ADAPTING YOUR PRACTICE

Treatment and Recommendations for Homeless Patients with Hypertension, Hyperlipidemia and Heart Failure

Cardiovascular Diseases

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Treatment and Recommendations for Homeless Patients with Cardiovascular Diseases: Hypertension, Hyperlipidemia and Heart Failure

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Health Care for the Homeless
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DISCLAIMER

The information and opinions expressed in this document are those of the Advisory Committee on Adapting 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.

PREFACE

Clinicians with extensive experience caring for individuals who are homeless routinely adapt their medical practice to foster better outcomes for these patients.

Standard clinical practice guidelines often fail to take into consideration the unique challenges faced by homeless patients that may limit their ability to adhere to a plan of care. Recognizing the gap between standard clinical guidelines and clinical practices used by health care providers experienced in the care of individuals who are homeless, the Health Care for the Homeless (HCH) Clinicians' Network has made the adaptation of clinical practice guidelines for homeless patients one of its top priorities.

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.

We hope these recommendations provide helpful guidance to primary care providers serving individuals who are homeless, and that they will contribute to improvements in both quality of care and quality of life for these patients.

Patricia A. Post, MPA
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INTRODUCTION

Cardiovascular diseases are highly prevalent among people experiencing homelessness (Szerlip, 2002; Burt, 1999; Hwang, 1999; Kleinman, 1997; White, 1997; Kinchen and Wright, 1991; Wright, 1990; Plantieri et al, 1990; Gelberg, 1990). Among those most commonly seen by primary care providers serving homeless patients are hypertension (high blood pressure), hyperlipidemia (high blood cholesterol/triglycerides) and heart failure (impaired cardiac function, often resulting from uncontrolled hypertension and/or hyperlipidemia).

Homeless adults are significantly more likely to have hypertension than either the general adult population or poor adults who are housed. A 1985–88 study of over 63,000 homeless clinic patients in 17 cities found that homeless adults were two to four times more likely to have hypertension than urban adult respondents to the National Ambulatory Medical Care Survey (NAMCS) (Wright, 1990). Researchers in San Francisco compared self-reported health conditions of 2,780 homeless adults, 1990–93, to those reported by adult respondents to the National Health Interview Survey (NHIS). They found the number of homeless adults age 18–44 reporting high blood pressure to be 1.66 times as high as expected, using NHIS rates (White et al, 1997, as cited in Zerger, 2002). A retrospective study in New Orleans, comparing 100 patients seen at a homeless clinic with 200 matched nonhomeless patients at an inner-city primary care clinic, found hypertension to be 1.78 times more common (65 percent vs. 52 percent) among the homeless patients (Szerlip, et al, 2002). High rates of alcohol and other drug use among homeless people contribute to their risk for high blood pressure; nevertheless, even among non-alcohol-abusing homeless men, the rate of hypertension exceeds that reported for the general population by a factor of two (Wright, 1990).

Elevated serum cholesterol has also been found to be more prevalent among homeless adults than in the general adult population. Of 521 homeless adults included in a community-based study in Los Angeles, 36 percent under age 50, and 55 percent age 50 and older, had elevated cholesterol levels (Gelberg et al, 1990). By comparison, only 12 percent of all U.S. adults under age 45, and 25 percent of adults age 45 and older had high serum cholesterol (1988-94), according to the National Health and Nutrition Examination Survey (NHANES) III (CDC, 2003). Although the prevalence of heart failure among people who are homeless has not been documented, primary care providers serving this population report that heart failure is frequently seen among middle-aged homeless adults, secondary to alcohol use disorders and to chronic, uncontrolled hypertension and hyperlipidemia. As in other populations, the prevalence of these cardiovascular diseases increases sharply with age.

