



Metabolic Syndrome

A Disease of Conditions

SUPERIOR HEALTH QUALITY ALLIANCE

Metabolic Syndrome Playbook

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INTRODUCTION/PURPOSE

About Us

The Superior Health Quality Alliance (Superior Health) is a coalition of eight health care organizations established in 2018. The alliance covers six states in the Midwest region: Minnesota, Wisconsin, Michigan, Illinois, North Dakota and South Dakota. The alliance aims to align with the national Centers for Medicare & Medicaid Services (CMS) Quality Strategy and improve the quality of health and health care for various partners, including consumers, patients, clinicians organizations and communities.

Our Goal

To work with partners to provide a one source document to clinical staff to create awareness about metabolic syndrom and evidence-based practices and recommendations. Metabolic Syndrome is a cluster of conditions—including high blood pressure, high blood sugar, excess body fat around the waist and abnormal cholesterol levels—that together increase the risk of heart disease, stroke and type 2 diabetes.

Target Audience

The intended audience for this playbook is health care providers, including clinic managers, quality directors, nurse practitioners (NP) and physician assistants (PA), MDs, nurses, coders, social workers, care coordinators, case managers and community health workers/promotors/navigators.

Disclaimer

The information provided in this resource guide is intended for general reference purposes only. While we make every effort to ensure the accuracy and reliability of the materials and links included, please be aware of the following:

- Annual review: We conduct an annual review of the materials and links to verify their relevance and reliability. However, due to the dynamic nature of content on the internet, changes may occur between reviews.
- Subject to change: Information, websites and resources are subject to updates, modifications, or discontinuation without notice. We recommend verifying any critical information independently.
- User responsibility: Users are responsible for independently assessing the suitability and accuracy of the materials provided and links based on their specific needs and circumstances.
- Last reviewed on October 24, 2024.

STEP 1

What is Metabolic Syndrome?



Definition of Metabolic Syndrome

Metabolic syndrome is a cluster of reversible conditions which are major risk factors for cardiovascular disease and type 2 diabetes. The conditions together raise the risk of an individual developing atherosclerotic cardiovascular disease, insulin resistance, diabetes mellitus and vascular and neurological complications, such as a cerebrovascular accident.

Metabolic syndrome is a condition characterized by a combination of several health factors including:

- **Obesity:** A body mass index (BMI) of 30 or above, or a large waistline (greater than 40 inches in men or 35 inches in women).
- **Elevated blood triglycerides** (a type of fat in the blood): Above 150 mg/dL.
- **Low HDL (good) cholesterol:** Below 40 mg/dL in men or 50 mg/dL in women.
- **High BP:** 130 mmHg or above (systolic pressure), or 85 mmHg or above (diastolic pressure), or previously diagnosed hypertension that requires medication.
- **Elevated blood sugar:** A fasting plasma glucose level of 100 mg/dL or above or taking diabetes medications.

When at least three of these components are present, a person is considered to have metabolic syndrome.

Source: [Metabolic syndrome is on the rise: What it is and why it matters](#) - Website

Early Detection of Metabolic Syndrome

Early detection of metabolic syndrome is crucial for preventing serious health complications. Identifying metabolic syndrome early allows for timely intervention, which can include lifestyle changes such as diet and exercise and possibly medication to manage risk factors.

Lifestyle Factors and Family History that Contribute to Metabolic Syndrome

- **Poor diet:** Consuming a diet high in refined carbohydrates, sugars and unhealthy fats can lead to weight gain, insulin resistance and high cholesterol levels.
- **Physical inactivity:** A sedentary lifestyle contributes to obesity and insulin resistance, both of which are key components of metabolic syndrome.
- **Obesity:** Excess body fat, particularly around the abdomen, is strongly linked to metabolic syndrome.
- **Smoking:** Smoking can increase insulin resistance and worsen other risk factors like high BP and cholesterol levels.
- **Excessive alcohol consumption:** Drinking large amounts of alcohol can lead to weight gain and negatively affect BP and cholesterol levels.
- **Poor sleep quality:** Not getting enough good quality sleep can disrupt how your body processes nutrients and increase the risk of obesity and insulin resistance.
- **Occupation:** Shift workers have a higher incidence of metabolic syndrome because their circadian clocks may not be aligned with their environment.
- **Age:** Risk increases the older you are.

