



Complete Summary

GUIDELINE TITLE

Adapting your practice: treatment and recommendations for homeless patients with cardiovascular diseases.

BIBLIOGRAPHIC SOURCE(S)

Brammer S, Gee B, Hale A, Kopydlowski MA, Post P, Rabiner M, Reller C, Strehlow A. Adapting your practice: treatment and recommendations for homeless patients with cardiovascular diseases. Nashville (TN): Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc.; 2004. 44 p. [33 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Cardiovascular diseases in homeless adults:

- Hypertension
- Hyperlipidemia
- Heart failure

GUIDELINE CATEGORY

Diagnosis
Evaluation

Management
Prevention
Treatment

CLINICAL SPECIALTY

Cardiology
Emergency Medicine
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Dietitians
Emergency Medical Technicians/Paramedics
Health Care Providers
Nurses
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Public Health Departments
Social Workers
Students
Substance Use Disorders Treatment Providers

GUIDELINE OBJECTIVE(S)

To recommend adaptations in standard clinical practices to improve quality of care and quality of life for homeless adults with hypertension, hyperlipidemia, and heart failure

TARGET POPULATION

Homeless adults with cardiovascular diseases

INTERVENTIONS AND PRACTICES CONSIDERED

Hypertension

Diagnosis/Evaluation

1. History, including living conditions, dietary history, medical history, alcohol/drug use, smoking status, history of mental illness/cognitive deficit, prior providers, activity level, and prescription coverage
2. Physical examination, including standard exam (heart, blood pressure, lungs, thyroid, etc); lower extremities examination; cognitive assessment
3. General laboratory panels, such as lipid profile, electrocardiogram, serum creatinine and potassium levels
4. Diabetes screening
5. Depression screening

Management/Treatment

1. Plan of care, including nutrition referral and exploration of potential barriers to treatment adherence
2. Education and self-management, including patient involvement in selection of self-management goals; discussing healthy food and exercise options available to the patient; explaining risks of hypertension in language the patient can understand; encouraging reduction or modification of substance use associated with increased blood pressure; providing written materials including compact written records of latest test results; educating staff and volunteers at shelters and soup kitchens about the dietary needs of persons with cardiovascular diseases
3. Medications, including diuretics, antihypertensives (preferably, long-acting)
4. Use of simplest medical regimen possible and dispensing small amounts at a time to promote treatment adherence and return for follow-up
5. Assisting patients without prescription drug coverage by using pharmaceutical companies' patient assistance programs or U.S. Department of Health and Human Services Pharmaceutical Discount program
6. Recognizing and managing associated problems and complications, such as chemical dependencies, physical/cognitive limitations, literacy/language limitations, and lack of housing/transportation
7. Facilitating patient follow-up, including use of outreach/case management to encourage frequent (monthly) return visits for test results/further treatment, verification of contact information at every visit

Hyperlipidemia

Diagnosis/Evaluation

1. History including, living conditions, medical history, dietary history, activity level, smoking status, alcohol/drug use
2. Physical examination, including standard exam (height, weight, body mass index, blood pressure, heart rate, etc); lower extremities examination; cognitive assessment
3. Diagnostic tests, including fasting labs (total cholesterol, high-density lipoprotein [HDL] cholesterol, low-density lipoprotein [LDL] cholesterol); liver function tests (LFTs); providing test results to patient on pocket cards

Management/Treatment

1. Plan of care, including lipid goals and exploration of possible barriers to adherence
2. Education and self-management, including patient involvement in selection of self-management goals, discussion of healthy dietary choices and exercise options available to the patient, providing written materials the patient can understand, exploring cardiovascular risks associated with co-occurring substance use and ways to reduce these risks
3. Medications, such as statins and niacin (vitamin B3); prescribing the simplest medical regimen possible (daily dosing optimal)
4. Assisting patients by using pharmaceutical companies' patient assistance programs or U.S. Department of Health and Human Services Pharmaceutical Discount program

5. Recognizing and managing associated problems and complications, such as liver disease, myopathy/rhabdomyolysis, chemical dependencies, physical/cognitive limitations, literacy/language limitations, lost/stolen medications, transience and lack of housing/resources/transportation
6. Follow-up including outreach/case management, more frequent (monthly) return visits, regular monitoring of LFTs in patients on statins, verification of contact information at every visit

Heart Failure

Diagnosis/Evaluation

1. History, including living conditions, medical history, alcohol/drug use
2. Physical examination, including lungs, liver, lower extremities, weight
3. Diagnostic tests, such as baseline chest x-ray, electrocardiogram, and echocardiogram

Management/Treatment

1. Plan of care, including underlying disease management goals and exploring obstacles to adherence
2. Education and self-management, including patient involvement in selection of self-management goals, educating patients/food services (shelters/soup kitchens) about need to restrict dietary sodium/fluid intake, check body weight, limit alcohol and tobacco use, providing written materials the patient can understand and portable information including test results
3. Medications, such as diuretics or alternative medications as appropriate; influenza and pneumococcal immunizations
4. Use of simplest medical regimen possible and dispensing small amounts of medications to facilitate treatment adherence/encourage return for follow-up
5. Assisting patients by providing pre-filled medication boxes and using pharmaceutical companies' patient assistance programs or U.S. Department of Health and Human Services Pharmaceutical Discount program
6. Recognizing and managing associated problems and complications, including medication toxicity, edema, orthopnea, chemical dependencies, physical/cognitive limitations, literacy/language limitations, and lack of housing/transportation
7. Follow-up including easy access to test results, outreach/case management to facilitate adherence, monthly monitoring of blood pressure control, and verification of contact information at every visit

MAJOR OUTCOMES CONSIDERED

- Blood pressure level; number of checks in last year
- Fasting lipid profile
- Low-density lipoprotein (LDL) cholesterol
- Self-management goals set by patients with cardiovascular disease (CVD)
- Health disparities between homeless and general U.S. populations

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

Searches of MEDLINE, SocABS, PsycInfo databases were performed.
Bibliographies compiled by the Bureau of Primary Health Care's Homeless Information Resources Center were also searched.

NUMBER OF SOURCE DOCUMENTS

This guideline is adapted from three primary sources.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

An Advisory Committee comprised of seven health and social service providers experienced in the care of homeless individuals with cardiovascular diseases devoted several months during 2003–2004 to development of these adapted clinical guidelines, drawing from their own experience and from that of their colleagues in Health Care for the Homeless projects across the United States. The adaptations reflect their collective experience in serving homeless people with hypertension, hyperlipidemia, and/or heart failure.

