to Prevent Metabolic Syndrome?

Jeff Capobianco
Sr. Consultant National Council for Behavioral Health

Setting the Stage:
Today's Moderator

Madhana Pandian
Associate
SAMHSA-HRSA Center for Integrated Health Solutions

Slides for today's webinar will be available on the CIHS website:
www.integration.samhsa.gov
Under About Us/
Innovation Communities 2017

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Use the chat box to communicate with other attendees

Disclaimer: The views, opinions, and content expressed in this presentation do not necessarily reflect the views, opinions, or policies of the Center for Mental Health Services (CMHS), the Substance Abuse and Mental Health Services Administration (SAMHSA), the Health Resources and Services Administration (HRSA), or the U.S. Department of Health and Human Services (HHS).
Setting the Stage

Carrie Cunningham, MD MPH
Family Medicine/Psychiatry
Consulting Psychiatrist in Primary Care
UCSF Public Psychiatry Fellow

Objectives

- Define metabolic syndrome (MetS)
- Understand the etiology of MetS
- Know screening guidelines for MetS
- Describe evidence-based treatment for MetS and related disorders
- Consider the components of a clinical pathway
- Identify core elements of a clinical pathway for MetS

What is MetS?

Definition

- A state of chronic low grade inflammation
- A constellation of physiological, biological, clinical and metabolic factors including:
  - Atherogenic dyslipidemia
  - Hypertension
  - Glucose intolerance
  - Visceral adiposity
  - Insulin resistance
  - Inflammatory and prothrombotic state

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What is MetS?

Clinical Definition

Modified NCEP ATPIII Guidelines

- Presence of 3 out of 5 of the following:
  - Blood glucose $\geq 100$ (or taking hypoglycemic)
  - HDL $< 40$ (men) or $< 50$ (women)
  - Triglycerides $\geq 150$ (or taking lipid lowering agents)
  - Waist circumference $> 40$ in (men) or $> 35$ in (women)
  - Blood pressure $\geq 130/85$ (or taking anti-hypertensive)

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Why is it important to identify MetS?

- MetS is associated with an elevated risk of:
  - Type 2 Diabetes (5x)
  - Cardiovascular disease (2x)
    - Cerebrovascular accident (2-4x)
    - Myocardial infarction (3-4x)
  - All cause mortality
- Other systemic effects include:
  - Renal, hepatic, skin, cardiovascular

Why is it important to identify MetS among people with SMI?

- 34% of Americans are estimated to have MetS
  - Ranges worldwide from <10 to 84%
- People with SMI are at increased risk of developing MetS
  - Rates of MetS were estimated to be 32.6% among people with schizophrenia in one meta-analysis
  - CATIE trial demonstrated MetS rates of 40.9% and 51.6% in men and women with schizophrenia, respectively
  - In one systematic review, people with bipolar disorder had higher rates of hyperTG and hyperglycemia than controls

Objectives

- Define metabolic syndrome (MetS)
- Understand the etiology of MetS
- Know screening guidelines for MetS
- Describe evidence-based treatment options for MetS and related disorders
- Consider the components of a clinical pathway
- Identify core elements of a clinical pathway for MetS
Atypical Antipsychotics and MetS

- clozapine, olanzapine
- quetiapine, risperidone
- aripiprazole, ziprasidone, lurasidone


Atypical Antipsychotics and MetS: Etiology

- Increased adiposity
  - Changes in hunger/satiety
  - Leptin (“satiety hormone”) resistance
- Studies suggest metabolic disturbances independent of weight gain
  - Atypicals may have a direct effect on glucose and lipid metabolism
- Overall, the mechanism by which atypicals mediate increased risk of MetS is not completely understood


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Atypical Antipsychotics and MetS: Routine Screening Guidelines

<table>
<thead>
<tr>
<th>ADA/APA Consensus Guidelines for Atypical Antipsychotic Monitoring</th>
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</thead>
<tbody>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>Personal/Family Hx</td>
</tr>
<tr>
<td>Weight (BMI)</td>
</tr>
<tr>
<td>Waist Circ</td>
</tr>
<tr>
<td>Blood Pressure</td>
</tr>
<tr>
<td>Fasting Glucose</td>
</tr>
<tr>
<td>Fasting Lipids</td>
</tr>
</tbody>
</table>


Prevention and Treatment of MetS

Pharmacologic

Behavioral/Non-pharmacologic
Evidence-Based Treatment of MetS: Overview

- Routine monitoring of metabolic parameters
  - Body weight, abdominal circumference
  - Blood pressure
  - Blood glucose and lipids
- Interventions that target lifestyle modifications
  - Weight loss (5-10%)
  - Nutrition
  - Physical activity
- Evidence-based treatment guidelines for management of:
  - Dyslipidemia
  - Hypertension
  - Diabetes Type 2

