



Complete Summary

GUIDELINE TITLE

Screening for metabolic syndrome in adults.

BIBLIOGRAPHIC SOURCE(S)

University of Texas at Austin, School of Nursing, Family Nurse Practitioner Program. Screening for metabolic syndrome in adults. Austin (TX): University of Texas at Austin, School of Nursing; 2004 May. 24 p. [8 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
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SCOPE

DISEASE/CONDITION(S)

Metabolic syndrome

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Screening
Treatment

CLINICAL SPECIALTY

Cardiology
Endocrinology
Family Practice
Geriatrics
Internal Medicine
Medical Genetics
Nursing
Nutrition
Pharmacology
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Dietitians
Health Care Providers
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians

GUIDELINE OBJECTIVE(S)

- To provide a dietary and nonpharmacologic treatment guideline for the management of metabolic syndrome
- To guide practice decisions that integrate medical, nutritional, and behavioral elements
- To promote self-management education that empowers the patient to take responsibility for day-to-day management and provide the practice clinicians (doctors, advanced practice nurses, physician assistants, and registered dietitians) with data to make recommendations to adjust nutritional therapy, or recommend other therapies, to achieve clinical outcomes
- To enhance the quality of life for the patient utilizing customized meal planning strategies based on the individual's eating preferences, lifestyle, and goals to improve metabolic control
- To develop standards that can be tested for impact on clinical outcomes
- To define highest quality of care within cost constraints of the current health care environment
- To reduce variation of practice among practice clinicians (doctors, advanced practice nurses, physician assistants and registered dietitians)

TARGET POPULATION

Individuals that meet the clinical definition of metabolic syndrome within the Adult Treatment Panel III (ATP III) guidelines

This guideline excludes pregnant patients. Screening will commence in patients under 18 when weight percentile is >85 and in adults at the age of 20.

Risk Factor	Defining Level
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Risk Factor	Defining Level
Waist circumference:	
Men	>102 cm or 40 in
Females	>88 cm or 35 in
Triglycerides	≥150 mg/dL
High Density Lipoproteins:	
Males	<40 mg/dL
Females	<50 mg/dL
Blood Pressure	≥130/85 mmHg
Fasting Blood Glucose	≥110 mg/dL

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnostic Assessments

1. Obtaining medical history, laboratory results including fasting lipid panel and glucose, and anthropometric data (height, weight, body mass index [BMI], waist circumference)
2. Perform a nutrition-focused assessment:
 - Evaluating height, weight, BMI, waist circumference, blood pressure, lab values, hemoglobin A1C, and signs and symptoms.
 - Assessing the client's understanding of metabolic syndrome and readiness to learn, identify medications that may affect nutrition therapy; obtaining comprehensive medical and nutrition history (calories, total fat, and sources of fat, cholesterol, sugar, sodium, vitamin E, folate, B-vitamins and alcohol) and psychosocial/economic issues impacting nutrition.
 - Examining food diary with assessment of content, amount, and behavioral patterns of eating.
 - Assessing physical activity patterns.
 - Assessing lifestyle factors that would impact on meal times and meal content.
 - Explaining metabolic syndrome to clients and answer any questions they may have.
 - Considering comorbid conditions and the need for additional modifications in the nutrition care plan.

Management/Medical Nutrition Therapy

1. Intervention and self-management training:
 - Providing a meal plan with 3 meals and snacks with consistent carbohydrates (45–60% total daily calories), protein (15–25% total daily calories), and fat (10–15% total daily calories) appropriate for client's abilities/food preferences/lifestyle/insulin regimen. Including food preparation, recipe modification, and dining out in meal plan.
 - Individualizing nutrition prescription based on National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) guidelines on:
 - Calorie intake
 - Fat and cholesterol intake
 - Trans fatty acid intake
 - Nuts, fish, and soy product intake
 - Soluble fiber intake
 - Plant stanol/sterol products
 - Vitamin/antioxidants intake
 - Providing self-management basics of recording food intake, blood glucose monitoring, and ketone testing, recording exercise events, limiting alcohol, and smoking cessation
 - Educating on potential food-drug interactions
 - Discussion of risks of hyper- and hypoglycemia, dyslipidemia, central obesity, and hypertension; review of the impact of food and activity on glucose, lipids, and weight loss
 - Mutual establishing of goals and outcomes for meal times, physical activity, self-monitoring of blood glucose, weight loss/gain and record completion
2. Reassessing patient's understanding, behavioral changes, and follow-up.
3. Providing documentation to other health care team members

