

HEALING HANDS



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Diabetes: Health Care's Burgeoning Beast

An increasing proportion of the U.S. population is reported to have diabetes (insulin resistance) or pre-diabetes (impaired glucose tolerance and/or fasting glucose). Individuals with diabetes who are homeless are at far greater risk of poor glycemic control than are those with stable housing and therefore more likely to suffer long-term damage to their eyes, kidneys, nerves, and heart. Although current incidence and prevalence of diabetes among homeless people are not available, over 40% suffer from chronic diseases including diabetes. The following articles explain the reasons for higher morbidity and mortality related to diabetes and what clinicians working with homeless people recommend to address this critical health disparity.

BACKGROUND Today, diabetes is a rampaging international problem. According to the American Diabetes Association (ADA), 20.8 million children and adults living in the United States—7% of the population—have diabetes. Of this group, 14.6 million have been diagnosed; unfortunately the other 6 million don't know they are sick (www.diabetes.org). Diabetes mellitus is recognized as a constellation of metabolic diseases that results in chronic hyperglycemia due to defects in insulin action or secretion. Among the top ten causes of death in the U.S. since the 1930s, diabetes has now become the sixth leading cause of death.

DEFINITIONS Diabetes is manifest in several different forms whose etiologies are not yet fully understood, despite significant advances in scientific understanding of this disease (ADA, 2007; Brehove et al., 2007; Benoit et al., 2005).

- **Type 1 diabetes** is an immune-mediated disease that results from destruction of beta-cells in the pancreas, rendering the body unable to produce insulin. It accounts for only 5–10% of those who have diabetes.
- **Gestational diabetes** is any degree of glucose intolerance that occurs at the onset of pregnancy or during gestation without preexisting or concurrent etiology. It impacts 4% of pregnancies the U.S.—approximately 135,000 cases each year.
- **Type 2 diabetes** results from insulin resistance, or the body's failure to use insulin properly, combined with relative insulin deficiency, which means that early and often during the course of the disease there is no need for insulin treatment. Type 2 is the most common form of diabetes and accounts for 90–95% of diagnoses. People with Type 2 diabetes, including increasing numbers of children and adolescents, are often obese or have an increased proportion of abdominal fat. Because hyperglycemia develops gradually, many individuals are not aware of any symptoms. Sugar—the basic fuel for cells—accumulates in the blood stream because insulin isn't moving it into the cells. The results are cells starved for energy and ongoing damage to body organs including the eyes, kidneys, nerves, and heart.
- **Pre-diabetes** is the current term that identifies impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT) as risk factors for future

diabetes and cardiovascular disease. IFG is a condition in which the blood sugar level is high (100 to 125 mg/dl) after an overnight fast but not high enough to be classified as diabetes. IGT may be marked by blood sugar levels of ≥ 126 mg/dl, although hyperglycemia may only manifest when provoked by oral glucose challenge (ADA, 2007). With an increasingly sedentary and obese population, clinicians see many people with blood glucose levels that are higher than normal but not yet at Type 2 levels. The ADA estimates that there are 54 million Americans who have pre-diabetes in addition to almost 21 million who already have the disease.

SYMPTOMS Excessive urination (polyuria), chronic excessive thirst and intake of fluids (polydipsia), and unexplained weight loss signal diabetes. When these symptoms are not extreme, they may be recognized as inconveniences but not a healthcare problem. As with other chronic conditions, however, if disease symptoms remain undetected or ignored, high blood sugar will continue to cause cellular damage behind the scenes. Research has shown that improved glycemic control reduces microvascular complications that damage the eyes, kidneys, and nerves (Benoit et al., 2005). Symptom awareness and self-management supports are indeed powerful tools to help avert catastrophic consequences.

DIET AND EXERCISE Larger waistlines having become the norm (Christakis et al., 2007), only recently have we recognized the consequences of super-sizing every meal. Americans have become a fast food nation, feasting on a processed food chain polluted with fats and sugars. Refined carbohydrates such as high fructose corn syrup are pervasive ingredients not only in sodas and fruit drinks (Gross et al., 2004) but in ketchup, salad dressing, spaghetti sauce, crackers, frozen dinners, and the array of baked goods. Coupled with the lack of physical exercise exacerbated by sedentary work and leisure activities or medical impairments, the large quantities of sugar ingested at each meal are never metabolized. These lifestyle choices have led to the epidemic numbers reported by the ADA.

While this issue focuses on adults, diet and exercise are particularly important for children and adolescents. It is enormously difficult for teens to avoid fast foods completely in the face of peer pressure, which adds to the importance of working with the teen and parent(s) to find good diet solutions.