- **Gender:** Women have a higher risk of metabolic syndrome than men.
- **Environment:** Social drivers of health (SDOH) can impact access to health care.
- **Family history and genetics:** May impact weight, how the body responds to insulin and cardiovascular health.
- **Other medical conditions:**
 - **Polycystic ovary syndrome (PCOS):** The hormone that causes PCOS can also cause a large waistline, elevated blood sugar and triglycerides and lowered HDL (good) cholesterol.
 - **Immune system conditions** can increase risk.
 - **Sleep problems**, such as sleep apnea, can increase risk.

[Metabolic Syndrome: Causes and Risk Factors - Website](#)

Screening and Diagnosis

Screening and diagnosing metabolic syndrome involves a combination of medical history, physical examination and specific diagnostic tests. It is recommended that Health care providers screen for metabolic syndrome during routine checkups by doing the following:

Medical history and physical exam

- **Medical history:** When obtaining a medical history specific to metabolic syndrome the following areas should be considered.
 - **Family history:** Ask about any family history of metabolic syndrome, diabetes, heart disease, or other related conditions.
 - **Personal medical history:** Inquire about past and current health conditions, especially those related to high BP, high cholesterol and blood sugar levels.
 - **Lifestyle factors:** Discuss the patient's diet, physical activity levels, smoking habits and alcohol consumption.
 - **Medications:** Review any medications the patient is currently taking, particularly those for managing BP, cholesterol and blood sugar.
- **Physical exam:** Include measuring waist circumference as abdominal obesity is a key indicator. The distribution of body fat is important, as upper body fat plays a significant role in developing insulin resistance. Fat accumulation can be either visceral or subcutaneous. Visceral fat may contribute to insulin resistance more strongly than subcutaneous fat.
 - Different body shapes can indicate various health risks and should be further investigated:
 - **Apple shape:** Characterized by a rounder middle. This shape is associated with a higher risk of heart disease and diabetes.
 - **Pear shape:** Characterized by a fuller bottom half. This shape is linked to varicose veins and osteoarthritis.

- **Inverted triangle:** Wider shoulders and chest with a narrow waist and bottom. This shape can lead to pain in the back and shoulders.
- **Ruler shape:** More or less straight up and down. This shape is a risk factor for osteoporosis and metabolic syndrome. Individuals can be underweight or of normal weight and still be diagnosed with metabolic syndrome.
- **Hourglass shape:** Proportional chest and hips with a smaller midline. Individuals with this shape can still be at risk for visceral fat and other conditions if their BMI is 25 or higher.
- **Waist measurement:** A large waistline is a significant risk factor. For men, a waist measurement of 40 inches (102 cm) or more and for women, 35 inches (89 cm) or more, is considered high. An apple shape may indicate an increased cardiovascular risk.
- **Diagnostic tests**
 - **Blood pressure:** High BP is a component of metabolic syndrome and is a risk factor for cardiovascular disease. A reading of 130/85 mmHg or higher is a concern.
 - **Blood tests:**
 - **Triglycerides:** High levels of triglycerides (150 mg/dL or higher) indicate a risk.
 - **HDL cholesterol:** Low levels of HDL (“good”) cholesterol are problematic. For men, less than 40 mg/dL and for women, less than 50 mg/dL.