Source: American Heart Association "What is Metabolic Syndrome" (2015) integration.samhsa.gov

Evidence-Based Treatment of MetS: Lifestyle Modifications

- Multidisciplinary Approach
  - Dieticians, exercise physiologists, health educators, primary care providers, other clinicians
- Primary Targets
  - Weight loss (5-10%)
  - Nutrition
  - Physical activity
- Behavioral Strategies
  - Social support, stress management, focus on habits
  - Cognitive strategies (e.g. problem-solving, restructuring)


Evidence-Based Treatment of MetS: Weight Reduction

- Weight reduction
  - Goals 5-10% within 6 month-1 year
    - Reduce TG and increase HDL
    - Decrease blood pressure
    - Decrease FBG, insulin, A1c
  - Methods
    - Calorie restriction
    - Increased physical activity
    - Behavioral modification
    - FDA-approved medications for weight loss (BMI >30) and/or bariatric surgery (BMI>40)
- According to the US Diabetes Prevention Program, a modest weight ↓ of 5-10% can reduce progression from IFG to DMII


Evidence-Based Treatment of MetS: Nutrition

- Reduction of daily calorie intake (500-1000 cal/day)
- Consider specific evidence-based diets
  - Mediterranean diet
  - Dietary Approaches to Stop Hypertension (DASH) diet
- Consider referral to a dietician
- Consider providing meal plans, grocery lists, recipes


Evidence-Based Treatment of MetS: Physical Activity

- Goal at least 30 min/day at least 5 days/wk (total 150 minutes) of moderate physical activity or 75 minutes of vigorous physical activity weekly
- Increase activity by 5 min/session/week
- If monitoring steps, add 500 steps/3-day-interval to achieve target 10,000-12,000 steps/day
- Combination of resistance and aerobic exercise
- Benefits include improvement in insulin sensitivity, decrease in plasma TG levels and reduction in cardiovascular morbidity and mortality

Evidence-Based Treatment of MetS: Psychopharmacology

- If weight gain > 5% above initial weight, suggest switch to an atypical antipsychotic medication with lower potential for weight gain.

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Evidence-Based Treatment of MetS: Psychopharmacology

clozapine, olanzapine
quetiapine > risperidone
aripiprazole, ziprasidone, lurasidone

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Evidence-Based Treatment of MetS: Dyslipidemia

2013 American College of Cardiology (ACC)/American Heart Association (AHA) Guidelines

- Prescribe moderate- to - high intensity statin therapy at fixed doses for higher-risk patients most likely to achieve benefit

Secondary prevention:
- 1) Adults 75 years or younger with clinical atherosclerotic cardiovascular disease (ASCVD) (high intensity)
- Primary Prevention:
- 2) Adults 21 years or older with primary LDL > 190 (high intensity)
- 3) Adults 40-75 without ASCVD but with DM and LDL 70-189 with moderate
- 4) Adults 40-75 without ASCVD or DM but with LDL 70-189 and estimated 10-yr ASCVD risk of 7.5% or higher (moderate to high)

Pooled Cohort Equation:
http://tools.acc.org/ASCVD-Risk-estimator/

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Evidence-Based Treatment of MetS: Overview

- Routine monitoring of metabolic parameters
- Interventions that target lifestyle modifications
- Evidence-based treatment guidelines:
  - Dyslipidemia
  - Hypertension
  - Diabetes Type 2

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Evidence-Based Treatment of MetS: Dyslipidemia

2016 ACC Expert Consensus Decision Pathway (ECDP)
- Introduces optional lipid goals that may aid in decision to add non-statin therapies in select groups of patients
- Other lipid-lowering agents (non-statin):
  - Ezetimibe
  - Bile acid sequestrants
  - PCSK9 inhibitors: approved for specific populations

Evidence-Based Treatment of MetS: Hypertension

JNC8 Recommendations

<table>
<thead>
<tr>
<th>Age</th>
<th>Goal BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 60</td>
<td>&lt;150/90</td>
</tr>
<tr>
<td>Age &lt;60</td>
<td>&lt;140/90</td>
</tr>
<tr>
<td>Age ≥ 18, &lt;70 with CKD</td>
<td>&lt;140/90, initial treatment with ACEi/ARB</td>
</tr>
<tr>
<td>Age ≥ 18 with DMII</td>
<td>&lt;140/90</td>
</tr>
</tbody>
</table>

Evidence-Based Treatment of MetS: Hyperglycemia (IFG/DMII)

- DEFINITION

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Impaired Fasting Glucose</th>
<th>Diabetes Mellitus (DMII)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting blood glucose (8h)</td>
<td>&lt;100</td>
<td>100 - 125</td>
<td>≥ 126 (2 times)</td>
</tr>
<tr>
<td>Hemoglobin A1c</td>
<td>&lt;5.7%</td>
<td>5.7 - 6.4%</td>
<td>≥ 6.5%</td>
</tr>
<tr>
<td>Oral Glucose Tolerance Test (OGTT)</td>
<td>&lt; 140</td>
<td>140-199</td>
<td>≥ 200</td>
</tr>
</tbody>
</table>