MEDICATION SIDE EFFECTS While the advent of atypical antipsychotic medications (e.g. olanzapine, risperidone, quetiapine, ziprasidone, clozapine) have provided increased effectiveness for clients with schizophrenia and bipolar disorders, there have been unexpected side effects. Reports of weight gain, new diabetes diagnoses, and diabetes exacerbations were serious enough to be considered by a consortium of scientists who issued a consensus statement on the care of patients with psychiatric disorders, who might be at increased risk of developing adverse metabolic sequelae from psychotropic medications (ADA, APA, AACE, NAASO Consensus, 2004; Barrett, 2004).

CLINICAL SIGNIFICANCE Diabetes is a progressive disease. When it proceeds unchecked, the options of dietary and exercise control are diminished and oral drugs lose effectiveness. New symptoms more difficult to ignore—blurred vision, foot ulcers, cuts and abrasions that don't heal—can lead to devastating consequences: blindness, high total cholesterol, cardiovascular disease, and amputation of lower limbs that may begin with one or two toes but continue incrementally until both legs are lost. Most important from the clinical perspective is that improved glucose control leads to better outcomes by reducing microvascular complications of the disease. The question then is twofold: How do we reverse the growing trend to earlier obesity and unhealthy lifestyles, and what can we do to improve disease management?

Clinical Practice Adaptations for Homeless Patients

It is important to remember that the clinical practice guidelines for individuals with diabetes who are homeless are the same as those for the general population. That being said, clinicians who care for homeless people are well aware of the additional levels of stress and difficulties in diabetes management these clients face, along with co-occurring disorders and living situations that complicate behavioral change. In 2002, the HCH Clinicians' Network assembled a group of primary care providers to recommend specific practice adaptations for clinicians working with homeless clients who have diabetes. This year, a new committee reviewed those recommendations in light of the ADA's latest (2007) Standards of Medical Care for Patients with Diabetes Mellitus.

Barbara Wismer, MD, MPH, a practitioner at Tom Waddell Health Center in San Francisco who chaired this committee, notes that its charge, in addition to clinical care updates, included meeting the requirement to update guidelines posted on the National Guideline Clearing House website (www.guideline.gov) every five years, which is important to promote their wide dissemination. Dr. Wismer notes that the major changes to *Adapting Your Practice: Treatment and Recommendations for Homeless Patients with Diabetes Mellitus* (HCH Clinicians' Network, 2007) reflect the following changes in diagnostic testing:

- Perform spot urine checks using dipstick urinalysis to test for ketones, glucose, protein and sediment (replaces the 24-hour urine protein).
- Use portable HbA1c test kits for point-of-care information, allowing for quicker results (less than ten minutes, replacing lab result that sometimes took up to 8 weeks);

enhance follow-up care and client education.

- Assess kidney status with an early morning urine test to measure albumin-to-creatinine ratio (provides urine for microalbumin).

In addition, HCH practitioners recommend a diabetes monitoring card designed specifically for homeless patients. The card provides a means to transport care information to the next health care provider, thereby promoting continuity of care, and may also be used as a self-management tool (Ridolfo and Proffitt, 2000). (Packs of 100 diabetes care cards are available from the HCH Clinicians' Network, 615-226-2292 and may be ordered online at www.nhchc.org/publications.html.)

PLANNING FOR CLIENT CARE At each visit, the clinician should build on the initial client history, which assesses a client's:

- Living circumstances
- Eating habits and patterns including food sources (Soup kitchens may only supply one meal a day, making it necessary to find multiple food sources.)
- Access to water and snacks when needed
- Amount of daily walking and condition and fit of footwear
- History of problems with feet such as foot sores or ulcers
- Sexual and reproductive history and method of contraception
- Current medications and sources
- Use and frequency of tobacco, alcohol and illicit drugs as well as readiness to change behavior
- Literacy level

INSULIN THERAPY Tight glycemic control can increase the risk of hypoglycemic episodes in homeless individuals due to irregular meals and difficulty adhering to a treatment regimen. To address these treatment issues, clinicians may wish to consider having clients:

- Use regular insulin before meals to accommodate erratic eating patterns, or a newer basal insulin such as insulin glargine with insulin lispro or insulin aspart;
- Decrease insulin dosage when food is unavailable;
- Use premixed insulin when possible;
- Adjust insulin based on food availability and blood sugar readings;
- Use insulin pens, which have proven convenient and less susceptible to theft than syringes (providers should inquire about access to these devices in their area);



- Inject into the abdomen to avoid erratic absorption, particularly when walking a great deal;
- Remember to rotate injection sites to avoid lipodystrophy; and

- Use insulated lunch bags for insulin storage when refrigeration is unavailable. (Insulin can be safely stored at temperatures between 36 and 86 degrees Fahrenheit for up to one month.)