MAJOR OUTCOMES CONSIDERED

- Quality of life
- Blood glucose levels
- Insulin sensitivity
- Serum lipid levels (cholesterol, low-density lipoprotein [LDL], high-density lipoprotein [HDL], and triglycerides)
- Blood pressure
- Risk for cardiovascular disease
- Weight
- Waist circumference
- Body mass index (BMI)
- Incidence of fatal and nonfatal myocardial infarction (MI)
- Side effects of medication

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
 Hand-searches of Published Literature (Secondary Sources)
 Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Nationally recognized, expert standards such as the American Diabetic Association Medical Nutrition Therapy (ADA MNT), National Cholesterol Education Program Adult Treatment Plan (ACEP ATP III), and the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) were used to develop this guideline.

Resources include:

1. Randomized controlled trials to evaluate the effect of various factors (macronutrients, weight loss, exercise, and self-glucose monitoring) on hemoglobin A1C (Hgb A1C), waist circumference, blood pressure, triglycerides, and high density lipoprotein (HDL) levels
2. Consensus statements from the American Diabetes Association, the American Dietetic Association, the American Association of Clinical Endocrinologist, the American Heart Association, the American Association of Cardiologists, and the American Association of Family Practice Physicians that are based on the most recent research and practice guidelines.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Subjective Review

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Informal Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

A draft of the guideline was developed by a group of family nurse practitioner (FNP) students and submitted for review to the FNP program faculty. Revisions were made after recommendations were received.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Encounter #1

Assessment

A. Clinical data

Obtain data from client medical record/information system. Identify the risk category by using the Framingham Point Scores and the Adult Treatment Panel III (ATP III) risk calculator. Use the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) as a guideline for blood pressure management and risk calculator.

1. Estimate of 10 year risk for coronary artery disease (CAD): age, total cholesterol, high-density lipoprotein (HDL) cholesterol, systolic blood pressure, treatment for hypertension and cigarette smoking
2. Review relevant tests, lab values (fasting blood sugar [FBS], hemoglobin A1C [Hgb A1C], fasting lipid profile) and clinical signs and symptoms.
3. Review medical history and comorbidities, including: hyperlipidemia with coronary heart disease (CHD), cardiovascular disease, cerebrovascular disease, peripheral vascular disease, diabetes, hypertension, renal disease, thyroid disease, surgical history, and obesity.

4. If diabetic, review self-monitored and medical blood glucose logs.
5. Assess prescribed medications and potential for food/drug interaction.
6. Assess for physical activity program.
7. Obtain a complete set of vital signs and physical data (blood pressure, heart rate [HR], waist circumference, and body mass index [BMI]).
8. Measure or obtain anthropometric data: current height, weight, usual weight, and % weight change; calculate BMI and waist circumference.
9. Assess knowledge and readiness to learn and make changes with eating behaviors and meal planning to reduce risk factors associated with CHD, diabetes mellitus (DM), hypertension (HTN), and other diseases.
10. Obtain comprehensive diet history including dietary intake data: usual food intake pattern, calculation or estimation of fat intake, percent of calories from fat and type, sources of fat, total fiber intake, soluble-fiber intake. Determine consumption (frequency) of fruits, vegetables, whole grains, legumes, especially foods providing sources of folate, B-6, B-12, vitamin E, and phytochemicals and antioxidants (e.g., berries, deep orange or green fruits and vegetables). Assess intake of fish and soy products and use of plant stanol/sterol esters (e.g., cholesterol-lowering margarine). Review weight history, frequency and choices of restaurant meals, and alcohol intake (frequency, type, and amount).
11. Assess use of dietary supplements (including vitamin, mineral, herbal/botanical [e.g., vitamin E, other antioxidants, garlic, ginger]) and over-the-counter (OTC) medications.
12. Assess physical activity pattern: type of physical activity, frequency, duration, tolerance, and motivation.
13. Determine psychosocial and economic issues: living situation, cooking facilities, finances, educational background, literacy, employment, ethnic or religious belief considerations, family support, and food assistance (if applicable).
14. Evaluate smoking history (if applicable): present pattern, cessation or participation in smoking cessation program.