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

Clinical Validation-Pilot Testing
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guideline developer's Advisory Committee identifies, in the original guideline document, the clinicians who reviewed and commented on the draft recommendations prior to publication, including experienced Health Care for the Homeless (HCH) practitioners and medical experts in cardiovascular care. The guideline will be field tested by clinicians in designated HCH projects during the year following publication.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Hypertension in Homeless Adults

Diagnosis and Evaluation

History

- **Living Conditions.** At every visit, ask where the patient is staying ("describe the place where you sleep"), where s/he spends time during the day, and how s/he can be contacted. Ask explicitly about access to basic needs (food, shelter, restrooms, and a place to store medications). Lack of stable housing complicates health care and adherence to treatment.
- **Dietary history.** Explore the patient's diet. Ask where meals are obtained (e.g., soup kitchens, shelters, missions) and what the patient eats. Ask specifically about foods high in sodium, cholesterol or saturated fats, and use of alcohol or caffeine. Ask about dietary choice, control over food preparation, and use of added salt. Ask about cultural/ethnic heritage; food preferences of particular groups (e.g., Hispanics, African Americans) can be high in saturated fat and sodium.
- **Medical history.** Ask if anyone in the patient's family has had hypertension, a heart attack, or stroke. Ask about other cardiac risk factors, including diabetes, high cholesterol, and chest pain. Acuity and multiplicity of health

- problems often seen in homeless patients and sporadic follow-up make good history taking and prioritization of treatment goals especially difficult.
- **Alcohol/drug use.** Ask about use of substances that can cause or exacerbate high blood pressure. Ask about alcohol use and when the patient's last drink was. (High blood pressure is often seen during periods of withdrawal from alcohol use.) Ask about other drug use (especially stimulants such as cocaine, ephedra, caffeine, and amphetamines). Look for anything that may complicate treatment adherence (e.g., smoking, obesity, alcohol, other addictive or sedative substances).
 - **Smoking.** Ask whether and what the patient smokes. Smoking is more common among homeless than domiciled people and often begins at a younger age. Homeless people are known to use inexpensive brands of cigarettes that are especially high in tar/nicotine, and often smoke substances other than nicotine that may increase their risk for cardiovascular disease. They may also reuse cigarettes (pick up cigarette butts from streets/gutters) and use nontraditional "rolling paper" (such as newspaper) that may contain more toxins than standard brands.
 - **History of mental illness/cognitive deficit** Ask whether the patient has ever been told that s/he had a mental illness or cognitive impairment (problem with speech, memory, thinking, or interacting with others). Ask if the patient has ever been treated for depression or anxiety and if s/he is currently feeling anxious or depressed. Assess the patient's ability to take pills daily and remember to return for follow-up care.
 - **Prior providers** Inquire about other health care providers the patient has seen, recognizing the mobility of homeless people.
 - **Activity level** Ask the patient to describe usual physical activities (e.g., walking — how far in blocks?). Knowledge of activity level can be useful in designing an exercise program.
 - **Prescription coverage** Ask whether the patient has health insurance that covers prescription drugs. If not, provide assistance in applying for Medicaid and other governmental health programs for which s/he may be eligible. Consider patient assistance programs provided by many pharmaceutical companies.

Physical Examinations

- **Standard exam:** heart, blood pressure, lungs, thyroid, abdomen, fundoscopic exam, peripheral pulses. Check blood pressure with the patient's feet flat on the floor, at least one-half hour after smoking or drinking caffeine.
- **Lower extremities.** Pay attention to lower extremity examination and make sure patients take their shoes off. Recognize that homeless people typically have dependent edema as a result of sleeping while sitting in chairs or lots of walking.
- **Cognitive assessment.** Regularly assess for cognitive impairment related to long-term alcohol/drug use or normal aging, which may affect adherence to treatment regimens. The Mini-Mental State Examination (MMSE) is a widely used assessment tool for adults. For information about how to obtain it, see www.minimental.com/.

Diagnostic Tests

- **General laboratory panels.** Obtain lipid profile, electrocardiogram, and measure serum creatinine and potassium levels according to standard clinical guidelines; no homeless-specific adaptations recommended. The patient should also be screened for diabetes according to standard clinical guidelines. If obtaining a fasting lipid panel is problematic, consider measuring total cholesterol, high-density lipoprotein (HDL), and direct measurement of low-density lipoprotein (LDL), if available (recognizing that direct LDL is generally more expensive). Total cholesterol, HDL, and direct LDL can be measured nonfasting. Triglycerides should only be measured fasting, and, since indirect LDL is calculated based in part on the triglyceride level, indirect LDL (the standard approach) should only be determined with a fasting blood sample. Provide the patient with a copy of test results on a wallet-sized card, including latest blood pressure measurement, creatinine and potassium levels, HDL, LDL, and cholesterol/triglycerides, to document medical history for the next care provider.
- **Depression screening.** The Health Disparities Collaboratives recommend that depression screening be integrated into all chronic care. Many popular and well-validated screening tools are available for use in any primary care population. National measures recommended by the Health Disparities Collaborative on Depression are based on the 9-item Patient Health Questionnaire (PHQ-9), a depression scale developed for primary care that is based on Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) criteria for diagnosing major depression. The PHQ-9 is available online in English: www.healthdisparities.net/HDCToolsandManuals/Depression-Decision%20Support/PHQ-9_Patient_Questionnaire.doc and Spanish: www.healthdisparities.net/HDCToolsandManuals/Depression-Decision%20Support/PHQ-9_Patient_Questionnaire-Spanish.doc. A 2-item pre-screen (PHQ-2) has also been validated for use in primary care (Staab & Evans, 2000).

Plan and Management

Plan of Care

- **Nutrition referral.** Refer the patient to a nutritionist, preferably a member of the clinical team who is knowledgeable about the limited food choices that homeless people typically have.
- **Adherence.** At the end of every visit, discuss the plan of care with the patient; ask if anything about it is unclear or difficult, and work with him/her to address obstacles to adherence. Recognize that lifestyle changes (reduced fat intake, weight control, increased exercise) are especially difficult for homeless individuals, and that food provided by shelters and soup kitchens is not always conducive to cardiovascular health.

Education, Self-management

- **Self-management goals.** Encourage the patient to select his/her own goals, even if they differ from providers' goals or are prioritized differently. Ask the patient what s/he would like to work on (e.g., lose 5 pounds this month), and discuss how to accomplish this. When a goal is chosen, work in every way possible to help the patient overcome barriers to achieving it.

- **Dietary practices.** Know your patient's dietary practices, particularly ethnic food preferences. Educate him/her about "bad food" choices and preparation methods. Use samples of packaged or canned food items commonly consumed to teach how to interpret nutrition information on labels (e.g., sodium content in ketchup). Give examples of healthy food choices in settings where the patient obtains food. Discuss portion control ("Eat half of what is on your plate"). Recommend not adding salt to food after preparation. Encourage use of salt substitutes and extra servings of vegetables and fruits instead of fatty meats, in accordance with Dietary Approaches to Stop Hypertension (DASH) eating plan. [For information about the DASH eating plan (revised May 2003), see www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf.]
- **Patient instruction.** Explain hypertension and its risks in language the patient can understand. Use illustrations to facilitate comprehension. If giving written instructions, make sure the patient can read and understand them. Be aware that some homeless patients do not read well in English or at all, are poorly educated, have cognitive deficits secondary to comorbidities, lack corrective lenses, or have blurred vision as a complication of hypertension and diabetes. But recognize that like other people, those who are homeless vary widely in intelligence, education, and literacy; don't presume that a patient can't read or understand written information just because s/he is homeless.
- **Written materials.** Provide educational materials in the first language of patients you serve, using simple terminology and large print with graphic illustrations to compensate for any visual limitations (e.g., handouts describing the DASH diet, ideas for sodium restriction, recommended exercise program, effects of alcohol and smoking on cardiovascular health). (Patient education resources on smoking cessation and other topics are available at www.musc.edu/pprnet/education.html. Easy to read materials on alcohol-related topics are available in English and Spanish at: www.niaaa.nih.gov/publications/brochures.htm.)
- **Exercise.** Counsel patients to increase aerobic exercise. Give examples of how to do this (e.g., "Walk from 1st Street to 6th Street and back, which equals a mile; or walk up and down 4 flights of stairs"). Explain that walking may help to decrease swelling of the legs and feet. Recognize that obese patients may develop other problems when attempting intensive weight-bearing exercise. Work with these patients to develop alternative forms of exercise to promote cardiovascular health, such as chair exercises, use of hand weights (books, soup cans, plastic bottles filled with water), and leg lifts.
- **Harm reduction.** Explain the risks associated with hypertension and substance use (see Associated Problems). Use a harm reduction approach to use of alcohol, nicotine, or other drugs that independently cause or exacerbate high blood pressure. Encourage patients to reduce substance use and/or use less harmful drugs (e.g., name brand cigarettes instead of cheaper brands with higher tar/nicotine content). Explain that it is even more important to keep taking prescribed antihypertensives while actively using these substances. At every visit, reiterate the risks that hypertension poses (e.g., heart attack, stroke). Emphasize the risk of disability from a stroke (paralysis, incontinence); homeless people may be less concerned about mortality risk than about chronic disability.
- **Portable information.** Give patients a written record of latest test results that is compact and can be carried with them (e.g., a wallet-sized card