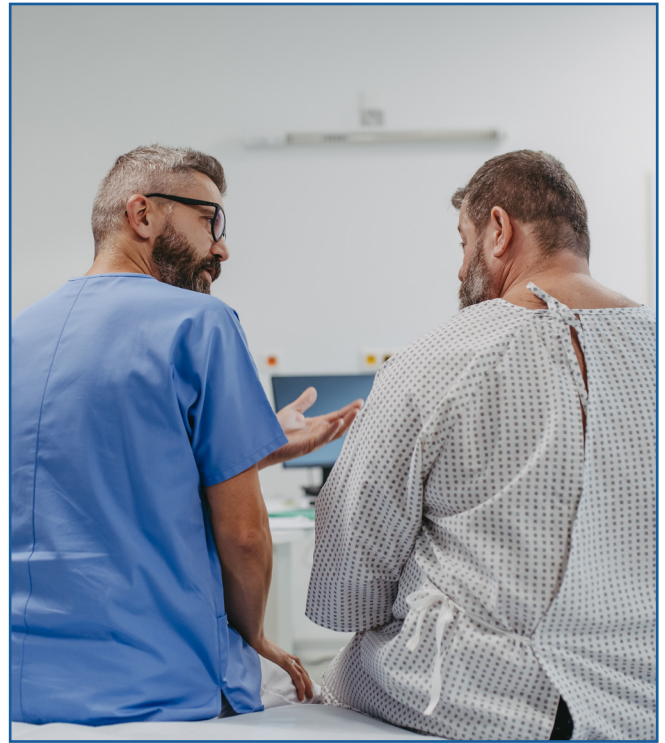
Screening Recommendations	Rationale	Ranges	
Waist Measurement	A large waistline is a significant risk factor. An apple shape may indicate an increased cardiovascular risk.	The Recommended Goal for Waistline Measurement is:	
		<ul style="list-style-type: none"> Men: Less than 40 inches (102 cm) Women: Less than 35 inches (88 cm) 	
BP	High BP is a risk factor for cardiovascular disease. A reading of 135/85 is considered an indicator.	BP goals according to most recent <u>Joint National Committee Guidelines</u> <ul style="list-style-type: none"> For adults aged 60 years or older: Target BP is less than 150/90 mm Hg. For adults younger than 60 years: Target BP is less than 140/90 mm Hg. For adults with diabetes or chronic kidney disease: Target BP is less than 140/90 mm Hg. 	
Cholesterol	High LDL cholesterol and low HDL cholesterol are indicators of cardiovascular disease.	LDL Cholesterol	HDL Cholesterol
		Less than 100 mg/dL is optimal.	Less than 40 mg/dL is low (and considered a risk factor for heart disease).
		100-129 mg/dL is near optimal.	60 mg/dL and above is high (and considered protective against heart disease).
		130-159 mg/dL is borderline high.	
		160-189 mg/dL is high.	
		190 mg/dL and above is very high.	
Fasting Blood Sugar	An elevated fasting blood sugar indicates the risk of developing Type 2 Diabetes.	<ul style="list-style-type: none"> Normal: Less than 100 mg/dL Prediabetes: 100-125 mg/dL Diabetes: 126 mg/dL or higher 	

If three or more of these factors are outside the normal range, it indicates metabolic syndrome.

Impact of Metabolic Syndrome

The Impact of metabolic syndrome on the body can be significant if not detected and treated **early**. Metabolic syndrome is a cluster of conditions that occur together, significantly increasing the risk of heart disease, stroke and type 2 diabetes. Key impacts on the body are:

- **Cardiovascular system:** Metabolic Syndrome can lead to atherosclerosis (hardening of the arteries), vascular resistance, hypertension and vessel wall inflammation, increasing the risk of heart attacks and strokes.
- **Blood sugar levels:** High blood sugar levels can result in type 2 diabetes, which may cause nerve damage, eye problems and other complications. Insulin resistance causes microvascular damage, which predisposes a patient to endothelial dysfunction.
- **BP:** Elevated BP can strain the heart and damage blood vessels.
- **Cholesterol levels:** Abnormal cholesterol or triglyceride levels can further contribute to cardiovascular complications.
- **Liver and kidney health:** It can lead to fatty liver disease and kidney problems such as chronic kidney disease.
- **Obesity:** Excess body fat, particularly around the waist, is a hallmark of metabolic syndrome and contributes to its complications.