Intervention

A. Self-management training

Facilitate self-management training with client on identified goals/nutrition prescription.

1. Discuss risk factors associated with heart disease.
2. Explain role and effect of diet, physical activity, weight loss (if applicable), and smoking cessation (if applicable) on CHD, HTN, DM, and dyslipidemia.
3. Provide nutrition prescription based on National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III), Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, and Workgroup of the American Diabetes Association guidelines. Nutrition prescription should be individualized and based on client needs and priority diet modifications; those modifications not addressed in the initial encounter can be addressed as part of on-going follow-up encounters.

- Calories based on individual needs, initiate plan to achieve reasonable weight (BMI 18.5–24.9 kg/m²). If BMI \geq 25, then decrease calories by 250 to 500/day of usual intake for gradual weight loss.
 - Fats: To initiate the Therapeutic Lifestyle Change (TLC) diet, intakes of saturated fats and cholesterol are reduced first. The range of 25 to 35% of total calories from fat is to be paired with keeping saturated fats and trans fatty acid percents of total calories low.
 - Advise 10 to 20% monounsaturated fat, <10% polyunsaturated fat, <7% saturated fat, <200 mg cholesterol diet
 - If triglycerides >150 mg/dL, ensure blood glucose is under control; limit alcohol and simple sugars, monitor use of high glycemic index foods, and evaluate need for weight loss. Emphasis should be placed on weight reduction and physical activity.
 - Limit foods with trans fatty acids (e.g., stick margarine, shortening, baked products).
 - Carbohydrate: 50 to 60% of total calories; if patient is diabetic, decrease carbohydrate to 45% of total calories and encourage a consistent daily amount. Use of foods with low glycemic indexes should be used in place of food with a high glycemic index.
 - Protein: 15 to 20% daily total calories
 - Sodium: limit to 200 mg/day
 - Potassium: maintain adequate intake of \geq 3500 mg/day or 90 mmol, especially if patient is hypertensive
 - Calcium: maintain adequate intake of 1,000 to 1,200 mg/day
 - Select >5 to 6 servings/day of fruits and vegetables and 6 servings/day of whole-grain products.
 - Choose foods with lower glycemic index.
 - Gradually increase total dietary fiber to 20 to 30 g/day of which 10 to 25 mg/day should be (viscous) soluble fiber.
 - Ensure diet adequate in folate, approximately 400 micrograms/day and B-6, 1.3 mg/dL/day. Consider fortified foods as appropriate.
 - Ensure diet adequate in vitamin E, minimum dietary reference intake (DRI) (12 IU women, 15 IU men) from food sources (e.g., olive oil, wheat germ, nuts, and seeds).
 - Select fatty fish (average of 7 oz/week), nuts (1 ounce approximately 5 times/week), and soy (25 g/day) products.
 - Alcohol: limit 1 drink per day (women); 1 to 2 drinks per day (men). One drink is 0.5 oz of ethanol (12 oz of beer, 5 oz of wine, or 1 oz of 100-proof hard liquor). If hypertensive, limit to occasional use (half of the recommended for user without hypertension). Suggest consumption of alcohol beverages with food. Consider weight status and calorie goals.
4. Evaluate comorbidities (e.g., renal failure, chronic obstructive pulmonary disease [COPD]) and need for additional dietary modifications and combination of protocols.
 5. Provide an explanation and definitions of fat, types and sources of fat, preferred fats to consume (e.g., methods to reduce saturated fats and increasing monounsaturated fat sources).