specifying blood pressure measurement, creatinine glucose and potassium levels, weight, cholesterol and lipoproteins).

- **Education of food workers.** Educate staff and volunteers at shelters and soup kitchens about the dietary needs of persons with cardiovascular disease, and work with them to promote more nutritious food options and preparation methods. Explain how to provide low sodium, low cholesterol meals (e.g., sugar-free jello with fruit, chicken baked without the skin instead of fried chicken, seasoning with spices instead of salt). Encourage food programs to put a salt substitute on the table; spotlight one dish each week that is low in salt or fat and list salt/fat content; provide samples of healthy foods for clients to taste. If possible, collaborate with nutrition education programs at local universities, junior colleges, senior centers, or hospitals; engage students or volunteer dietitians as consultants to workers who prepare food (Health Care for the Homeless [HCH] Clinicians' Network, 2001).

Medications

- **When to start treatment.** Consider treatment at the initial visit if the patient is unlikely to return for follow-up.
- **Diuretics.** Persons who live on the streets or in shelters are at increased risk for dehydration in warmer climates, particularly during summer months. Be aware that diuretics can exacerbate dehydration and that limited access to water or bathroom facilities may interfere with treatment adherence. Work with service providers in your community to assure that homeless people have easy access to potable water and restrooms. Avoid prescribing diuretics if the patient does not have easy access to a restroom or will not be able to return for laboratory tests necessary for monitoring them.
- **Antihypertensives.** Be cautious about prescribing beta-blockers or clonidine pills to homeless patients who are likely to have trouble with adherence, since discontinuing these medications suddenly can result in serious rebound hypertension. Be aware of the potential for clonidine to be sold on the streets in order to decrease the withdrawal effects of heroin and other opioids (nausea, cramps, sweating, tachycardia, hypertension). If clonidine is contraindicated, explore alternative strategies to reduce high blood pressure.
- **Simple regimen.** Use the simplest medical regimen possible to facilitate treatment adherence. If possible, prescribe long-acting antihypertensive medications that can be taken once instead of several times a day. (See NHLBI, JNC 7, 2003 for currently recommended treatment options: www.nhlbi.nih.gov/guidelines/hypertension/express.pdf.)
- **Dispensing.** Dispense small amounts of medications at a time to ensure return for follow-up; homeless patients frequently lose medications if larger quantities are provided. Some patients sell their antihypertensive drugs; giving them a week's supply at a time can decrease this risk.
- **Dosing frequency.** If once a day dosing is not possible to achieve blood pressure goals, use prefilled medication boxes with daily slots that can be removed by the patient to carry with him/her. Recognize that shelters commonly require overnight residents to leave early each morning, with the doors opening again in the late afternoon. If medications are stored in a shelter, explain to shelter staff why some persons need to take medications more frequently than once a day.
- **Alcohol/drug use.** For patients recovering from alcohol or opioid addiction who are unable to obtain inpatient detoxification, withdrawal hypertension

can be safely alleviated with clonidine pills or patches, closely monitored. Be aware that clonidine itself can be abused, usually by heroin users, who may use it to reduce the amount of heroin necessary for the desired effect or to prolong heroin's action.

- **Patient assistance.** If the patient does not have prescription drug coverage and is ineligible for Medicaid or other public health insurance, consider use of pharmaceutical companies' patient assistance programs (www.needymeds.com), and/or U.S. Department of Health and Human Services 340B Pharmaceutical Discount program, if eligible (<http://bphc.hrsa.gov/opa/>).

Associated Problems, Complications

- **Physical/cognitive limitations.** Disabilities secondary to chronic illness or injury, frequently seen in homeless patients, can limit their capacity to follow a plan of care. Physical impairments, lack of facilities, and area of town in which the patient lives may limit his/her exercise alternatives. Cognitive deficits secondary to substance abuse, trauma, mental illness or medication side effects may limit their understanding of the disease process and compromise adherence to treatment. Tailor the plan of care to patient needs and capacities.
- **Literacy/language limitations.** A number of homeless people have trouble reading but may not volunteer this information out of embarrassment or shame. They may be illiterate or have a low literacy level in their primary language and/or in English, if it is not their native tongue. Assuming erroneously that the patient can read directions on medicine bottles or an appointment card can lead to serious complications and loss to follow-up. Ask if the patient "has trouble reading" at intake. Provide an interpreter for patients with limited English proficiency.
- **Multiple comorbidities.** Homeless people are at risk for myocardial infarction, strokes, and organ damage from uncontrolled cardiovascular disease and comorbidities (e.g., emphysema secondary to smoking, cirrhosis of the liver as a result of alcoholism). Recognize and address lifestyle factors and barriers to treatment and self-care that increase the patient's risk for negative health outcomes.
- **Chemical dependencies.** Be aware that substance use disorders, frequently seen in homeless patients, are medical problems that contribute to cardiovascular disease. Nicotine is the addictive drug most frequently used by homeless people. Smoking elevates blood pressure and pulse rate, thus contributing to heart attack and stroke. Excessive alcohol use can result in cardiomyopathy, which may lead to heart failure. Cocaine and amphetamines cause cardiac arrhythmia, acute hypertension, stroke, and heart attacks. Ephedra and Mahuang ("white crosses"), dietary supplements used for weight loss, also have these effects. Uncontrolled withdrawal from excessive alcohol or drug use can result in rebound hypertension. Use motivational interviewing to promote readiness for concurrent treatment of substance use and high blood pressure (Miller & Rollnick, 2002).
- **Lost, stolen medications.** Dispense smaller amounts of medications to patients known to "lose" them; this not only improves their chance of adherence, but allows for closer follow-up. Loss of medication can be a problem when public health insurance does not allow for replacement; use 340B drug program or other source of free/reduced-cost medications. In

addition, Federally Qualified Health Centers are sometimes able to purchase medicines that are not covered by health insurance.

- **Transience.** Recognize that the mobility of homeless patients may compromise continuity of care and make good, routine management of hypertension less likely than episodic, crisis care. Use positive incentives to encourage follow-up (e.g., Subway sandwich coupons). Provide each patient with a pocket card listing latest test results, vital signs, and current medications to document medical history for the next care provider.
- **Lack of transportation.** Homeless persons may be unable to return to the clinic because of lack of funds for transportation. Provide carfare to facilitate follow-up. Monitor blood pressure in the field, using outreach teams; network with other agencies and fire departments that are willing to check blood pressures for homeless people.
- **Lack of housing and income.** Establish relationships with members of the clinical team and with outreach service providers to facilitate entry into permanent housing, which will alleviate many of these associated problems. Document the patient's medical conditions and functional status with cognizance of disability determination procedures required for Supplemental Security Income/Social Security Disability Insurance (SSI/SSDI).