Chronic Kidney Disease (CKD) and Metabolic Syndrome

The correlation between CKD and metabolic syndrome is significant. Studies have shown that individuals with metabolic syndrome have a higher risk of developing CKD. The components of Metabolic Syndrome, such as hypertension, hyperglycemia and dyslipidemia, contribute to kidney damage. For instance, high BP and high blood sugar levels can damage the blood vessels in the kidneys, leading to CKD.

[Metabolic syndrome and chronic kidney disease \(Journal of Nephrology and Hypertension\)- Website](#)

Myths and Facts

Metabolic syndrome is multifactorial and affects all major organs. Having knowledge about common misconceptions and facts will aid in the early detection and implementation of lifestyle changes which are vital for prevention and management of the syndrome.

Myths	Facts
1: Metabolic syndrome is a single disease.	Metabolic syndrome is a cluster of medical conditions that occur together.
2: Metabolic syndrome is rare in India.	One in three Indians suffer from metabolic syndrome.
3: Metabolic syndrome is a genetic disease.	A combination of genetic and lifestyle factors causes metabolic syndrome.
4: Metabolic syndrome can be diagnosed with a single blood test.	Metabolic syndrome diagnosis is made after many blood tests.
5: Metabolic syndrome can be treated only with medications.	Metabolic syndrome can be prevented and treated with lifestyle changes.

Provider Resources

National Library of Medicine

- [Metabolic syndrome: A new definition and management guidelines - Website](#)

Patient Resources

Johns Hopkins Medicine

- [Metabolic Syndrome - Website](#)

National Kidney Foundation

- [Kidney Disease and Metabolic Syndrome - Website](#)

American Heart Association

- [What is Metabolic Syndrome? \(English\) - Website](#)
- [What is Metabolic Syndrome? \(Spanish\) - Handout](#)

STEP 2

Implementation in the Health Care Setting



The Health Care Team

Interdisciplinary team models are essential in managing metabolic syndrome. These models involve a collaborative approach where health care professionals from various disciplines work together to provide comprehensive care.

Key Components of Interdisciplinary Team Models

- **Care coordination and collaboration:** Ensures that all team members are informed about the patient's condition and treatment plan, facilitating seamless care transitions and reducing the risk of fragmented care.
- **Patient education:** Provides patients with the knowledge and tools they need to manage their condition effectively, including lifestyle modifications and medication adherence.
- **Technology integration:** Utilizes electronic health records (EHRs) and telehealth to enhance communication among team members and with patients.
- **Personalized care plans:** Develops individualized treatment plans that address the specific needs and preferences of each patient, improving adherence and outcomes.
- **Regular monitoring and follow-up:** Involves continuous monitoring of the patient's progress and regular follow-up appointments to adjust the treatment plan as needed.



By leveraging the expertise of various health care professionals, interdisciplinary team models can provide holistic and effective management of metabolic syndrome, ultimately improving patient outcomes and quality of life.

Treatment Approaches

Using techniques to help patients adopt healthier behaviors will help patients make decisions that meet their unique needs and preferences. A patient-centered approach to lifestyle modifications is crucial in managing metabolic syndrome. By focusing on the patient's readiness to change and involving them in the decision-making process, health care providers can foster a supportive environment that encourages sustainable lifestyle changes.

Consider the following approaches that empathize personalized care in which interventions can be tailored to the individual's unique needs, preferences and cultural background.

- **Motivational Interviewing:** This technique involves engaging with the patient in a non-judgmental way to explore their motivations for change. It helps patients resolve ambivalence and build confidence in their ability to make changes.