6. Discuss food sources that provide beneficial nutrients such as used in the Dietary Approaches to Stop Hypertension (DASH) diet (e.g., consumption of fruits, vegetables, certain nuts, soy foods, and fish, low-fat dairy products or calcium fortified foods).
 7. Provide information on fat-free products; consider calorie goals and triglyceride levels and the need to limit fat-free food sources as indicated by lipid levels or weight loss goals.
 8. Share techniques for label reading, fat-modified cooking, and food preparation methods. Share food lists of glycemic index of a variety of items.
 9. Discuss benefits of physical activity, both aerobic and resistance activities, and impact on HDL cholesterol and lipid management. Encourage patient to engage in regular aerobic physical activity such as brisk walking at least 30 minutes per day, most days of the week or 30 to 60 minutes a day 3 to 4 times a week to burn a minimum of 1,500 calories/week.
 10. Discuss self-monitoring techniques useful in recording food and beverage intake, behavior, and physical activity patterns.
 11. Establish mutual goals: target laboratory values, weight (maintain or decrease), BMI, waist circumference, blood pressure (if applicable), eating behaviors, food intake, and physical activity.
 12. Inquire about the use of herbal or botanical dietary supplements and consider the possibility of herb-drug interactions.
- B. *Provide self-management training and materials*

- Review education materials containing information on (customized to client needs):
 - Nutrition prescription (e.g., <7% saturated fat, <200 mg cholesterol, and meal plan)
 - Definitions of fats, types of fat with preferred food sources
 - Food sources containing trans fatty acids
 - Nutrient sources (e.g., foods high in folate, vitamin E, monounsaturated fats, calcium, and soy protein)
 - Fiber sources (soluble and insoluble)
 - Fat modified cooking and food preparation methods, product information, recipes
 - ATP III states considering adding plant stanols/sterols, self-management training and materials during the second visit. This allows for establishing the focus on reduction in saturated fat and cholesterol as the primary emphasis
 - Alcohol: content and equivalencies of alcoholic beverages
 - Self-monitoring records (e.g., food/physical activity and behavior records to be kept)
 - Benefits of physical activity
 - Food/drug interaction, if applicable
 - Smoking cessation, if applicable

C. *Review outcome measurements with client:*

- Weight
- Waist circumference
- Blood pressure (if hypertensive)

- Laboratory values (Hgb A1C, fasting blood glucose [FBG], total cholesterol [TC], HDL, LDL, and triglycerides) as appropriate
- Self-monitoring records (e.g., food, physical activity, blood pressure, blood glucose, and behavior records)
- Individualized goals set
- Medication (type, frequency, dosage)
- Need for lipid lowering medication, angioplasty or other vascular surgery

Plans for Reassessment and Follow-up

A. Basis

Provide reassessment and follow-up to evaluate response to therapy

- Schedule appointment in 3 to 6 weeks. If cholesterol lowering drug therapy is initiated in accordance with the NCEP ATP III then appointments will occur at 6-week intervals until goal is reached.

B. Response to nutrition therapy

Determine based on expected outcomes:

- Maintains or achieves a healthy body weight to a BMI goal of less than 25
- Maintains or decreases waist circumference to a goal of 40 inches for males and 35 inches for females
- Decreases blood pressure to JNC 7 Guidelines of less than 140/90 mmHg or less than 130/80 if DM or renal disease is present.
- Decreases blood lipid levels (low-density lipoprotein [LDL] cholesterol goal levels determined by risk factors [See the ATP III Risk assessment tool for estimating 10-year risk of developing CHD (myocardial infarction and coronary death) available from the National Heart, Lung, and Blood Institute (NHLBI) using ATP III guidelines])
- Completes self-monitoring records
- Evaluation of food records shows modified intake of fat sources, high glycemic index foods, and cholesterol
- Meets goal(s) set with practice clinician (e.g., reduces the amount of fat and changes sources of fat used in cooking and increases intake of fruits, vegetables, legumes, and whole-grain products)
- Increases aerobic physical activities (e.g., increases walking to 15 minutes/day)
- Maintains a stable blood glucose level
- Verbalizes potential food/drug interaction
- Decreases/eliminates need for medication
- Decreases/eliminates smoking (if applicable)
- Prevents/delays angioplasty or other vascular surgery

Communication/Coordination of Care

A. Documentation

Document initial assessment, plan/interventions, and goals in client's medical record/information system according to organization's policy.

B. *Contact information*

Instruct client to call with questions and concerns.

C. *Referral Source*

Send copy of initial assessment and progress notes to other health care providers involved with patient's care and place original in client's medical record.