Follow-Up

- **Test results.** Make it easy for patients to get laboratory test results; use case managers to bring the patient back to clinic for test results and further treatment.
- **Outreach, case management.** Work with case managers and outreach workers to facilitate treatment adherence and follow-up care, including referrals to other facilities.
- **Frequency.** Consider more frequent (monthly) follow-up visits to increase monitoring of blood pressure control and treatment adherence. Keep lines of communication open and encourage regular follow-up, even if the patient does not adhere to treatment. Don't be punitive; work with the patient to increase adherence by decreasing barriers to care.
- **Contact information.** Verify contact information at every visit. Ask where the patient is staying (shelter, street or other locations where the patient usually sleeps or obtains meals) and how s/he can be contacted (e.g., phone/cell numbers, e-mail address). Request emergency contact information — address and/or phone number of a family member/friend/case manager with a stable address.

All recommendations for the treatment of homeless patients with hypertension presuppose use of the Model of Care described in the "Description of the Implementation Strategy" field.

Hyperlipidemia in Homeless Adults

Diagnosis and Evaluation

History

- **Living conditions.** Lack of stable housing complicates health care and adherence to treatment. At every visit, ask where the patient is staying

- ("describe the place where you sleep"), where s/he spends time during the day, and how s/he can be contacted. Ask explicitly about access to basic needs (food, shelter, restrooms, and a place to store medications).
- **Medical history.** Ask about individual/family history of hypertension, cardiovascular disease, coronary artery disease, diabetes, kidney or liver disease. Determine the patient's age. Recognize that many homeless adults appear to be older than their chronological age. "The constellation of health and functional problems of older homeless resemble those of geriatric persons in the general population" (Gelberg, Linn, & Mayer-Oakes, 1990).
 - **Dietary history.** Ask the patient to describe what s/he eats and drinks over a 24-hour period. Ask specifically about foods high in cholesterol, saturated fats, or sodium, and about beverages containing alcohol or caffeine. Ask where the patient eats (e.g., soup kitchens, shelters, missions), types of food typically served, how foods are prepared, and whether salt is added. Inquire about the patient's cultural heritage, recognizing that food preferences of particular cultural/ethnic groups (e.g., Hispanics, African Americans) can be very high in saturated fat and sodium.
 - **Activity level.** Ask the patient to describe usual physical activities (e.g., walking [how far in blocks?]). Knowledge of activity level can be useful in designing an exercise program.
 - **Smoking.** Ask whether and what the patient smokes. Smoking is more common among homeless than domiciled people, and often begins at a younger age. Homeless persons are known to use inexpensive brands of cigarettes that are especially high in tar/nicotine, and often smoke substances other than nicotine that may increase their risk for cardiovascular disease. They may also reuse cigarettes (pick up cigarette butts from streets/gutters) and use nontraditional "rolling paper" (such as newspaper) that may contain more toxins than standard brands.
 - **Alcohol/drug use.** Explore possible alcohol/drug use. Ask if the patient drinks alcohol, and if so, how much and how often. This may affect the decision to prescribe statin medications, which may be contraindicated by altered liver function tests.

Physical Examination

- **Standard exam.** Measure the patient's height, weight, body mass index, percent body fat, abdominal girth, blood pressure, and heart rate; perform carotid auscultation for a bruit, cardiac auscultation for an S4; check peripheral pulses.
- **Lower extremities.** Look for swelling in lower extremities; try to differentiate dependent edema from swelling due to heart failure.
- **Cognitive assessment.** Regularly assess for cognitive impairment related to long-term alcohol/ drug use or normal aging, which may affect adherence to treatment regimens. The Mini-Mental State Examination (MMSE) is a widely used assessment tool for adults. For information about how to obtain it, see: www.minimental.com.

Diagnostic Tests

- **Fasting labs.** Recognize that obtaining fasting blood samples from homeless patients may be difficult. Some soup kitchens serve meals early; requiring homeless patients to fast may prevent them from getting something to eat

- until many hours later. Recommended strategies: Be flexible about obtaining a fasting blood sample; consider doing blood work in the afternoon or evening, or sending a nurse to the shelter or food kitchen to take a blood sample prior to meals. If obtaining a fasting lipid panel is not feasible, consider measuring total cholesterol, high-density lipoprotein (HDL) cholesterol, and direct low-density lipoprotein [(LDL) if available], which do not require fasting. (Disadvantages to this alternative: LDL is generally more expensive, and triglyceride measurement cannot be obtained from a non-fasting blood sample.) Collaborate with outreach workers and shelter staff to help get patients to the clinic. Offer incentives. When a patient comes in for blood work, be sure to do tests immediately; don't make the patient wait.
- **Liver function tests (LFTs).** Assess for liver disease, especially in persons using alcohol or with a history of injection drug use. Recognize that many homeless people have hepatitis. LFTs should be monitored in patients on statins, which can exacerbate pre-existing liver disease. Question homeless patients routinely about behaviors that place them at high risk for hepatitis B and C, but reserve laboratory screening for those meeting risk-based indications for testing, to minimize false-positive test results and attendant costs to clarify results.
 - **Test results.** Make it easy for patients to get test results. Use case managers to facilitate their return to the clinic for results and further treatment. Give patients a copy of their latest blood pressure measurement, creatinine and potassium levels, weight, cholesterol and lipoprotein levels on a wallet-sized card to carry with them.

Plan and Management

Plan of Care

- **Lipid goals.** Use standard formula to calculate cholesterol and triglyceride goals (National Heart, Lung, and Blood Institute [NHLBI], 2001). Although achieving these goals can be more challenging when treating a homeless patient, the same standard of care applies to all patients. Practitioners who provide health care to homeless people may rely less on lifestyle modification and move to drug therapy sooner, within alternatives specified by the standard clinical guidelines.
- **Adherence.** Recognizing that hyperlipidemia is an asymptomatic disease and that people with high blood cholesterol/triglycerides usually feel fine, help the patient to understand the importance of adhering to the plan of care. Talk about the patient's risk of a heart attack; specify his/her risk numerically (using tables in the standard guidelines). At the end of every visit, discuss the plan of care with the patient; ask if anything about it is unclear or difficult, and work with him/her to address obstacles to adherence. Recognize that lifestyle changes (reduced fat intake, weight control, increased exercise) are especially difficult for homeless individuals, and that food provided by shelters and soup kitchens is not always conducive to cardiovascular health.