Homeless adults bear a higher risk for heart disease, although they are chronologically younger than the general adult population. Three-fourths of surveyed homeless people nationwide are under the age of 45, compared to about one-half of the U.S. population, and only 2 percent of surveyed homeless people are 65 or older, compared to about 12 percent of the general population (Burt, 1999;

2000 Census). Heart disease is a leading cause of death in middle-aged homeless persons (45–64 years) (Hwang, 1999). Practitioners serving homeless people report that treatment of heart disease in these patients often requires earlier hospitalization than for domiciled patients due to their greater difficulty controlling sodium and fat intake and obtaining bedrest (Fleischman and Farnham, 1992). Although they are chronologically younger, health and functional problems of homeless adults in their forties and fifties resemble those of geriatric persons in the general population. (Gelberg, et al, 1990)

Among the factors that increase homeless peoples' risk for these diseases are poor diet and excessive use of alcohol, nicotine and other drugs. Even when sufficiently motivated to reduce blood pressure or cholesterol levels through lifestyle changes, homeless individuals have difficulty maintaining weight reduction and low-sodium, low-fat diets. Food selection in most shelters and soup kitchens is limited, and vigorous exercise may be constrained by the lack of comfortable walking shoes and socks or common, co-occurring musculoskeletal problems secondary to arthritis or injury (Wright, 1990). One in five Americans has a substance abuse problem, compared to an estimated one in three homeless clients (Burt, 1999). Smoking is far more common among homeless than nonhomeless people (Szerlip, 2002; Connor, 2002); about 70 percent of studied homeless populations smoke nicotine, compared to 25 percent of the general US population (Sachs-Ericsson, 1999).

When pharmacotherapy is indicated, many homeless people may resist treatment or have extreme difficulty adhering to the medical regimen—particularly those who suffer from psychiatric illnesses, mental retardation, and/or substance abuse. Lacking resources and health insurance, and living in crisis, persons experiencing homelessness tend to seek care only in emergencies. Storage space is limited, requiring them to carry medications with them. As a result, pills are often lost, stolen, or crumble in pockets from the movement of walking. Multi-dose regimens are confusing and especially challenging for homeless individuals. Poor water intake and lack of access to bathroom facilities complicate the use of diuretics. Despite these impediments experienced homeless service providers and their clients have demonstrated that cardiovascular risks can be reduced and emergencies prevented with a comprehensive, client-centered approach to care and self-management. (Plantieri et al, 1990)

Clinical practice guidelines for people with cardiovascular diseases who are homeless are fundamentally the same as for those who are housed. Nevertheless, primary care providers who routinely serve homeless patients recognize an increased need to take living situations and co-occurring disorders into consideration when working with these patients to develop a plan of care. The recommendations in this guide were developed to assist clinicians who provide cardiovascular care to homeless adults. It is our expectation that 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 cardiovascular disease.

Three primary sources for these adaptations are: 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); the Third Report of the 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); and the 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). Recommendations found in these standard clinical guidelines are not restated in this document except to clarify a particular adaptation for homeless patients or to point to higher health risks for homeless populations. The recommended practice adaptations are intended to supplement—not to supplant—the standard clinical guidelines listed above.

For the convenience of clinicians, disease-specific recommendations are presented at the beginning of this document, followed by more general recommendations describing the model of care that practitioners experienced in the care of homeless individuals consider to be essential for effective treatment. These general recommendations emphasize the importance of outreach and engagement skills and modification of the traditional service delivery system to make it more accessible to people with a host of comorbid conditions who lack residential stability and control over other aspects of their lives.

CASE STUDY: HOMELESS ADULT WITH HYPERTENSION

Presentation: H.T. is a 45–year-old Caucasian male who came to the homeless clinic for refill of an antihypertensive medication (clonidine). Transient and without a regular source of care, he says that he has been out of his medication for 3 days. ("I feel bad and really need my blood pressure medicine.")

History of present illness: The patient reports a 10-year history of hypertension. Clonidine is "the only medication that has ever worked" to control his blood pressure, he says. He denies a history of myocardial infarction, stroke or diabetes mellitus. There is no information about previous providers.