D. *Confirm appointment*

Call client 24 to 48 hours (or send reminder 1 week) prior to next appointment to confirm.

Encounter/Length: #2 for 60 minutes

Assessment

A. *Clinical data collected*

Review client medical record and/or obtain from client interview:

- Laboratory values (Hgb A1C, FBG, TC, HDL, LDL, and triglycerides as applicable)
- Blood pressure (if applicable)
- Home logs of blood glucose and/or blood pressure
- Current weight and waist circumference
- Self monitoring records (e.g., food, physical activity and behavior records kept by client)
- Current medication

B. *Outcome measurements*

Review change in client's:

- Weight and waist circumference
- Physical activity
- Intake of total calories, fat, percent calories from fat, sources of fat, trans fatty acids, cholesterol, fiber intake, and other beneficial nutrients (e.g., folate and vitamin E)
- Medication(s)

Intervention

A. *Nutrition-focused reassessment and brief diet history*

Adjust goals and nutrition prescription.

1. Determine weight change (loss, maintenance), changes in waist circumference, medications, and adjust nutrition prescription, meal plan, and goals as needed.
 2. Review self-monitoring records with client, obtain brief diet history, and evaluate client's adherence to and understanding of the nutrition prescription. Provide feedback on:
 - Percent fat intake and sources of fats, and cholesterol consumed and used in cooking
 - Intake of fruits, vegetables, and whole-grain products
 - Fiber intake (soluble sources)
 - Consumption of food sources providing beneficial nutrients (e.g., folate, B-6, vitamin E, soy protein, plant stanol/sterol esters) and others as needed
 - Alcohol consumption (if applicable)
 - Food and beverage choices and portions to meet calorie and fat goals
 - Physical activity (type, frequency, duration, and intensity)
 - Smoking: packs per day (if applicable)
- B. *Provide follow-up self-management training and materials*
1. Provide reinforcement for changes in client's weight, blood glucose levels, blood pressure (if applicable), food intake, physical activity, and medications.
 2. Provide rationale for changes in nutrition prescription, meal plan, and physical activity to achieve lipid, glucose, BMI, and blood pressure management goals.
 3. Discuss options for achieving nutrient goals (e.g., decreasing saturated fat, adequate calories, calcium, folate, B-vitamins, and vitamin E).
 4. Discuss use of plant stanol/sterol esters (e.g., cholesterol-lowering margarine).
 5. Discuss fiber sources (soluble and insoluble).
 6. Reinforce self-monitoring techniques (e.g., food, blood pressure, blood glucose, physical activity and behavior records to be kept).
 7. Consider referral to dietitian if not already involved in care.
 8. Review education materials containing information on:
 - Food labeling and grocery shopping, product information
 - Fat modified cooking and food preparation methods, product information, recipe modification
 - Food sources containing antioxidants and phytochemicals (e.g., broccoli, tomatoes, leafy green vegetables, fruits)
 - Other food sources (e.g., soy protein, fish providing omega-3-fatty acids, nuts)
 - Fat substitutes and fat-modified foods and appropriate use
 - Information on cholesterol-lowering margarine(s) (if applicable)
 - Simple sugars (if applicable)
 - Supplementation (if applicable)
 - If medication changes, potential food/drug interaction
- C. *Outcome measures*

Review with client:

- Weight change (decrease, increase) or maintenance, as appropriate
- Waist circumference

- Blood pressure
- Physical activity
- Laboratory values (Hgb A1C, FBG, TC, HDL, LDL, and triglycerides as applicable)
- Self-monitoring records
- Individualized goals set with the registered dietitian
- Medications (type, frequency, dosage)

Plan for Reassessment and Follow-up

A. Basis

Provide reassessment and follow-up to evaluate response to nutrition therapy.

- Schedule appointment in 3 to 6 weeks. Consider waiting 6 weeks for next appointment if cholesterol lowering drug therapy initiated or dose adjusted.