Education, Self-Management

- **Self-management goals.** Work with the patient to develop self-management goals, including strategies to promote weight loss and reduce intake of fatty acids and cholesterol. Ask what s/he would like to work on. Set

- goals in collaboration with the patient and offer an incentive at the next follow-up if improvement is noted. When a goal is chosen, work in every way possible to assist the patient in overcoming barriers to achieving it.
- **Exercise.** Counsel patients to increase aerobic exercise. Give examples of how to do this (e.g., "Walk from 1st Street to 6th Street and back, which equals a mile; or walk up and down 4 flights of stairs"). Explain that walking may help to decrease swelling of the legs and feet. But recognize that for obese patients, engaging in intensive weight-bearing exercise may result in other problems, such as arthritis. Explore other creative ways to promote movement with these clients (e.g., chair exercises; lifting hand weights [soup cans, full water bottles], leg lifts).
 - **Diet/nutrition.** Give examples of how to make healthy dietary choices in settings where the patient obtains food (e.g., encourage extra servings of vegetables and fruits instead of fatty meats). Discuss portion control ("Eat half of what is on your plate"). Refer the patient to a nutritionist, preferably on the clinical team, who understands the limited food choices that homeless people typically have. Have heart-healthy snacks available in the clinic to provide positive incentives. Enlist students or volunteer dieticians to educate staff and volunteers in shelters and soup kitchens about the dietary needs of persons with cardiovascular disease and how to prepare healthy meals inexpensively, increase dietary fiber, and reduce the amount of carbohydrates, which exacerbate metabolic syndrome.
 - **Patient instruction.** Use simple language and graphic illustrations to explain what high cholesterol is and how it affects the blood vessels and heart. (See MEDLINEplus, National Institutes of Health: www.nlm.nih.gov/health/public/heart/cholesterol/liv_chol.pdf for examples.) Provide instructions in the patient's first language and use of an interpreter, if needed. If giving written instructions, make sure the patient can read and understand them.
 - **Written materials.** Be aware that some homeless patients do not read well in English or at all, are poorly educated, have cognitive deficits secondary to comorbidities, lack corrective lenses, or have blurred vision as a complication of hypertension and diabetes. But recognize that like other people, those who are homeless vary widely in intelligence, education, and literacy. Don't presume that a patient can't read or understand written information just because s/he is homeless. Provide educational materials in the first language of patients you serve, using simple terminology and large print with graphic illustrations to compensate for any visual limitations (e.g., handouts describing the DASH diet, ideas for sodium restriction, a recommended exercise program, effects of alcohol and smoking on cardiovascular health). (Visit the National Heart, Lung and Blood Institute Web site for information about these topics: www.nhlbi.nih.gov/health/public/heart/index.htm.)
 - **Harm reduction.** At every visit, reiterate the health risks of hyperlipidemia — heart attack, stroke, chronic disability. Describe in terms the client can understand what a "heart attack" and a "stroke" mean and their possible outcomes (paralysis, incontinence, etc.). Use a harm reduction approach; suggest strategies to reduce or minimize the damage caused by high-risk behaviors, such as excessive use of alcohol, nicotine, or other drugs, with the ultimate goal of eliminating them. Recognize that it is not necessary to eliminate alcohol completely except in alcoholics and patients with alcoholic cardiomyopathy or severe liver disease; in other patients, modest alcohol consumption may actually be beneficial (≤ 2 ounces/day in men, ≤ 1 ounce/day in women).

Medications

- **Simple regimen.** Use the simplest medical regimen possible to facilitate treatment adherence. Prescribe medications that are appropriate and available to the client, considering medication expense and duration of treatment. Use daily dosing of medications as much as possible, to be taken at bedtime or with the evening meal. (See NHLB, ATP III, 2001 for currently recommended treatment options:
www.nhlbi.nih.gov/guidelines/cholesterol/atglance.htm#Step7.)
- **Statins.** Clinical research indicates that statins may worsen health outcomes in persons with chronic transaminase elevations secondary to hepatitis B or C, and in chronic alcohol users. Use clinical judgment, considering risks and benefits of using these medications. As an alternative to statins, consider using niacin (vitamin B3), as an effective and less expensive way to lower LDL cholesterol and increase HDL cholesterol. Use of bulk laxatives (psyllium) in combination with a low fat diet can also lower serum cholesterol in patients with mild to moderate hypercholesterolemia. But bulk laxatives may be difficult for homeless people to use correctly if they are unable to obtain appropriate liquid to take with them, or if their access to toilet facilities is limited.
- **Patient assistance.** If the patient does not have prescription drug coverage and is ineligible for Medicaid or other public health insurance, consider use of pharmaceutical companies' patient assistance programs (www.needymeds.com), and/or the U.S. Department of Health and Human Services 340B Pharmaceutical Discount program, if eligible (<http://bphc.hrsa.gov/opa/>), to obtain free or reduced-cost medications.

Associated Problems, Complications

- **Liver disease.** High prevalence rates of injection drug use and hepatitis have been reported among people experiencing homelessness. In some homeless patients, the risk for liver damage secondary to hepatitis or alcoholic cirrhosis is high, which may influence the choice of medications. Liver function tests should be obtained at baseline and at 1 to 3 months following initiation of statin therapy. This is even more important in homeless patients because of their risks for liver disease.
- **Myopathy/rhabdomyolysis.** Monitor serum creatine kinase (CK) levels only in patients at high risk for myopathy, including those with a history of alcohol/drug abuse or hepatitis. The antidepressant, nefazodone, some human immunodeficiency virus (HIV) medications, and other medications can also increase myopathy risk, as can uncontrolled seizures. Check CK levels in patients who complain of muscle aches, soreness, or weakness (symptoms of myopathy), recognizing that muscle pain in homeless patients may also be related to exertion, trauma, and/or comorbidities.
- **Physical/cognitive limitations.** Disabilities secondary to chronic illness or injury, frequently seen in homeless patients, can limit their capacity to follow a plan of care. Physical impairments, lack of facilities, and area of town in which the patient lives may limit his/her exercise alternatives. Cognitive deficits secondary to substance abuse, trauma, mental illness, or medication side effects may limit their understanding of the disease process and compromise adherence to treatment. Tailor the plan of care to patient needs and capacities.

- **Literacy/language limitations.** A number of homeless people have trouble reading but may not volunteer this information out of embarrassment or shame. They may be illiterate or have a low literacy level in their primary language and/or in English, if it is not their native tongue. Assuming erroneously that the patient can read directions on medicine bottles or an appointment card can lead to serious complications and loss to follow-up. Ask if the patient "has trouble reading" at intake. Provide an interpreter for patients with limited English proficiency.
- **Multiple comorbidities.** Homeless people are at risk for myocardial infarction, strokes, and organ damage from uncontrolled cardiovascular disease and comorbidities (e.g., emphysema secondary to smoking, cirrhosis of the liver as a result of alcoholism). Recognize and address lifestyle factors and barriers to treatment and self-care that increase the patient's risk for negative health outcomes.
- **Chemical dependencies.** Be aware that substance use disorders, frequently seen in homeless patients, are medical problems that contribute to cardiovascular disease. Nicotine is the addictive drug most frequently used by homeless people. Smoking elevates blood pressure and pulse rate, thus contributing to heart attack and stroke. Excessive alcohol use can result in cardiomyopathy, which may lead to heart failure. Cocaine and amphetamines cause cardiac arrhythmia, acute hypertension, stroke, and heart attacks. Ephedra and Mahuang ("white crosses"), dietary supplements used for weight loss, also have these effects. Uncontrolled withdrawal from excessive alcohol or drug use can result in rebound hypertension. Use motivational interviewing to promote readiness for concurrent treatment of substance use and cardiovascular disease (Miller & Rollnick, 2002).
- **Lost, stolen medications.** Dispense smaller amounts of medications to patients known to "lose" them; this not only improves their chance of adherence, but allows for closer follow-up. Loss of medication can be a problem when public health insurance does not allow for replacement; use 340B drug program or other source of free/reduced-cost medications. In addition, Federally Qualified Health Centers are sometimes able to purchase medicines that are not covered by health insurance.
- **Transience.** Recognize that the mobility of homeless patients may compromise continuity of care and make good, routine management of hypertension less likely than episodic, crisis care. Use positive incentives to encourage follow-up (e.g., Subway sandwich coupons). Provide each patient with a pocket card listing latest test results, vital signs, and current medications to document medical history for the next care provider.
- **Lack of transportation.** Homeless persons may be unable to return to the clinic because of lack of funds for transportation. Provide carfare to facilitate follow-up. Monitor blood pressure in the field, using outreach teams; network with other agencies and fire departments that are willing to check blood pressures for homeless people.
- **Lack of housing and income.** Establish relationships with members of the clinical team and with outreach service providers to facilitate entry into permanent housing, which will alleviate many of these associated problems. Document the patient's medical conditions and functional status with cognizance of disability determination procedures required for SSI/SSDI.