Medical history: The patient has no known drug allergies. He smokes 1-2 packs of cigarettes per day and denies alcohol use or abuse. Although he has a history of opiate dependence and polypharmacy abuse, H.T. says he has been "clean for several years" after participating in several treatment programs. The patient limps, with some pain and unsteadiness, status post reconstruction of his left leg following a motor vehicle accident years ago. He says there is a history of hypertension and substance abuse in his family.

Social history: H.T. is single and estranged from his families, who have "plenty of money but are sick of me." New to town, he is currently living in an emergency shelter.

Symptoms: angina; no shortness of breath or dyspnea on exertion.

Physical Examination: blood pressure 200/150; pulse 110; height 5'10"; weight 150#; appears older than stated age. Essentially normal exam otherwise (no heart murmur, lungs clear, no lower extremity edema, no focal neurologic findings) and no acute changes evident on EKG.

Assessment: hypertensive urgency; suspected misuse of clonidine.

Plan of care: recommended immediate referral to emergency room of local hospital for urgent antihypertensive therapy.

Outcome: After repeated but unsuccessful attempts to persuade the patient to go to the ER, he was treated in the clinic. It took several hours to bring his blood pressure below a dangerous level using clonidine. On subsequent visits he had persistent labile hypertension and resisted any attempts to try other medications. Eventually, H.T. admitted to seeking clonidine from multiple providers and identified its use as "an addiction." [Although clonidine is not known to have addictive properties, it is frequently sold on the street to extend the effects of heroin and reduce withdrawal symptoms for persons addicted to opioids.]

Abby Hale, PA-C, Community Health Center of Burlington, Vermont, 2003

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 EXAMINATION

- **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, HDL, and direct measurement of LDL, if available (recognizing that direct LDL is generally more expensive). Total cholesterol, HDL, and direct LDL can be measured non-fasting. Triglyderides 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, high/low density lipoproteins (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 DSM-IV criteria for diagnosing major depression. The PHQ-9 is available online at:
  English : www.healthdisparities.net/HDCToolsandManuals/Depression-Decision%20Support/PHQ-9_Patient_Questionaire.doc
  Spanish: www.healthdisparities.net/HDCToolsandManuals/Depression-Decision%20Support/PHQ-9_Patient_Questionaire-Spanish.doc
  A 2-item pre-screen (PHQ-2) has also been validated for use in primary care (Staab and 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.)

- **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 BP 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 dieticians as consultants to workers who prepare food. (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 pre-filled 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 and 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

- **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 on pages 30 and 31 of this document.

CASE STUDY: HOMELESS ADULT WITH METABOLIC SYNDROME

Presentation: 47 year-old homeless African American requests a blood pressure check.

Medical history: 10-year history of hypertension, no current medications due to transient living conditions. Unsure of medications used in the past. Denies history of cardiovascular disease, diabetes, cancer, asthma, hyperlipidemia, myocardial infarction, or chest pain. No hospitalizations. Positive family history for hypertension, cardiovascular disease, Type 2 diabetes, and drug/alcohol abuse, but no cancer.

Mental health/substance use history: Tobacco use: 20 pack-years. No desire to quit, as considers it a stress reducer while recovering from drug abuse. Weekly-to-monthly crack cocaine use for 7-10 years. 3-month (current) participation in residential drug/alcohol treatment program. No history of psychiatric illness.

Psychosocial history: Homeless for 10 years. Lost welfare benefits for nonadherence to work program requirements; current residential drug treatment program does not allow recipients to obtain welfare. Only social supports are "drinking buddies"; no family contact for years. Eats in soup kitchens/shelters; walking moderate distances required to reach them.

Review of systems: Essentially benign except for positive dyspnea on exertion and shortness of breath, which the patient attributes to his weight. No orthopnea; able to sleep supine on 2 pillows. No cough, nausea, vomiting, diarrhea, headaches, polydipsia, polyphagia, polyuria or visual changes.