- **The 5A Model:** This model is widely used in clinical settings to guide lifestyle counseling:
 - Assess: Evaluate the patient’s current behaviors and readiness to change.
 - Advise: Provide clear, personalized advice on the benefits of lifestyle changes.
 - Agree: Collaborate with the patient to set achievable goals.
 - Assist: Offer resources and support to help the patient overcome barriers.
 - Arrange: Schedule follow-ups to monitor progress and adjust the plan as needed.
- **Cultural Sensitivity:** Understanding and respecting the patient’s cultural background can significantly enhance the effectiveness of lifestyle interventions. Tailoring advice to align with cultural beliefs and practices can improve adherence and outcomes.

Provider Resources

Journal of the American College of Cardiology

- [Cardiometabolic Think Tank Maps Next Steps for Metabolic Syndrome Patient Care](#) - Website
Diabetes and Cardiovascular Disease

- [Comprehensive Care Models for Cardiometabolic Disease](#) - Website

Superior Health Quality Alliance

- [Motivational Interviewing for Vaccine Readiness Webinar](#) - Video
- [How to Say it: “Explore-Offer-Explore” Motivational Interview Strategy.](#) - Video

American Academy of Family Physicians

- [Encouraging Patients to Change Unhealthy Behaviors with Motivational Interviewing.](#) - Website

STEP 3

Sustainability



Why does Sustainability for Metabolic Syndrome Matter?

1. **Prevention:** Metabolic syndrome significantly increases the risk of cardiovascular disease, diabetes, liver and kidney issues and sleep apnea. Adopting healthy habits can have a substantial impact on maintaining a healthy weight and normal blood sugar, lipid levels and BP.
2. **Lifestyle Interventions:** Lifestyle interventions such as diet and exercise can effectively reduce the risk of cardiovascular disease, diabetes, liver and kidney issues and sleep apnea. Educating individuals about the importance of making healthy lifestyle choices is essential.

What Can We do to Promote Sustainability for Metabolic Syndrome?

Wellness programs significantly benefit those with Metabolic Syndrome. These programs typically focus on: Wellness programs can help patients make positive changes, reduce the risk of complications, and improve overall health outcomes. Listed below are wellness programs that focus on education, support, lifestyle modifications and sustainability.

1. **The Stanford WELL for Life program**, a cutting-edge study conducted by the Stanford Prevention Research Center (SPRC), focuses on understanding and enhancing well-being. Rather than solely addressing chronic diseases, it shifts the lens toward holistic health.

The WELL for Life program aims to understand the interplay between biological, psychological and spiritual experiences that contribute to overall well-being. By studying these factors, it indirectly addresses metabolic syndrome risk factors. Let's explore how this program can promote sustainability for metabolic syndrome:



a. Promoting Physical Activity

- i. Regular physical activity is crucial for preventing metabolic syndrome. The WELL program investigates how physical activity impacts well-being.
- ii. Participants receive insights on exercise routines, movement and staying active. By encouraging physical fitness, the program indirectly supports metabolic syndrome prevention.

b. Stress Management and Resilience

- i. Chronic stress is linked to metabolic syndrome. The WELL program examines stress and resilience.
- ii. Participants learn stress-reduction techniques, mindfulness practices and coping strategies. Managing stress contributes to overall well-being and indirectly mitigates metabolic syndrome risk.

c. Nutrition and Diet Improvement

- i. Diet plays a pivotal role in metabolic syndrome. The WELL program involves Stanford experts who guide participants on nutrition.
- ii. By promoting healthy eating habits, the program indirectly addresses metabolic syndrome risk factors related to diet.

d. Social Connectedness

- i. Social isolation affects both well-being and metabolic syndrome. The WELL program emphasizes social connections.
- ii. Participants engage in community-building activities, fostering social support networks. These connections contribute to overall health and indirectly impact metabolic syndrome.

e. Sleep Optimization

- i. Poor sleep quality is associated with metabolic syndrome. The WELL program explores sleep patterns.
- ii. Participants receive guidance on improving sleep hygiene and establishing healthy sleep routines. Adequate rest indirectly supports metabolic syndrome prevention.