Follow-Up

- **Outreach, case management.** Work with case managers and outreach workers to facilitate treatment adherence and follow-up care that may include referrals to other facilities.
- **Frequency.** Encourage monthly visits. More frequent visits are warranted for homeless patients to increase rapport, monitor associated problems such as elevated liver function tests, reinforce understanding of the plan of care, and identify/promptly address any complications of treatment or problems with adherence. Homeless patients are more likely than others to develop complications due to poor general health and alcohol/drug use.
- **LFTs.** Monitor liver function tests regularly after statins are begun.
- **Contact information.** Verify contact information at each visit. Ask where the patient is staying (shelter, street or other locations where the patient usually sleeps or obtains meals) and how s/he can be contacted (e.g., phone/cell numbers, e-mail address). Request emergency contact information — address/phone number of a family member/friend/case manager with a stable address.

All recommendations for the treatment of homeless patients with hyperlipidemia presuppose use of the Model of Care described in the "Description of Implementation Strategy" field.

Heart Failure in Homeless Adults

Diagnosis and Evaluation

History

- **Living conditions.** Ask patients where they are living and where they eat their meals.
- **Medical history.** Obtain history of prior heart or lung disease, which may give clues to the etiology of heart failure. Be aware that substance users are reluctant to relate medical history if they have been told in the past that they have cardiomyopathy related to drug or alcohol use. Ask about other cardiac risk factors (e.g., hypertension, diabetes, lipids) as well as about symptoms of angina, dizziness, syncope, or palpitations, and usual and current exercise tolerance to gauge New York Heart Association (NYHA) heart failure classification (<http://www.fpnotebook.com/CV53.htm>).
- **Alcohol/drug use.** Assess for use of drugs that may affect the heart, such as cocaine, amphetamine, and alcohol. Recognize that use of alcohol and/or cocaine may lead to cardiomyopathy, a known cause of heart failure. Use of intravenous (IV) drugs may predispose to infections of heart valve and other structures, which may eventually present as heart failure.

Physical Examination

- **Lungs.** Although rales are the traditional sign of heart failure, recognize that wheezes or rhonchi may be the overt physical finding in patients with chronic obstructive pulmonary disease (COPD) and heart failure. Homeless people are more likely to have concomitant COPD from smoking.
- **Liver.** Hepatic congestion may be present in right-sided heart failure but may be difficult to differentiate from hepatomegaly due to underlying liver disease.

- **Lower extremities.** Assess for edema related to heart failure versus other factors. Recognize that dependent edema is extremely common in homeless persons, secondary to excessive ambulation for long periods or sleeping in chairs, and not necessarily related to heart failure.
- **Weight** Weigh homeless patients at every visit, and record their weight on a pocket card that they can carry with them.

Diagnostic Tests

- **Baseline chest x-ray and electrocardiogram (CXR & EKG).** Chest x-rays and electrocardiograms can be useful early tests, despite their low sensitivity and specificity, even though not typically used as primary diagnostic tests. Pay attention to cardiomegaly, prior myocardial infarctions (MI), left ventricular hypertrophy (LVH), or cardiac arrhythmia. Frequently EKGs are difficult to interpret because of the lack of prior tracing for comparison in this highly mobile population.
- **Echocardiogram.** Obtain an echocardiogram; consider a stress test if there are symptoms or risk factors for coronary artery disease (CAD).
- **Test results.** Make it easy for the patient to get test results. Use case managers and outreach workers to facilitate return to the clinic for results and further treatment.

Plan and Management

Plan of Care

- **Underlying disease management goals.** Try to determine the etiology of heart failure (e.g., alcohol/drug-related, coronary artery disease, hypertension, right-sided heart failure secondary to smoking) in order to design the most effective plan of care. Homeless people often have several underlying disease processes that contribute to stresses on the heart.
- **Adherence.** At the end of every visit, discuss the plan of care with the patient; ask if anything about it is unclear or difficult, and work with him/her to address obstacles to adherence. Recognize that lifestyle changes (reduced fat intake, increased exercise, weight control) can be more difficult for homeless people due to limited access to healthy food.

Education, Self-Management

- **Self-management goals** Work with the patient to develop self-management goals appropriate to the etiology of heart failure. Ask the patient what s/he would like to work on. Set goals in collaboration with the patient and offer an incentive at the next follow-up if improvement is noted.
- **Diet/nutrition.** Teach the patient how to restrict dietary sodium to as close to 2 grams per day as possible; remind him/her not to add salt to foods and to eliminate foods with high sodium content, such as potato chips and salt-cured meats. Advocate for more nutritious food choices in shelters and soup kitchens. Refer the patient to a nutritionist, preferably on the clinical team, who is familiar with the limited food choices that homeless people typically have.
- **Fluids.** Some patients may need fluid restriction. It helps to put amounts into terms the patient can understand; use the patient's own water bottle, and

- specify how many full bottles s/he should drink each day. Understand that patients who are mainly outdoors may need more liberal amounts of fluids during hot weather.
- **Weight measuring.** Teach patients how to check their weight properly, and explain the implications of weight gain along with worsening symptoms. Allow patients to check their weight in the clinic without excessive waits.
 - **Substance use.** Explain that use of alcohol and other addictive drugs can cause further damage to the heart. Stress the importance of reducing/eliminating tobacco use — both smoking and chewing — and explain why. Promote smoking cessation. Use motivational interviewing to promote readiness for substance use treatment/therapy (Miller & Rollnick, 2002).
 - **Patient instruction.** Use simple language. If giving written instructions, make sure the patient can read and understand them. Use pictures and illustrations as much as possible. Provide instructions in the patient's first language.
 - **Written materials.** Be aware that some homeless patients do not read well in English or at all, are poorly educated, have cognitive deficits secondary to comorbidities, lack corrective lenses, or have blurred vision as a complication of hypertension and diabetes. But recognize that like other people, those who are homeless vary widely in intelligence, education, and literacy. Don't assume that a patient can't read or understand written information just because s/he is homeless. Provide educational materials in the patient's first language; use simple terminology and large print with graphic illustrations to compensate for any visual limitations (e.g., describing the DASH diet, ideas for sodium restriction, a recommended exercise program, and effects of alcohol and smoking on cardiovascular health). (Visit the National Heart, Lung and Blood Institute Web site for information about these topics: www.nhlbi.nih.gov/health/public/heart/index.htm)
 - **Portable information.** Give patients written information that is compact and can be carried with them (e.g., a wallet-sized card specifying latest blood pressure measurement; creatinine, blood urea nitrogen [BUN], and potassium levels; weight, cholesterol and high/low density lipoproteins).