Physical exam: weight 240#, height 70", Body Mass Index (BMI) 34.4, percent body fat 42, abdominal girth 49", blood pressure 137/92, heart rate 72 (regular rate and rhythm). No edema in lower extremities, +3/4 pulses. All other findings within normal limits.

Labs: Fasting Blood Sugar (FBS) ↑160; total cholesterol ↑267; triglycerides ↑1107; High Density Lipoprotein (HDL) ↓ 23; unable to calculate Low Density Lipoprotein (LDL) due to high triglyceride level; cholesterol/HDL risk ratio ↑11.6; glycohemoglobin A1c 7.1; mean blood glucose 150. Liver function tests, creatinine, microalbumin normal.

Clinical assessment: Metabolic Syndrome (Type 2 diabetes mellitus, stage 1 hypertension (untreated), obesity, atherogenic dyslipidemia); nicotine and cocaine dependence.

Plan of care: Treatment goals: for patient with Type 2 diabetes (CAD equivalent), LDL goal is <100; non-HDL cholesterol goal is <130. Rx: pravastatin 40 mg at bedtime, Slow-Niacin 500 mg twice a day, monopril 20 mg daily (available at no cost with minimal requirements through pharmacy drug assistance program). Consider beginning metformin 500 mg daily for diabetes, although lipid control expected to reduce glucose level; stress diet and exercise, recognizing need to reduce elevated triglycerides, and surveillance of possible end organ damage. Return to clinic monthly. Explain importance of evaluating medications, lab results, and possible side effects/disease symptoms, especially if lapse in recovery from alcohol/drug use. Discuss nonjudgmentally; encourage return to clinic if relapse occurs. Repeat lipid profile in 4-6 weeks to evaluate LDL/VLDL levels when triglycerides are lower, and LFTs; also check creatine kinase (CK) if there are symptoms of myopathy. Educate patient, shelter kitchen staff about dietary needs: low fat, low salt, ADA diet.

Aaron Strehlow, PhD, FNP-C, RN – UCLA School of Nursing Health Center, Los Angeles, California, 2003

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 et al, 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 ausculation 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, HDL cholesterol, and direct 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 (ATP III, 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.nhlbi.nih.gov/health/public/heart/chol/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 ($\leq$ 2 ounces / day in men, $\leq$ 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 transaminiase 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 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 and 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 on pages 30 and 31 of this document.

CASE STUDY: HOMELESS MAN WITH HEART FAILURE

Presentation: J.M. is a 64-year-old obese, Hispanic male referred to clinic for "painful swollen ankles." The patient is disheveled and appears much older than his stated age. He smells of cigarette smoke but not of alcohol. His pants have urine stains on them. He reports difficulty ambulating secondary to "sore legs" and "hard breathing," and becomes tired walking even one block. He sleeps in a park, but has to get up at night to urinate and is sometimes not able to make it to the bathroom, which is on the other side of the park. Upon first inspection, his lower extremities are very swollen and his abdomen is very protuberant.

Medical history: J.M. says he has been told he has high blood pressure, but has not taken medication consistently. He has visited 3 different emergency rooms in the last 2 months for "asthma" and was hospitalized once for "about a week." He does not have a copy of his discharge papers, nor does he remember the name of the doctor who took care of him. His medication bottles from multiple providers are in complete disarray, with multiple medications in one bottle and empty bottles elsewhere. He does not have a primary care provider. He goes to the emergency room when he "can't take it anymore" and reports having stayed in the hospital one other time, 10 years ago, after having "heart trouble." He denies history of diabetes and is not sure about his cholesterol; not sure about family history. He gives no other pertinent information.

Psychosocial History: J.M. has a history of schizophrenia for which he does not take medication. He smokes one pack of cigarettes per day and binge drinks (is sober for 1-2 months between binges). He has refused shelter placement in the past, but now expresses willingness to stay there because of current symptoms.