B. Response to nutrition therapy

Determine based on expected outcomes:

- Maintains or achieves BMI of 19 to 25
- Decreases waist circumference
- Decreases blood pressure, if applicable
- Decreases blood glucose, if applicable
- Decreases total cholesterol, LDL cholesterol, triglycerides, and glucose; increases HDL cholesterol
- Completes self-monitoring records
- Evaluation of food records shows decreased intake of total fat, saturated fat, and cholesterol or modifies food sources containing fat
- Meets goal(s) set with practice clinician (e.g., reduces the amount of fat and changes type of fat used in cooking, increases intake of monounsaturated fats, limits intake of saturated fats and trans fatty acids, increases intake of fruits, vegetables, legumes, and whole-grain products, and limits intake of simple sugars and alcohol [if applicable])
- Increases aerobic physical activities (e.g., increases walking to 15 minutes/day)
- Verbalizes potential food/drug interaction
- Decreases/eliminates need for medication
- Decreases/eliminates smoking (if applicable)
- Prevents/delays angioplasty or other vascular surgery

Communication/Coordination of Care

A. Documentation

Document progress in client's medical record/information system according to organization's policy.

B. Contact information

Instruct client to call with questions and concerns.

C. *Referral source*

Send copy of progress notes to other health care providers and place original in client's medical record.

D. *Request for clinical data*

Request follow-up laboratory values.

E. *Confirm appointment*

Call client 24 to 48 hours (or send reminder 1 week) prior to next appointment to confirm.

Encounter/Length: #3 and 4 for 60 Minutes

Assessment

A. *Clinical data collected*

Review client medical record and/or obtain from client interview:

- Current weight and waist circumference
- Blood pressure reading
- Laboratory values: fasting cholesterol, triglycerides, LDL cholesterol, HDL cholesterol, fasting glucose, and others as needed
- Self-monitoring records kept by client (food, exercise, blood pressure, and glucose)
- Medication(s) (amount, frequency and dose)

B. *Outcome measurements*

Change in client's:

- Weight
- Waist circumference
- Blood pressure ($\leq 130/85$ if DM or renal disease, $<140/90$ if no DM)
- Lipid profile (total cholesterol, HDL, LDL, and triglycerides as applicable)
- Fasting blood glucose <100 mg/dL
- Food/beverage intake (e.g., total calories, fat, percent calories from fat, fiber intake, intake of beneficial nutrients, e.g., folate, vitamin E, and others)
- Physical activity
- Medication(s)

Intervention

A. *Nutrition focused reassessment and brief diet history*

Adjust goals and nutrition prescription

1. Determine changes in weight, waist circumference, BMI, blood pressure, blood glucose, laboratory values (e.g., lipid profile, triglycerides), medications, and adjust nutrition prescription, meal plan, and goals as needed.
 - Intensify weight management
 - If diabetic, reinforce low glycemic index foods
 - Increase physical activity
 - If hypertensive, consider Dietary Approaches to Stop Hypertension (DASH) diet
 - If triglycerides >500 mg/dL then very low fat diet 15% of calories from fat and reinforce low glycemic index foods
 2. Review self-monitoring records with client, obtain brief diet history, and evaluate client's adherence and understanding to the nutrition prescription. Provide feedback on:
 - Percent fat intake and sources of fats, and cholesterol consumed and used in cooking
 - Intake of fruits, vegetables, and whole-grain products
 - Fiber intake (including soluble sources)
 - Consumption of food sources providing beneficial nutrients (e.g., folate, B-6, vitamin E, calcium, plant stanol/sterol esters)
 - Alcohol consumption (if applicable)
 - Smoking: packs per day (if applicable)
- B. *Provide follow-up self-management training and materials*
1. Provide reinforcement for changes in client's weight, blood pressure (if applicable), laboratory values, food intake, physical activity, and medications.
 2. Provide rationale for changes in nutrition prescription, meal plan, and physical activity to achieve lipid management goals and reduce risk factors.
 3. Review previous material or address questions according to client request.
 4. Discuss options for achieving key nutrient goals (e.g., vitamin E, folate, calcium, and use of cholesterol-lowering margarine[s]).
 5. Reinforce need for self-monitoring.
 6. Review education materials containing information on:
 - Dining out
 - Food sources containing phytochemicals, antioxidants, soy protein, and others as individualized to client needs or interests
 - Supplementation (if applicable)
 - If medication changes, potential food/drug interaction
- C. *Outcome measures*

Review with client:

- Weight change (decrease, increase) or maintenance, as appropriate
- Waist circumference
- Blood pressure
- Laboratory values (total cholesterol, LDL, HDL, triglycerides, fasting blood glucose, Hgb A1C)
- Self-monitoring records

- Individualized goals
- Medications (type, frequency, dosage)

Plan for Reassessment and Follow-up

A. Basis

Provide reassessment and follow-up to evaluate response to nutrition therapy.