Evidence-Based Treatment of MetS: Hypertension

JNC8 Recommendations

- Initial treatment
  - General non-black population: thiazide diuretic, calcium channel blocker, ACE inhibitor, or ARB
  - General black population: thiazide diuretic or calcium channel blocker
- If the target BP is not reached within one month:
  - Increase the dose of the initial medication, or
  - Add a second medication
- If require more than 3 medications or contraindication to above medications, other classes of antihypertensives can be used

Evidence-Based Treatment of MetS: Impaired Fasting Glucose

Treatment
- Weight reduction
- Increased physical activity
- Medical nutrition therapy
- Consider medications that lower the risk of DMII in IFG
  - Metformin
  - Acarbose
  - Thiazolidinediones (controversial)
Evidence-Based Treatment of MetS: Impaired Fasting Glucose

- "We concluded that if weight gain occurs after second-generation antipsychotic initiation, despite lifestyle intervention, metformin should be considered. Further studies with adequate statistical power are required to determine the efficacy of metformin in those with chronic psychotic illness."
  - Systematic review of 10 original studies (6 RCTs and 1 open-label of adults) and 6 meta-analyses


Evidence-Based Treatment of MetS: Type 2 Diabetes

- New guidelines underscore a comprehensive approach
  - Multidisciplinary team-based approach
  - Diabetes educators, dieticians, nurses, medical assistants, PCP
  - Routine screening for depression
  - Treatment of blood pressure, lipids, weight loss, anticoagulation with aspirin
- Treatment includes
  - Lifestyle modifications, as described
  - Pharmacologic interventions
  - Monitoring blood glucose at regular intervals (3-6 mo) and adjusting medications accordingly
  - Management of hypoglycemia


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Evidence-Based Treatment of MetS: Type 2 Diabetes

- Target A1c

<table>
<thead>
<tr>
<th>Goal HbA1c</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1c &lt; 7%</td>
<td>Most people with DMII</td>
</tr>
</tbody>
</table>
| A1c < 8%  | History of severe hypoglycemia  
|           | Limited life expectancy |
|           | Advanced renal disease or macrovascular complications |
|           | Extensive comorbid conditions |
|           | Long-standing DMII + difficulty attaining A1c goal |


Clinical Pathways: What is a clinical pathway?

- A defined set of clinical care goals
- A clear map of steps necessary to achieve these goals
  - What order the steps should occur
  - Timing of these steps
- A sequence of context-specific care activities, with defined roles for each professional, to lead to these selected goals
- Developed by interprofessional teams

**Clinical Pathways:**
**Why are clinical pathways important?**

Clinical pathways:
- Improve quality of care
  - Coordination of care within and across professions
  - Reduction of variation in care through standardization
  - Implementation of evidence-based treatment guidelines
- Utilize a continuous quality improvement framework

**Clinical Pathways:**
**What are the steps to create a pathway?**

1. Choose a clinical area
2. Create a multiprofessional team
3. Define the diagnosis
4. Define the patient population
5. Review the evidence base
6. Develop the clinical pathway
7. Pilot the clinical pathway
8. Evaluate the pathway
9. Ongoing monitoring of the pathway

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**Intervention Example:**
**“Walk this Way”**

- Pilot study to examine feasibility and acceptability of a health coaching intervention
- Goals:
  - Reduce sedentary behavior and increase low intensity exercise
- Target population:
  - People with Serious Mental Illness (psychosis, bipolar disorder, major depressive disorder)
- Intervention:
  - Educational session regarding benefits of active lifestyle
  - Every 2 week coaching to set daily walking targets
  - Pedometer to track steps
  - Weekly walking group available

**Clinical Pathway Example:**
**Dietary Management**

1. Nutrition Assessment
2. Joint Goal Setting
3. Overweight – Is Weight loss feasible?
   - No
   - Yes
3a. Diabetes or IFG?
   - No
   - Yes
3b. HTN +/or DLD
   - No
   - Yes
4. Decrease Calories
4a. Control Carbs
4b. Addl strategies
5. Initial Counseling
6. Planned Follow-up

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**Clinical Pathways:**

**What are the steps to create a pathway?**

1. Choose a clinical area
   - What is the scope of the clinical pathway?
     - Screening for MetS?
     - Screening and treatment for MetS?
     - Specific intervention area for MetS?