Physical Exam: blood pressure 170/94; respiratory rate 22-24; pulse 90 and irregular; temperature 98.6; pain 4/10 in lower extremities; weight 262, height 5' 7". Pertinent positives on PE: coughing in chair (no sputum production), distended jugular veins, rales on auscultation, laterally displaced apical impulse with an S3 gallop, hepatomegaly, protuberant abdomen with tympany and RUQ pain on moderate palpation, lower extremity edema (+2) with poor capillary refill (>6 secs) and somewhat cool to touch.

Diagnostic Tests: urine dipstick: specific gravity1.020, pH 6.5, negative for protein glucose, blood nitrites or leukocytes, creatinine1.5, sodium 139, potassium 4.0, chloride100, co2 28, glucose167

Assessment: Congestive heart failure (clinical findings consistent with left ventricular failure, pulmonary congestion, as well as right-sided heart failure); untreated schizophrenia; COPD secondary to smoking; nicotine dependence; alcohol dependence, binge pattern; high likelihood of metabolic syndrome.

Plan of Care: Rx: furosemide and lisinopril once daily to simplify adherence (after normal creatinine and electrolytes confirmed); Albuterol and ipratropium (Atrovent) inhalers. Patient advised to take diuretic early in the morning to avoid having to urinate at night. Local homeless day center identified where patient can stay for much of the day and use toilet facilities. Shelter bed located but not available for 2 days; note written to shelter staff requesting bed close to bathroom, if possible. Patient advised to sit on the ground or a chair/bench with legs elevated, if possible. Encouraged return to clinic for frequent (1-2 day) follow-up, using positive incentives (e.g., food, socks, foot soaks). Referrals for alcohol treatment/to psychiatrist offered, but patient declined, saying he will stop using alcohol on his own. Patient not able to come back fasting for labs, so total cholesterol HDL and direct LDL and hemoglobin A1C drawn on this visit. Follow-up plan: monitor electrolytes, weight, renal function, treatment adherence; arrange for chest x-ray, ECG, echocardiogram and pulmonary function test to identify underlying etiology; assess lipids (preferably fasting) and diabetes severity; consider stress test to rule out CAD. Continue to educate patient about his condition. At every visit, ask about alcohol use and offer support from onsite case manager/addiction counselor.

Mark Rabiner, MD, Saint Vincents Catholic Medical Centers, Saint Vincents Manhattan, New York, New York, 2003

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 — hypertension, diabetes, lipids, etc. — 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 (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 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 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 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 and 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 BP 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 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 and 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 on pages 30 and 31.

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 be 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.

PRIMARY 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 www.americanheart.org/downloadable/heart/5360_HFGuidelineFinal.pdf

OTHER REFERENCES

Brickner PW, McAdam J, Vicic WJ, Doherty P. Strategies for the delivery of medical care: Focus on tuberculosis and hypertension. In: Robertson MJ ed; Greenblatt M ed; *Homelessness: A National Perspective*; 165–174, 1992.

Brickner PW, Kaufman K. Case findings of heart diseases in homeless men. *Bulletin of the New York Academy of Medicine*, 49(6): 475–484.

Burt, M R., et al. *Homelessness: Programs and the People They Serve – Findings of the National Survey of Homeless Assistance Providers and Clients.* The Urban Institute, December 7, 1999: www.urban.org/housing/homeless/homeless-tech.html

Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services. Cholesterol Status Among Adults in the United States, National Health and Nutrition Examination Survey (NHANES) III (1988–94), July 2003: www.cdc.gov/nchs/data/nhanes/databriefs/ adultcholesterol.pdf

Child J, Bierer M, Eagle K. Unexpected factors predict control of hypertension in a hospital-based homeless clinic. *Mt Sinai J Med*, 65(4): 304–7, 1998.

Connor SE, Cook RL, Herbert M, Neal SM, Williams JT. Smoking cessation in a homeless population: There is a will, but is there a way? *Journal of General Internal Medicine,* 17(5): 369–372, 2002.