Medications

- **Simple regimen.** Use the simplest medical regimen possible to facilitate treatment adherence. Use whatever medications are appropriate and available to the patient, considering medication expense and duration of treatment. (See American College of Cardiology/American Heart Association [ACC/AHA] guidelines, 2001, for currently recommended treatment options: <http://circ.ahajournals.org/cgi/content/full/104/24/2996#SEC3>.)
- **Diuretics.** Even though diuretics are standard treatment for heart failure, they can be difficult for homeless persons without access to bathrooms. Use alternative medications as appropriate. Be aware that diuretics can exacerbate dehydration, particularly in warmer climates. Also be aware that for patients taking medications with anticholinergic effects (especially patients with mental health problems taking older medications like phenothiazines), adding a diuretic increases the risk of hyperpyrexia and dehydration. Dangerous (even fatal) levels of hyperpyrexia can be triggered by anticholinergic medications in combination with diuretics in hot, humid environments. Work with service providers in your community to assure that homeless people have easy access to potable water and restrooms.

- **Medication boxes.** Since once-a-day dosing of medications may not be possible, use pre-filled medication boxes with medication dosage slots that can be removed and carried for the day, to facilitate treatment adherence.
- **Immunizations.** Provide immunizations against influenza annually and pneumococcal disease according to standard clinical guidelines.
- **Patient assistance.** If the patient does not have prescription drug coverage and is ineligible for Medicaid or other public health insurance, consider use of pharmaceutical companies' patient assistance programs (www.needymeds.com), and/or the U.S. Department of Health and Human Services 340B Pharmaceutical Discount program, if eligible (<http://bphc.hrsa.gov/opa/>) to obtain free or reduced cost medications.

Associated Problems, Complications

- **Medication toxicity.** Check medications prescribed elsewhere that may exacerbate heart failure (e.g., nonsteroidal anti-inflammatory drugs [NSAIDs], calcium channel blockers).
- **Edema.** It is not unusual for homeless people to be literally on their feet 24 hours a day, resulting in dependent edema that may mask or exacerbate swelling of the lower extremities secondary to heart failure. If the patient has no place to elevate his/her feet during the day, recommend sitting on the ground to decrease swelling.
- **Orthopnea.** Patients with heart failure often have difficulty breathing while lying down, which improves upon sitting or standing (orthopnea). Because some shelters don't have pillows, they may opt to sleep sitting up. If pillows are not already available, provide them; educate shelter providers about the patient's need to sleep with the head slightly elevated.
- **Physical/cognitive limitations.** Disabilities secondary to chronic illness or injury, frequently seen in homeless patients, can limit their capacity to follow a plan of care. Physical impairments, lack of facilities, and area of town in which the patient lives may limit his/her exercise alternatives. Cognitive deficits secondary to substance abuse, trauma, mental illness or medication side effects may limit their understanding of the disease process and compromise adherence to treatment. Tailor the plan of care to patient needs and capacities.
- **Literacy/language limitations.** A number of homeless people have trouble reading but may not volunteer this information out of embarrassment or shame. They may be illiterate or have a low literacy level in their primary language and/or in English, if it is not their native tongue. Assuming erroneously that the patient can read directions on medicine bottles or an appointment card can lead to serious complications and loss to follow-up. Ask if the patient "has trouble reading" at intake. Provide an interpreter for patients with limited English proficiency.
- **Multiple comorbidities.** Homeless people are at risk for myocardial infarction, strokes, and organ damage from uncontrolled cardiovascular disease and comorbidities (e.g., emphysema secondary to smoking, cirrhosis of the liver as a result of alcoholism). Recognize and address lifestyle factors and barriers to treatment and self-care that increase the patient's risk for negative health outcomes.
- **Chemical dependencies.** Be aware that substance use disorders, frequently seen in homeless patients, are medical problems that contribute to cardiovascular disease. Nicotine is the addictive drug most frequently used by

homeless people. Smoking elevates blood pressure and pulse rate, thus contributing to heart attack and stroke. Excessive alcohol use can result in cardiomyopathy, which may lead to heart failure. Cocaine and amphetamines cause cardiac arrhythmia, acute hypertension, stroke, and heart attacks. Ephedra and Mahuang ("white crosses"), dietary supplements used for weight loss, also have these effects. Uncontrolled withdrawal from excessive alcohol or drug use can result in rebound hypertension. Use motivational interviewing to promote readiness for concurrent treatment of substance use and cardiovascular disease (Miller & Rollnick, 2002).

- **Lost, stolen medications.** Dispense smaller amounts of medications to patients known to "lose" them; this not only improves their chance of adherence, but allows for closer follow-up. Loss of medication can be a problem when public health insurance does not allow for replacement; use 340B drug program or other source of free/reduced-cost medications. In addition, Federally Qualified Health Centers are sometimes able to purchase medicines that are not covered by health insurance.
- **Transience.** Recognize that the mobility of homeless patients may compromise continuity of care and make good, routine management of hypertension less likely than episodic, crisis care. Use positive incentives to encourage follow-up (e.g., Subway sandwich coupons). Provide each patient with a pocket card listing latest test results, vital signs, and current medications to document medical history for the next care provider.
- **Lack of transportation.** Homeless persons may be unable to return to the clinic because of lack of funds for transportation. Provide carfare to facilitate follow-up. Monitor blood pressure in the field, using outreach teams; network with other agencies and fire departments that are willing to check blood pressures for homeless people.
- **Lack of housing and income.** Establish relationships with members of the clinical team and with outreach service providers to facilitate entry into permanent housing, which will alleviate many of these associated problems. Document the patient's medical conditions and functional status with cognizance of disability determination procedures required for SSI/SSDI.

Follow-Up

- **Outreach, case management.** Work with case managers and outreach workers to facilitate treatment adherence and follow-up care that may include referrals to other facilities.
- **Frequency.** Consider more frequent (weekly or biweekly) follow-up visits to monitor weight, possible complications, and treatment adherence. Swollen feet and fluid in the lungs may indicate that the patient is not taking medications regularly. Keep lines of communication open and encourage regular follow-up, even if the patient does not adhere to the plan of care. Provide positive incentives to return to the clinic (e.g., food or coupons, socks, foot soaks, "priority passes" to assure that s/he will be promptly seen by a health care provider).
- **Contact information.** Verify contact information at each visit. Ask where the patient is staying (shelter, street or other locations where s/he usually sleeps or obtains meals) and how s/he can be contacted (e.g., phone/cell numbers, e-mail address). Request emergency contact information — address/phone number of a family member/friend/case manager with a stable address.

All recommendations for the treatment of homeless patients with heart failure presuppose use of the Model of Care described in the "Description of the Implementation Strategy" field.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

This is a guideline adapted from the following sources:

- National Heart, Lung, and Blood Institute /National Institutes of Health /US Department of Health and Human Services. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7), May 2003: www.nhlbi.nih.gov/guidelines/hypertension/index.htm
- National Heart, Lung, and Blood Institute /National Institutes of Health /US Department of Health and Human Services. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III), May 2001: www.nhlbi.nih.gov/guidelines/cholesterol/atp_iii.htm
- American College of Cardiology/American Heart Association. Guidelines for the Evaluation and Management of Chronic Heart Failure in the Adult, 2001: www.acc.org/clinical/guidelines/failure/pdfs/hf_fulltext.pdf and www.americanheart.org/downloadable/heart/5360_HFGuidelineFinal.pdf

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

These simple adaptations of established clinical guidelines will increase opportunities for homeless patients to receive the optimum standard of care and ultimately reduce mortality as a result of uncontrolled cardiovascular disease.