An internist with Saint Vincents Catholic Medical Centers (SVCMC) Community Medicine Homeless Program in New York City, **Bill Vicic, MD** notes that his group advises patients who are using any hypoglycemic agent

to carry several ounces of non-perishable food in a Ziploc-style bag as worthwhile insurance against hypoglycemic episodes.

Initiatives to Promote Improved Clinical Care

Clinical practice and research findings continue to demonstrate that when blood glucose levels are controlled, positive clinical outcomes can result, greatly slowing the onset of complications. In reality, it is especially difficult for individuals who are homeless to establish and maintain glycemic control.

Faced with the chronicity of the disease, many people resist consistent testing to monitor and control their blood sugar when they feel OK. Even with first hand knowledge of grave consequences, they allow daily stresses, depression, and societal pressures to interfere with continued diligence in self-care (Wagner et al., 2007). This means that a piece of chocolate cake and cola can win out over regular exercise, high-fiber diets with whole grains and vegetables, testing blood sugar several times a day, and adherence to medical regimens. Research substantiates poorer glycemic control among people with lower incomes and those lacking health insurance; older clients diagnosed long ago and newly diagnosed younger clients show poorer metabolic control than other demographic groups (Benoit et al., 2005). Among homeless people whose constant imperative is to find a bed each night and the next meal, good intentions may be overwhelmed by the daily routine (Wagoner, 2004). Such realities have led HCH clinicians to use a variety of approaches to diabetes care, including evidence-based decision-making with supportive care, self-management support, peer support, and multidisciplinary clinical teams.

“For homeless individuals with chronic health care needs,” Dr. Vicic explains, “chronicity is bidirectional because transient people—either by choice or through the structure of the shelter systems—have limited encounters with one health care team, while those at single room occupancy (SRO)/welfare hotels have consistent opportunities to engage with the team and vice versa.” He continues: “We have done intramural role-playing sessions for clinicians within our program—the visit with a person who may be at the shelter health station only once as well as the visit with a person who will see the team weekly as needed. The constant, for the transient client or the long-term relationship, is that non-pharmacological management of diabetes mellitus be focused on good health practices that apply to all, diabetics and non-diabetics. This includes eating real food (not something manufactured), staying active, avoiding tobacco smoking (both personal and second-hand), and knowing numbers, which include weight, blood pressure, fasting level of blood sugar, and light cholesterol.”

NUTRITION GUIDE Even as research strives to promote whole grains and high-fiber diets for good nutrition (Montonen et al., 2003), the reality is that many homeless people have little control over the dietary options available in shelters and soup kitchens. Clinicians need to provide guidance in making best choices among available options.

Thomas Rossi, Consumer Advisory Board Chair for the Colorado Coalition for the Homeless, was a restaurateur before he was diagnosed with diabetes and became homeless. His knowledge of nutrition and food preparation clashed with actual shelter food options. “The typical daily fare offered pork cooked with potatoes over white rice, peas à la margarine, pancakes coated with syrup, and Kool-aide made with double sugar—a diabetic’s nightmare!” recalls Rossi. “Alternatives are non-existent.” Rossi is preparing a Diabetes Nutrition Guide to be used by respite programs, shelters, soup kitchens, and HCH clients with diabetes. He knows that homeless individuals need special encouragement to apply newly gained knowledge about nutrition and diabetes care. He’s been there.

CHRONIC CARE MODEL The Boston Health Care for the Homeless Program (BHCHP) adapted the Chronic Care Model developed by the Bureau of Primary Health Care’s Health Disparities Collaborative (Wagoner, 2004). Knowing that every 1% reduction in HbA1c results in a 17% lower risk of mortality, 18% fewer myocardial infarctions, 15% fewer strokes, and a 35% improvement in cardiovascular endpoints, BHCHP chose the following clinical indicators to use in monitoring all diabetic clients:

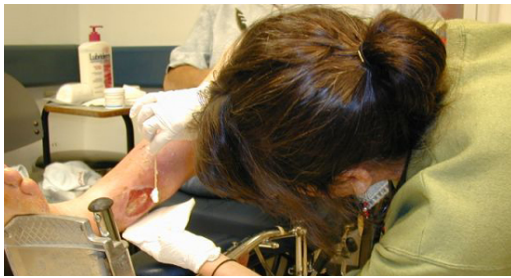
- Two HbA1c tests annually (at least 3 months apart)
- HbA1c < 7.0%
- Blood pressure control (under 130/80)—monitored monthly
- Annual dental exams
- Documented self-management goals
- ACE inhibitors used with patients over 55 years of age

In addition to these measures, the program has integrated the Chronic Care Model across all service sites; instituted a clinical information system that generates reports on all homeless diabetics clients served; deployed portable HbA1c devices that do not require electrical power to operate and are therefore useful on the street and in other locations without power; created multidisciplinary teams to better coordinate service access for diabetes patients; promoted clinical information sharing for improved continuity of care; integrated qualified volunteers into the diabetes education program; and developed an easy-to-use handout to help diabetic clients develop personal self-management goals.