Dimsdale JE, Mills P, Patterson T, Ziegler M, Dillon E. Effects of chronic stress on beta-adrenergic receptors in the homeless. *Psychosom Med*, 56(4): 290–5, 1994.

Folsom DP, McCahill M, Bartels SJ, Lindamer LA. Medical comorbidity and receipt of medical care by older homeless people with schizophrenia or depression. *Psychiatr Serv*, 53 (11): 1456–60, 2002.

Gelberg L, Linn LS, Mayer-Oakes SA. Differences in health status between older and younger homeless adults. *Journal of the American Geriatric Society*, 38(11): 1220–9, Nov 1990.

HCH Clinicians' Network. Heart of the matter: Hypertension & homelessness. *Healing Hands*, 5(2): April 2001: www.nhchc.org/Network/HealingHands/2001/April2001HealingHands.pdf

Heffron WA et al. Health and lifestyle issues as risk factors for homelessness. *J Am Board Fam Pract*, 10(1): 6–12, 1997.

Hwang SW, Orav EJ, O'Connell JJ, Lebow JM, Brennan TA. Causes of death in homeless adults in Boston. *Annals of Internal Medicine*, 126(8): 625–628, Apr 15, 1997.

Institute of Medicine. Homelessness, Health, and Human Needs, 1988: www.nap.edu/books/0309038324/html/1.html

Kellogg R. Hypertension — A screening and treatment program for the homeless. In: Brickner PW, Scharer LK, Conanan B, Elvy A, Savarese M, editors. *Health Care of Homeless People*. New York: Springer Publishing; 1985.

Kinchen K, Wright JD. Hypertension management in health care for the homeless clinics: Results from a survey. *Am J Public Health,* 81 (9):1163–1165, 1991.

Kleinman LC, Freeman H, Perlman J, Gelberg L. Homing in on the homeless: Assessing the physical health of homeless adults in Los Angeles County using an original method to obtain physical examination data in a survey. *Health Serv Res*, 31(5): 533–49, 1997.

Luder E, Ceysens-Okada E, Koren-Roth A, Martinez-Weber C. Health and nutrition survey in a group of urban homeless adults. *Journal of the American Dietetic Association*, 90(10): 1387–92, Oct 1990.

Macnee CL, Hemphill JC, Letran J. Screening clinics for the homeless: evaluating outcomes. *J Community Health Nurs*, 13(3): 167–77, 1996.

McMurray-Avila M, Gelberg L, Breakey WR. Balancing act: Clinical practices that respond to the needs of homeless people. Symposium on Homelessness Research sponsored by HUD/HHS, 1998: http://aspe.hhs.gov/progsys/homeless/symposium/8-Clinical.htm

Michael M, Brammer S. Medical treatment of homeless hypertensives. *Am J Public Health*, 78(1): 94, Jan 1988.

Plantieri O, Vicic W, Byrd R, Brammer S, Michael M. Hypertension screening and treatment in the homeless. In: Brickner PW, Scharer LK, Conanan BA, Savarese M, Scanlan BC. *Under the Safety Net: The Health and Social Welfare of the Homeless in the United States*. New York: W.W. Norton & Company, 1990: 250–260.

Sachs-Ericsson N, et al. Health problems and service utilization in the homeless. *J Health Care Poor and Underserved*, 10(4): 443–452, 1999.

Staab JP and Evans DL. A streamlined method for diagnosing common psychiatric disorders in primary care; *Clin Cornerstone* 3(3):1-9, 2000. © 2000 Excerpta Medica, Inc.: www.medscape.com/viewarticle/407396_1 (Posted 01/01/2001).

Szerlip MI, Szerlip HM. Identification of cardiovascular risk factors in homeless adults. *Am J Med Sci*, 324(5): 243–6, 2002.

Vicic WJ. Homelessness. *Bull N Y Acad Med*, 67(1): 49–54, 1991.