In summary, the Stanford WELL for Life program promotes well-being holistically and by doing so, it indirectly addresses risk factors associated with metabolic syndrome. Through education, lifestyle modifications and community engagement, it contributes to sustainable health and prevention.

2. **The Living Well with Chronic Conditions program**, offered by the Wisconsin Institute for Healthy Aging (WIHA), is designed to enhance health and well-being for individuals dealing with long-term (chronic) health conditions. The program provides valuable tools and skills that can promote sustainability for those at risk. Let's explore how:
 - a. Education and Self-Management**
 - i. The program educates participants about chronic conditions, including metabolic syndrome. Understanding the condition's impact on overall health empowers individuals to take control
 - ii. Participants learn self-management techniques, such as monitoring blood pressure (BP), blood sugar and cholesterol levels. These skills can help manage metabolic syndrome risk factors.
 - b. Healthy Lifestyle Habits**
 - i. The program emphasizes lifestyle changes, including nutrition, physical activity and stress management.
 - ii. By adopting healthier habits, participants indirectly address metabolic syndrome risk factors. For instance:
 1. **Nutrition:** Learning about balanced diets and portion control can positively impact weight management and blood sugar levels.
 2. **Physical Activity:** Encouraging regular exercise helps maintain a healthy weight, improve insulin sensitivity and reduce BP.
 3. **Stress Reduction:** Stress management techniques contribute to overall well-being and indirectly mitigate metabolic syndrome.
 - c. Social Support and Community Engagement:**
 - i. Participants engage in supportive group environments. Sharing experiences and challenges fosters a sense of community.
 - ii. Social connections indirectly promote well-being and may positively influence lifestyle choices related to metabolic syndrome prevention.
 - d. Mindset Shift:**
 - i. Chronic conditions can be mentally taxing. The program encourages a positive mindset.
 - ii. Participants learn resilience, coping strategies and ways to maintain motivation. A positive outlook indirectly supports overall health, including metabolic syndrome management.
 - e. Empowering Participants:**
 - i. The program empowers individuals to actively participate in their health journey.
 - ii. By building skills and habits, participants regain control over their well-being. This empowerment indirectly contributes to metabolic syndrome prevention.

In summary, the WIHA Living Well with Chronic Conditions program's approach to health and self-management supports sustainable practices that benefit overall well-being, including addressing metabolic syndrome risk factors.

3. Early intervention, lifestyle changes and targeted interventions can help reduce the burden of risk factors associated with metabolic syndrome. Superior Health offers resources and tools to achieve improved outcomes and better health.

Provider Resources

- [Superior Health Quality Alliance YouTube Channel](#): Explore webinars, video vignettes and playlists that explore topics related to metabolic syndrome. Topics include diabetes, self-measured BP (SMBP) monitoring, chronic kidney disease, cardiovascular-kidney metabolic syndrome, motivational interviewing and much more.
- [Superior Health Quality Alliance Website](#): Our Superior Health Quality Alliance website offers tools and resources tailored for various healthcare settings. Our online [resource library](#) features comprehensive interventions and educational materials covering the following topics:
 - a. Chronic Kidney Disease
 - b. Diabetes
 - c. Hypertension
 - d. Cardiac Rehabilitation
 - e. Tobacco Use and Cessation

In addition, our [Chronic Disease Management and Prevention webpage](#) offers information on health care best practices and support services to improve quality of care and health outcomes related to chronic conditions.

Documentation and Coding Guides

Clinical documentation is essential. Quality measures, especially when linked to provider payment and performance feedback, can bridge the gap between medical documentation and coded data. This leads to better patient outcomes, informed decision-making and improved health care delivery. The following guides will assist to help capture risk factors related to metabolic syndrome.

- [Chronic Kidney Disease - Website](#)
- [Diabetes - Website](#)
- [Hypertension - Website](#)
- [Tobacco Use: Screening and Cessation Intervention - Website](#)
- [Social Drivers of Health \(SDOH\) Z Code Documentation Guide - Updated Oct. 2023 - Website](#)

Vaccines

Vaccines play a crucial role in protecting individuals with metabolic syndrome from severe infections and complications. By getting vaccinated, people with metabolic syndrome can significantly reduce their risk of severe outcomes from diseases like influenza, pneumonia and COVID-19.