2. Create a multiprofessional team
   - Who will be included on the team?
     - Nursing
     - Nutritionists/dieticians
     - Psychiatric providers
     - Primary care providers
     - Behavioral health clinicians
     - Medical assistants
     - Phlebotomists
     - Pharmacists
     - Peers
     - Care manager/panel managers, others

3. Define the diagnosis
   - MetS (modified ATP III criteria)
   - Associated disorders
     - Dyslipidemia (LDL, HDL, TG)
     - IFG/DMII
     - Hypertension

4. Define the patient population
   - People with severe mental illness?
   - People prescribed atypical antipsychotic medications?
   - Other?

5. Review the evidence base
   - Screening for MetS
   - Modifiable risk factor for MetS
   - Treatment of MetS
   - Treatment of associated disorders

6. Develop the clinical pathway
   - A sequence of context-specific care activities, with defined roles for each professional, to lead to these selected goals
Clinical Pathways: What are the steps to create a pathway?

**Context?**
- Community mental health center
- Primary care settings
- What are the advantages?

**Roles?**
- Who orders the tests, checks BP, obtains a weight?
- Who follows up on the results?
- Who initiates treatment?

**Goals?**
- Improve screening rates?
- Treat MetS and associated disorders?
- Target modifiable risk factors: Smoking, nutrition, physical activity?

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Clinical Pathways: What are the steps to create a pathway?

**Context?**
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Potential barriers in clinical pathways

- Patient and illness-related factors:
  - Difficulty comprehending health-related information
  - Difficulty engaging in lifestyle modifications
  - Lack of engagement in medical care
  - Other comorbid health risk factors (e.g. substance use)
- Provider-related factors:
  - Focusing on mental health rather than physical health
  - Reluctance to adhere to clinical pathway
  - Lack of knowledge and/or awareness of medical issues
  - Assumptions regarding people with SMI

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Potential barriers in clinical pathways

- Systems-related factors:
  - Fragmentation or medical and mental health systems
  - Lack of resources (including time) to coordinate physical and mental health care
  - Financial cost of integrated care
  - Lack of access to health care for people with SMI

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Clinical Pathways: What are the steps to create a pathway?

8. Evaluation of the pathway
9. Ongoing monitoring of the pathway

Tool: Care Process Self Evaluation Tool (CPSET)

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Questions?

Common Work Plan Components

1. Charge from Leadership
2. Communication Plan
3. Goals/Objectives/Tasks
4. Responsible Lead Staff
5. Supporting Staff
6. Measurable Target Outcome(s)/Deliverable
7. Timeline & Due Date/Completion Date
8. Resources Required

What we will be doing for the next 9 Months!

- Monthly Webinars
- Coaching Calls
- Homework Assignments
- Participant IC Report Out
- Evaluation Activities

Work Plan Development

Every IC member must develop a work plan targeting 1-3 goals that are achievable by August of 2017.

Using a Stretch & SMART approach to setting goals is a useful approach.

Sample Work Plan Elements

1. **Goal**: Implement Pop Man approach for screening & treatment of Metabolic Syndrome
2. **Objective**: Determine which MetS data to use
3. **Tasks**: Sally R & Fred J to meet with Med. Dir., & IT specialist staff to identify, collect & dashboard report data
4. **Responsible Lead Staff**: Fred J.
5. **Supporting Staff**: Sally R., Jim J., Erika P.
6. **Outcome(s)**: MetS Dashboard & associated reporting structure
7. **Date/Completion Date**: June 1
8. **Resources Required**: 3 hrs of IC team staff time; 8 hrs of IT dept. staff time; 1 hr Med. Dir.

Webinar Schedule

Date/Time: Friday March 24th 3-4:30pm EST
Presenter: Dr. Cunningham, UCFS
Topic: MetS Etiology & Tx Care Pathway Components for Identification & Treatment of MetS

Date/Time: Tuesday April 11th 3-4:30pm EST
Presenter: Dr. Jeff Capobianco, The National Council
Topic: The Design of Efficient & Effective Care Pathways

Date/Time: May 26th 3-4:30pm EST
Presenter: Dr. Steiner, Duke Uni.
Topic: Population Health Management for the treatment of Metabolic Syndrome System level requirements to insure robust data collection and use (e.g., registry, CQI processes, etc.)
Webinar Schedule

Date/Time: June TBD
Presenter: Dr. Kotwicki, Emory Uni. & Skyland Trail CMHC
Topic: Example of an Effective MetS Program Implementation

Date/Time: July TBD
Presenter: Dr. Capobianco, The National Council & Innovation Community Sites
Topic: Strategies for sustaining the adoption of the innovation. Begin report out by sites

Date/Time: August TBD
Presenter: Innovation Community Sites & Dr. Capobianco, The National Council
Topic: Report out by sites

Thank you for joining us today.
Please take a moment to provide your feedback by completing the survey at the end of today’s webinar.

If you have additional questions/comments please send them to:

Jeff Capobianco – jeffc@thenationalcouncil.org
Madhana Pandian – madhanap@thenationalcouncil.org