CLINICAL TEAMS At SVCMC an interdisciplinary team model is maintained, although tight funding and program expansion do not permit nurse-social worker-counselor-doctor teams at each of the outreach sites. Nevertheless, the approach tends to be team-oriented, and practitioners consult with one another during team meetings organized weekly at the Community Medicine offices. Dr. Vicic describes these meetings as “nicely variable; they may involve three or thirty individuals, according to agenda.”

PROVIDERS BEYOND THE TEAM Robert Donovan, MD, Medical Director of the Cincinnati Health Network, relates a direct approach to team dynamics: “Over the past few years, several new diabetes mellitus treatments have been developed and marketed—e.g., insulin glargine (Lantus), insulin lispro (Humalog), insulin aspart (Novolog) and exenatide (Byetta). Indeed in some arenas these were considered the standard of care for insulin therapy, although this is being re-evaluated. In Cincinnati we had difficulties with this because HCH patients admitted to the University Hospital, where a high percentage of people who are homeless are treated, were being discharged on these newer insulins. However, none of the HCH programs could obtain these medications readily, so any adjustments that were established in the hospital ended up being pointless as we would have to change clients back to the older insulins.” Donovan discussed this dilemma with the medical inpatient teams and, as a result, they are using the older, more readily obtainable insulins more often.

Direct contact with providers outside the team may also be necessary when referring diabetic clients who have problems involving infection that may require immediate attention. Dr. Wismer recommends that the clinician call the emergency department provider directly in order to share important context and confounders associated with the client’s case in addition to the clinical information: “These would include a description of the wound and infection, presence of fever, diabetes control (current and ongoing), housing situation, presence and details of substance abuse, mental health symptoms, and the clinic’s ability to provide follow-up and ongoing care.”



Courtesy of Sharon Morrison, RN, Boston HCH Program

COMMUNITY INTERVENTIONS The Robert Wood Johnson Foundation promotes an ecological perspective incorporating key resources and supports for self-management (RSSM) which focus on individual needs (Fisher et al., 2005). Realizing that “healthy eating patterns and physical activity levels are not likely to occur or persist without convenient sources of healthy foods and safe settings for exercise,” RSSM reaches into “the social environment of family, friends, worksites, organizations, and cultures,” as well as “the physical and policy environments of neighborhood, communities, and government.” Such facility or community-level interventions are designed to create policies and behaviors within services or systems that promote desired behaviors in individuals (see June 2000 *Healing Hands* on Behavioral Change: www.nhchc.org/healinghands.html).

SELF-MANAGEMENT GOAL SETTING This approach provides a patient-centered method of helping clients understand actions that affect their health, and collaborating with them in a non-judgmental manner to develop strategies that enable them to live as fully and productively as possible (Morrison, 2007). This is part of the Health Disparities Collaborative model of care, which focuses on a person’s ability to manage his or her illness, carry out normal activities of daily living, and identify and regulate emotional changes. These are difficult tasks and continuing reinforcement by clinicians is critical to continued success.

The Community Medicine SRO-Homeless Program at SVCMC also participates in the HRSA/BPHC Diabetes Collaborative and follows the Chronic Care Model. Looking after one’s health is encouraged as a daily activity, and patients are asked to select a health-related goal. “We find that ‘daily’ is quite different from ‘three times a week’—a notion I learned personally while training for marathon running, and one that I continue to encounter in addressing my own better health resolutions,” notes Dr. Vicic. “The health-related goal is the self-management component. For people who do not identify a goal for themselves, we suggest one.”

Schedules of training opportunities in the self-management model are available at: www.nhchc.org/training.html. An example of the motivational interviewing technique so important to this model follows.

USING A MOTIVATIONAL INTERVIEWING APPROACH TO WORK WITH SELF MANAGEMENT SUPPORT AND DIABETES

A client is referred to the nurse responsible for diabetes care because his blood sugar is out of control. He is continuing to drink, which is causing his blood sugar to be out of control.