Recommended Vaccines

- COVID-19*
- Flu (influenza)*
- Tdap or Td
- Pneumococcal vaccine

*Flu and COVID-19 vaccine can be given at the same time.

Recommended Vaccines

Additional vaccines may be needed based on age or risk factors.

Recommendations may include:

- **Chickenpox vaccine** (varicella) – recommended for all adults born in 1980 or later
- **Hepatitis B vaccine** – recommended for all adults up through 59 years of age, and for some adults 60 years of age and older with known risk factors
- **HPV vaccine** (human papillomavirus) – recommended for all adults up through 26 years of age, and for some adults aged 27 through 45 years
- **MMR vaccine** (measles, mumps and rubella) – recommended for all adults born in 1957 or later
- **Shingles vaccine** (zoster) – recommended for all adults 50 years of age and older

Source: Recommended Vaccines for Adults | CDC

Provider Resources

[Recommended Vaccines for Adults | CDC - Website](#)

Patient Resources

CDC

- [Take a short quiz and get a list of vaccines - Website](#)
- [Recommended Vaccines for Adults - Website](#)

AHA

- [What People with Heart Disease Should Know About Vaccines Today - Website](#)

STEP 4

Statistics and Business Case



Early detection and management of metabolic syndrome can lead to significant cost savings by reducing the incidence of chronic diseases such as diabetes and cardiovascular conditions, which are expensive to treat. Prioritizing screening improves overall health and reduces the cost of health care.

Metabolic Syndrome Project - Business Case

Project: Problem/Opportunity Development

- Metabolic syndrome not recognized/diagnosed as quickly and easily as needed.
- Growing number of Americans with metabolic syndrome.
- Metabolic syndrome has an associated increased risk of cardiovascular and all-cause mortality.
- Metabolic syndrome contributes to the growing number of diabetics in the US.

History/Current Situation

- According to the National Institutes of Health (NIH), the “Average annual total costs between subjects with metabolic syndrome versus no metabolic syndrome differed by a magnitude of 1.6 overall (\$5,732 vs. \$3,581), and a magnitude of 1.3 when stratified by diabetes (diabetes, \$7,896 vs. \$6,038; no diabetes, \$4,476 vs. \$3,422).”
- According to the Centers for Disease Control and Prevention (CDC), “By using the definition of metabolic syndrome from the International Diabetes Federation (IDF) and the National Cholesterol Education Program, the prevalence of metabolic syndrome is estimated at more than 30% in the United States.”
- According to Diabetology and Metabolic Syndrome, the prevalence of metabolic syndrome amongst type 2 diabetics can be as high as 80%.

Limitation to Prevent Success

- Poor engagement of community health care providers and navigators.
- Insufficient evaluation of patients regarding the social determinants of health, especially food, financial, and housing insecurity.
- Individuals being uninsured or underinsured.

Approach

- Pre-recorded didactic self-directed educational sessions of 20 – 30-minute duration.
- Tools that assist primary health care and community health resource providers to recognize metabolic syndrome and implement measures to prevent and intervene.

Benefits

- Provide easy to use education tools for primary health care providers.
- Pre-recorded self-directed educational sessions allow health care providers to learn and re-review material at their own pace and at a convenient time.
- Mitigation of social determinants of health inequities.
- Reduction in the cost of health care.

STEP 5

Health Equity and Social Drivers of Health (SDOH)



Health equity and metabolic syndrome are closely linked, as disparities in health outcomes often affect racially and ethnically minoritized populations more severely.