Vredevoe DL, Brecht ML, Shuler P, Woo M. Risk factors for disease in a homeless population. *Public Health Nursing*, 2(4), 263–269, 1992.

White MC, Tulskey JP, Dawson C, Zolopa AR, Moss AR. Association between time homeless and perceived health status among the homeless in San Francisco. *Journal of Community Health,* 22(4): 271–82, Aug 1997.

Wright JD. Poor People, Poor Health: The health status of the homeless. In: Brickner PW, Scharer LK, Conanan BA, Savarese M, Scanlan BC. *Under the Safety Net: The Health and Social Welfare of the Homeless in the United States*. New York: WW Norton & Co., 1990: 15–31.

Wright J, Weber E. *Homelessness and Health*. New York: McGraw-Hill, 1987.

Zerger S. *Chronic Medical Illness and Homeless Individuals: A Preliminary Review of Literature.* National Health Care for the Homeless Council, April 2002: www.nhchc.org/Publications/literaturereview_chronicillness.pdf

SUGGESTED RESOURCES

Kraybill K. *Outreach to People Experiencing Homelessness: A Curriculum for Training Health Care for the Homeless Outreach Workers*. National Health Care for the Homeless Council, June 2002: www.nhchc.org/Publications/

Kraybill K and Zerger S. *Providing Treatment for Homeless People with Substance Use Disorders: Case Studies of Six Programs*. National Health Care for the Homeless Council, August 2003: www.nhchc.org/Advocacy/FactSheets/CA05RCaseStudies-FINAL5.pdf

McMurray-Avila M. *Organizing Health Services for Homeless People*, 2nd Edition. ISBN: 0971165092. Nashville: National Health Care for the Homeless Council, Inc., 2001. Table of contents, ordering information at: www.nhchc.org/Publications/Pagesfrom2ndedition-101901.pdf

Melnick SM and Bassuk EL. *Identifying and Responding to Domestic Violence Among Poor & Homeless Women*. The Better Homes Fund, February 2000: www.nhchc.org/Publications/domesticviolence.htm

Miller WR and Rollnick S. *Motivational Interviewing: Preparing People to Change Addictive Behavior*, 2nd Edition. ISBN: 1572305630. New York: Guildford Press, 2002.

Holzwarth J. *Addressing Cultural and Linguistic Competence in the HCH Setting: A Brief Guide*. National Health Care for the Homeless Council, 2002: www.nhchc.org/Cultural/index.htm

National Health Care for the Homeless Council. *Health Care for the Homeless: An Introduction*. 22 minute video and user's guide, June 2001. To order: www.nhchc.org/Publications/

National Health Care for the Homeless Council. *Health Care for the Homeless: Outreach*. 21 minute video, June 2001. To order: www.nhchc.org/Publications/

WEBSITES

American Heart Association	www.americanheart.org/presenter.jhtml?identifier=1200000
American Society of Hypertension	www.ash-us.org/
Centers for Disease Control and Prevention Cardiovascular Disease site	www.cdc.gov/health/cardiov.htm
Health Disparities Collaboratives Cardiovascular Disease Collaborative	www.healthdisparities.net/collaboratives_cardio.html
National Heart, Lung, and Blood Institute	www.nhlbi.nih.gov
World Health Organization Cardiovascular Disease site	www.who.int/cardiovascular_diseases/en/?s=0009

ABOUT THE HCH CLINICIANS' NETWORK

Founded in 1994, the Health Care for the Homeless Clinicians' Network is a national membership association that unites care providers from many disciplines who are committed to improving the health and quality of life of homeless people. The Network is engaged in a broad range of activities including publications, training, research and peer support. The Network is operated by the National Health Care for the Homeless Council, and our efforts are supported by the Health Resources and Services Administration, the Substance Abuse and Mental Health Services Administration, and member dues. The Network is governed by a Steering Committee representing diverse community and professional interests.

To become a member or order Network materials, call 615 226-2292 or write to network@nhchc.org. Please visit our Web site at www.nhchc.org.