The client comes for his appointment and meets the nurse.

Nurse: Tell me a little about your diabetes. She records the client’s history; then continues: What is your understanding of why you were referred to me?

Client: I don’t know, they told me that I should talk to you because my blood sugars are out of control.

Nurse: Why do think that might be?

Client: The doctor told me that I have to stop drinking.

Nurse: Well then tell me about your drinking. How long have you been drinking?

Client: About 15 years.

Nurse: And when you are drinking, have you noticed any physical changes?

Client: Well, I notice that when I drink a lot, I have to pee all the time and also that I don’t want to eat and that sometimes, my vision gets blurry.

Nurse: The things you have described are things that could be symptoms of high blood sugars. You mention that you have been drinking for about 15 years. Can you tell me a little about that?

The client thinks about this and comes up with 3 reasons why he enjoys drinking:

- It lets me forget the realities of my life.
- I’ve always been really shy and it helps me talk to other people more easily.
- It keeps me warm when I sleep outside most nights.

The nurse’s job at this juncture is NOT to change the client’s mind but just to listen and reflect. This is a point where many clinicians get stuck. They think they have to counter the client’s reasons with justification

for why he should stop drinking. This puts the client on the defensive. When he's on the defensive, he is more likely to want to justify why he should continue. The clinician needs to give the client time to think.

Nurse: It sounds like you find a lot of things helpful about drinking. Is drinking ever troublesome for you?

The client thinks again and says:

- It makes my sugars high and that means I'm tired, and have to pee all the time. And I'm really thirsty.
- My sister lives in town and when I'm not drinking, she lets me sleep on her sofa at night. But when I am drinking, I can't go in her house.
- My mother worries about me being outside all the time and she wants me to stop drinking too.

Nurse: Did those problems ever lead you to try to stop drinking? In the past 15 years, have you had any sober periods?

Client: Yes, I've had a few periods of sobriety.

Nurse: What kinds of problems do you have when you are not drinking?

Client: Well, it is hard for me to talk to people when I am not drinking. And I get depressed thinking about my life.

Nurse: Those are tough problems. What benefits do you enjoy when you are sober?

Client: My mother doesn't worry about me.

The clinician notes that this is a primary source of concern for the client because he's mentioned it several times. This is a good place to summarize.

Nurse: This is really helpful information. I can see that you are in a tough spot. On the one hand, drinking helps you in several ways. On the other hand, you are experiencing health problems and problems with your family. I can see how it would be hard to give up the benefits of drinking. Would it be all right with you if we took a closer look at what is happening with your blood sugar? (Client nods.) It would be helpful to me as we think about working with your blood sugar control to have a picture of how much you are currently drinking. My job is to help you figure out how drinking changes your blood sugars. So, can you tell me about how much you're drinking?

The client is startled because he expected to be referred to detox. He doesn't have an answer for her.

Nurse: It really just comes down to a math problem. Alcohol has x numbers of calories. If I can understand how much you are drinking then your doctor can figure out how to adjust your medicine so that your sugars can be better in control. But I need an honest assessment of how much you might be drinking. Would you be willing to take this booklet and keep track of how much you drink each day? You can just write it down here so you don't have to remember it in a week. I don't really care about how much you are drinking. I just need to have an accurate picture of the amount so we can figure out how many calories you are taking in when you drink. Does that make sense?

Client: Yes, I can do that.

Nurse: The other part to this picture will be that we should take a look at some of your

blood sugars through the week. Could you come in 3 times during the next week to randomly have your blood sugar checked?

Client: Yes, I can do that too.

Nurse: Thank you for sharing with me. I'll look forward to seeing you in a week.

This information will allow the nurse to track the client's blood sugars more accurately. This model of care recognizes that behavior change is difficult and this client isn't ready to stop drinking. The path of least resistance in medical treatment is to start with helping the client control his blood sugar, taking his unchanged behaviors into account.

A week went by, and the client came to the clinic for random blood sugar checks, but he did not come back to talk with the nurse and bring his journal as arranged. In fact, five weeks went by before he returned to meet with the nurse.

When he returned, he said: You know, I did what you asked me to, and after the first 4 or 5 nights, I looked at how much I was drinking and I just said, This is nuts! It's crazy. So I came back to the clinic and had them get me into detox. Now I'm in a post detox program.

Nurse: Hey! I'm impressed. That's a really big change. How is it working for you?

(End of example.)

The motivational process does not end here. The client will need to continue to look at the challenges and gifts that come with change.

SOURCES & RESOURCES

Additional resources are available at www.nhchc.org/diabetesresources.html.

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