Social drivers of health (SDOH) refers to the conditions in which people live, learn, work, and play. These factors significantly influence health risks and outcomes. They encompass the following areas:

- **Socioeconomic status:** Education, income, and occupation play pivotal roles. Lower socioeconomic status is associated with higher diabetes risk.
- **Neighborhood and physical environment:** Housing quality, built environment, and exposure to toxins impact health. For instance, living in areas with limited access to fresh produce affects dietary choices.
- **Food environment:** Food insecurity and accessibility to nutritious food directly affect diabetes management.
 - **Food insecurity**, defined as the inability to meet dietary needs consistently, affects not only those of low socioeconomic status but also approximately 50% of employed individuals. People experiencing food insecurity often consume nutrient-poor diets, contributing to obesity, heart disease, hypertension, diabetes, and other chronic diseases. Recognizing food as medicine alongside standard treatment modalities is crucial for preventing and managing diabetes. By addressing food insecurity and promoting access to nutritious meals, we can positively impact the health outcomes of individuals living with diabetes
- **Transportation:** Transportation barriers lead to missed appointments, inability to pick up prescriptions and supplies, and can contribute to lack of access to nutritious food or meals resulting in patients not seeking medical care, delays in care, and poor health outcomes. Understanding a patient's transportation barrier can lead to reduced emergency department visits, timely evaluation and treatment, and results in improved patient outcomes. Providers should discuss with the patient public transportation, medical transportation, possible reimbursement for travel through the Medicaid program, and utilization of telehealth visits.
- **Climate:** Extreme weather events may increase morbidity and mortality in patients living with diabetes. There is a possibility of disruption of medications and food due to extreme weather. Patients living with diabetes are more prone to dehydration, hospitalization, and cardiovascular events during extreme heat. Providers should identify high risk patients and discuss possible emergency preparedness plans in the event of severe weather.
- **Health care access and quality:** Disparities in access, affordability, and quality of health care services contribute to differential outcomes.
- **Social Context:** Social cohesion, support networks, and community engagement influence health behaviors and outcomes.

Health equity aims to eliminate disparities and achieve fairness in health outcomes. It recognizes that not everyone starts from the same baseline and seeks to address systemic injustices.

Achieving health equity involves:

- **Reducing Disparities:** Identifying and addressing gaps in health outcomes based on race, ethnicity, income, and other factors.
- **Culturally Competent Care:** Understanding diverse backgrounds and tailoring care accordingly.
- **Advocacy:** Advocating for policies that promote equitable access to resources and services.
- **Community Engagement:** Involving communities in decision-making processes.

Efforts to reduce these disparities include improving access to health care, promoting healthy lifestyles, and addressing systemic issues like racism and socioeconomic inequality. By focusing on these areas, we can work towards a more equitable health landscape for all.

Provider Resources

- [Metabolic syndrome is on the rise: What it is and why it matters | Harvard Health](#) - Website
- Superior Health Quality Alliance
 - [Social Drivers of Health \(SDOH\) Z Code Documentation Guide](#) - Resource
 - [Advancing Health Equity in Diabetes: Tools to Help Remove Barriers to Health](#) - Handout
 - [Social Determinants of Health Literature Summaries](#) - Website
- [Traveling Towards Disease: Transportation Barriers to Access Health | NIH Article](#) - Website

Patient Resources

- [Search and Connect to Social Care | FindHelp](#) - Website
- [Call 211 for Essential Community Services | United Way 211](#) - Website
- Support and Resources for Seniors and Disabled Adults
 - Michigan
 - [Aging Services, Michigan Department of Health and Human Services](#) - Website
 - [Mission Point Healthcare Services](#) - Website
 - Minnesota
 - [MN Senior Linkage Line, State of Minnesota](#) - Website
 - [Minnesota Senior Services - Resources for Seniors and Their Families, Minnesota Seniors Online](#) - Website
 - [Optimizing well-being as you age | Trellis](#) - Website
 - Wisconsin
 - [Aging and Disability Resource Centers \(ADRCs\) | Wisconsin Department of Health Services](#) - Website
 - [Find a Workshop | WIHA](#) - Website



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