POTENTIAL HARMS

- *Diuretics* can exacerbate dehydration, particularly in warmer climates, for persons with limited access to water.
- Dangerous (even fatal) levels of hyperpyrexia can be triggered by *anticholinergic medications in combinations with diuretics* in hot, humid environments without adequate hydration.

- *Beta-blockers and clonidine* should be prescribed with caution, since discontinuing these medications suddenly can result in serious rebound hypertension.
- *Clonidine* can be misused by persons with chemical dependencies to prolong effects of heroin and other opioids.
- *Statins* may worsen health outcomes in persons with chronic transaminase elevations secondary to liver disease (hepatitis, or alcoholic cirrhosis).

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The information and opinions expressed in the guideline are those of the Advisory Committee for the Adaptation of Clinical Guidelines for Homeless Patients with cardiovascular diseases, not necessarily the views of the U.S. Department of Health and Human Services, the Health Resources and Services Administration, or the National Health Care for the Homeless Council, Inc.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The guideline was distributed to 161 Health Care for the Homeless (HCH) grantees across the United States. Five of these projects are participating in a Health Disparities Collaborative on Cardiovascular Disease. The HCH Clinicians' Network uses this venue to educate mainstream providers about the special needs of homeless patients. Adapted clinical guidelines including this one are also being used in workshops at national and regional conferences (e.g., Health Disparities Collaborative Learning Sessions, National Health Care for the Homeless Conference sponsored by the Bureau of Primary Health Care/HRSA/HHS).

HCH projects use outcome measures recommended by the Health Disparities Collaborative on Cardiovascular Disease in which the HCH Clinicians' Network is a national partner (available at: <http://www.healthdisparities.net/hdc/html/collaboratives.topics.cvd.aspx>).

The recommendations in this guideline presuppose the following model of health care delivery to unstably housed individuals for optimal health outcomes.

Model of Care

Outreach and Engagement

- **Outreach sites.** Conduct outreach on the streets, in soup kitchens, in shelters and other places where homeless people receive services. Certify non-medical staff to measure blood pressure at outreach sites. Educate outreach workers to look for swelling of lower extremities and encourage persons with edema (even if unrelated to heart failure) to seek care.
- **Clinical team.** Include both medical and social service providers on the clinical team. Hire staff proficient in languages used by the populations you

serve. Use outreach workers and case managers to promote initial engagement with the patient. Involvement of all team members — outreach workers, case managers, medical providers, mental health professionals, substance abuse counselors, and a nutritionist — in care planning and coordination is important to facilitate engagement, diagnosis, treatment, and follow-up of persons experiencing homelessness.

- **Nonjudgmental care.** Nonjudgmental and supportive patient interactions with members of the clinical team are essential for successful engagement in a trusting therapeutic relationship, which is instrumental in motivating adherence to a plan of care.
- **Incentives.** Offer incentives to promote engagement (e.g., food and drink [or vouchers for same], hygiene products [toothpaste, brushes, socks]), subway/bus cards or tokens.
- **Patient privacy.** Bring homeless patients to examining rooms as soon as possible. Be sensitive to the fact that persons experiencing homelessness may be self-conscious about poor hygiene, over which they may have little control. Recognize that many homeless patients have experienced interpersonal violence and/or sexual abuse, and that while waiting for extended periods in public settings, they may not feel safe.

Service Delivery Design

- **Standard of care.** Health care providers are challenged to provide the same, evidence-based standard of care to patients who are homeless as to patients who have more resources. The application of outcomes-based medicine can be more challenging with homeless patients, but elimination of health disparities between these patients and the general population should be a clinical goal.
- **Multiple sites.** Provide primary care at multiple points of service, as feasible. Offer blood pressure checks at all sites where homeless individuals receive services. Have a scale available for clients to weigh themselves. Consider using electronic medical records, if feasible, to promote continuity of care among multiple service sites (e.g., clinics, drop-in centers, and outreach sites).
- **Integrated, interdisciplinary services.** Coordinate medical and psychosocial services across multiple disciplines and delivery systems, including the provision of food, housing and transportation to service sites. Optimally, medical and psychosocial services should be easily accessible at the same location; fragmented service systems do not work well for homeless people. Resolution of the patient's homelessness is prerequisite to resolution of numerous health problems, and should be a central goal of the health care team.
- **Flexible clinic schedules.** Appointments are frequently missed by homeless patients. Provide walk-in clinics or designated slots for walk-in clients in every primary care clinic, so that appointments aren't necessary. Designate one or two walk-in providers in each clinic session to see new patients or returning patients that may have missed a primary care appointment. Allow patients to check their blood pressure in the clinic on a walk-in basis, recognizing that those with elevated blood pressure should always be seen by a provider.
- **Early appointments.** Allow patients easy access to early clinic appointments, especially if they are fasting. Some soup kitchens serve meals early; requiring homeless patients to fast may prevent them from getting

something to eat until many hours later. Offering food/snacks in the clinic may make it easier for homeless patients to agree to fast before diagnostic tests are done.

- **Hygiene.** Provide shower facilities at clinics, where possible.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Brammer S, Gee B, Hale A, Kopydlowski MA, Post P, Rabiner M, Reller C, Strehlow A. Adapting your practice: treatment and recommendations for homeless patients with cardiovascular diseases. Nashville (TN): Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc.; 2004. 44 p. [33 references]

ADAPTATION

This guideline was adapted from the following sources:

- National Heart, Lung, and Blood Institute /National Institutes of Health /US Department of Health and Human Services. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7), May 2003: www.nhlbi.nih.gov/guidelines/hypertension/index.htm
- National Heart, Lung, and Blood Institute /National Institutes of Health /US Department of Health and Human Services. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III), May 2001: www.nhlbi.nih.gov/guidelines/cholesterol/atp_iii.htm
- American College of Cardiology/American Heart Association. Guidelines for the Evaluation and Management of Chronic Heart Failure in the Adult, 2001: www.acc.org/clinical/guidelines/failure/pdfs/hf_fulltext.pdf and www.americanheart.org/downloadable/heart/5360_HFGuidelineFinal.pdf

DATE RELEASED

2004

GUIDELINE DEVELOPER(S)

Health Care for the Homeless (HCH) Clinician's Network - Medical Specialty Society
National Health Care for the Homeless Council, Inc. - Private Nonprofit Organization

SOURCE(S) OF FUNDING

The Bureau of Primary Health Care, Health Resources and Services Administration, U.S. Department of Health and Human Services

GUIDELINE COMMITTEE

Advisory Committee on Adapting Clinical Guidelines for Homeless Patients with Cardiovascular Diseases

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The Health Care for the Homeless (HCH) Clinicians' Network has a stated policy concerning conflict of interest. First, all transactions will be conducted in a manner to avoid any conflict of interest. Secondly, should situations arise where a Steering Committee member is involved in activities, practices or other acts which conflict with the interests of the Network and its Membership, the Steering Committee member is required to disclose such conflicts of interest, and excuse him or herself from particular decisions where such conflicts of interest exist.

No conflicts of interest were noted during preparation of this guideline.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [National Health Care for the Homeless Council, Inc. Web site](#).

Print copies: Available from the National Health Care for the Homeless Council, Inc., P.O. Box 60427, Nashville, TN 37206-0427; Phone: (615) 226-2292

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

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