1. Schedule appointment and recheck of lipids, blood pressure, and A1C/fasting glucose in 3 months. If a dose alteration is made in lipid lowering therapy, follow up should be 6 to 8 weeks after dose change.
2. If overweight, continue with weight reduction regimen per organization's protocol.

B. Response to nutrition therapy

Determine based on expected outcomes:

- Maintains or achieves reasonable BMI
- Decreases waist circumference, if applicable
- Fasting blood glucose <100 mg/dL
- Decreases blood pressure to JNC 7 guidelines
- Decreases total cholesterol, LDL cholesterol, triglycerides, and glucose, and increases HDL cholesterol per NCEP ATP III
- Completes self-monitoring records
- Evaluation of food records shows decreased intake of total fat, saturated fat, trans fatty acids, and cholesterol
- Meets goal(s) set with practice clinician (e.g., reduces the amount of fat and changes sources of fat used in cooking, increases intake of monounsaturated fats, limits intake of saturated fats and trans fatty acids, increases intake of fruits, vegetables, legumes, and whole-grain products, and limits intake of simple sugars and alcohol [if applicable])
- Increases physical activities (e.g., increases walking to 15 minutes/day)
- Verbalizes potential food/drug interaction
- Decreases/eliminates need for medication
- Decreases/eliminates smoking (if applicable)
- Prevents/delays angioplasty or other vascular surgery

Communication/Coordination of Care

A. Documentation

Document progress in client's medical record/information system according to organization's policy.

B. Contact information

Instruct client to call with questions and concerns.

C. Referral source

Send copy of progress notes to other health care providers and place original in client's medical record. Additional encounters to achieve goals if not progressing.

D. Request for clinical data

Follow-up laboratory values or recheck of lipid profile in 3 months if client meeting goals.

E. Confirm appointment

Call client 24 to 48 hours (or send reminder 1 week) prior to next appointment to confirm.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations were based primarily on sources such as national guidelines and consensus statements written on hyperlipidemia, hypertension, and diabetes mellitus by the National Cholesterol Education Program Expert Panel, the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, and Workgroup of the American Diabetes Association, respectively. Guidelines and statements are synthesized to make them applicable to the treatment of metabolic syndrome.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Improved identification of patients with metabolic syndrome
- Improved treatment and management of patients with metabolic syndrome
- Improved quality of life for patients diagnosed with metabolic syndrome
- Decreased costs of care

POTENTIAL HARMS

None stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These nutrition practice guidelines are meant to serve as a general framework for managing clients with particular health problems. It may not always be

appropriate to use these nutrition practice guidelines to manage clients because individual circumstances may vary. For example, different treatments may be appropriate for clients who are severely ill or who have comorbid, socioeconomic, or other complicating conditions.

- These guidelines are not directed to treat pediatric or pregnant patients.
- The independent skill and judgment of the health care provider must always dictate treatment decisions.
- These nutrition practice guidelines are provided with the express understanding that they do not establish or specify particular standards of care, whether legal, medical, or other.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

University of Texas at Austin, School of Nursing, Family Nurse Practitioner Program. Screening for metabolic syndrome in adults. Austin (TX): University of Texas at Austin, School of Nursing; 2004 May. 24 p. [8 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 May

GUIDELINE DEVELOPER(S)

University of Texas at Austin School of Nursing, Family Nurse Practitioner Program
- Academic Institution

SOURCE(S) OF FUNDING

University of Texas at Austin, School of Nursing, Family Nurse Practitioner Program

GUIDELINE COMMITTEE

Practice Guidelines Committee

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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AVAILABILITY OF COMPANION DOCUMENTS

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PATIENT RESOURCES

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