



Diabetes

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Diabetes mellitus is commonplace and touches the lives of most Americans, either directly or by affecting friends, family members, or colleagues. About 18 million people are reported to suffer from diabetes in the USA, about 6.3% of the entire population. Over one-third (40%) of Americans with diabetes are over the age of 65. And diabetes is on the rise in the USA. From 1980 to 1996 the prevalence of diabetes rose 18.4%, while in the brief period between 1997 and 2000 this rate increased another 12%.

Diabetes is more common in black and Hispanic people than in white people. Among those younger than 75 years of age, African-American women had the highest prevalence. In other poor populations, the percentages are higher than the general population. Most observers and clinicians fear that the prevalence of this chronic and debilitating disease is reaching epidemic proportions among many vulnerable populations.

Persons with diabetes can develop many complications as a result of damage to organs, such as the kidneys, eyes, heart, blood vessels, and skin. Treatment of the disease and prevention of these complications require a significant commitment on the part of both the patient and the care provider. For many people, life-style changes may alleviate the need for medication in the early stages of the disease. These changes primarily involve diet and exercise, neither of which is easy to control for persons who

sleep in shelters and eat in soup kitchens. Walking is often the only practical exercise, as exercise facilities are not generally accessible to homeless people.

Jane L is a 48 year old diabetic diagnosed six months previously at the local homeless clinic after complaining of fatigue and frequent urination. She reported that her mother had diabetes and died of a stroke at age 55. Her primary care clinician has given her abundant written information about her disease, but Jane does not comprehend the complications of her illness and is confused about how the treatment works. The fatigue and the frequent urination continue unabated, and Jane now feels depressed and anxious about her new diagnosis of diabetes.

Jane lives at a shelter for women, eats daytime meals at a nearby women's center or downtown soup kitchen, and walks about 4 miles each day as she completes her daily routine. Wary of medication, she

A diabetic patient simplifies the process of injecting insulin by using an automatic injection device, an "insulin pen".
Photo by
Jessie McCary MD

manages to take pills for blood pressure and thyroid problems. She has been told that she will need to start a new pill for her diabetes but may require insulin via a needle if her blood sugars do not respond to the pills or her changes in diet and activity. Despite good intentions, she has little control of her diet and must accept the meals offered. With the pressure of finding a bed for the night and the next meal, finding the time and place to exercise is virtually impossible.

Her blood sugar and glycosylated hemoglobin (hemoglobin A1C) tests remain high, and after a month her doctor prescribes two injections of insulin daily. Jane has no insurance and is unable to fill the prescription for insulin, syringes, and needles for several weeks. She needs education and training in the use and administration of insulin, a place to refrigerate her medication as well as a safe place to keep her needles, and assistance with monitoring her progress once she begins the injections. All of these present complex barriers that need to be overcome during her daily search for housing, food, and safety.

Suffice it to say, she will need to make the care and treatment of her diabetes an integral part of her daily needs – a day already filled with so many survival issues that such a burden is extremely difficult to bear. She continues to see her primary care clinician regularly but becomes depressed by the number of appointments she needs to remember, including the eye doctor, the nutritionist, the podiatrist, and the dentist. Sometimes, in the midst of her poverty and homelessness, it simply doesn't feel worth the effort. She believes that she will probably "get by" as long as she just keeps doing what she did before. Her sugars improve a little, but the fatigue and her depression are overwhelming and she just wants to sleep.

This story is not unusual and typifies the challenges faced by homeless persons who have been diagnosed with diabetes. Coordination of care and adherence to the treatment plan can be daunting to both patient and provider. The necessary education and support often require more time and resources than are available, and important components of the prevention and treatment of diabetes are deferred or forgotten in our current clinical settings.

The alternative is evidence-based decision-making and a supportive system of care in which decisions are made by both patient and provider. Jane needs a health care delivery system that emphasizes collaborative, team-based care that will support the major behavioral changes necessary to control the diabetes and reduce the risk of devastating complications.

Solid clinical evidence provides the basis of current treatment guidelines for diabetes, which should be an integral component of the care that each homeless person receives. The majority of the data come from a few key studies that are available in the literature. These guidelines help eliminate "doing the wrong things" and emphasize activities that yield the greatest rewards in the form of quality of life and risk prevention. By adopting the Care Model, practitioners have a heightened chance of eliminating the gap between what we know and what we do.

The Care Model, as used and developed through the Bureau of Primary Health Care's Health Disparities Collaboratives, incorporates key measurements and activities that have been shown in the literature to be clearly beneficial for populations with diabetes. Several key studies form the majority of this evidence. The HOPE study demonstrated the benefit of the use of ACE-inhibitors for persons with diabetes over the age of 55. In another study sponsored by the Medical Research Council and the British Heart Association, the use of statins resulted in 33% reduction in heart attacks and strokes. The benefits of blood pressure control were studied in a large clinical trial called the UK Prospective Diabetes Study. A total of 1148 patients with diabetes showed dramatic reductions in strokes, microvascular complications, and diabetes-related deaths. Every reduction of 1% in the HgbA1C resulted in reductions of 17% in mortality, 18% in myocardial infarctions, 15% in strokes, and a 35% in cardiovascular endpoints.

Lowering blood glucose has been definitively shown to slow the onset of complications of diabetes in one of the largest and most comprehensive studies to date. The Diabetes Control and Complications Trial (DCCT), conducted by the National Institute of Diabetes and Digestive and Kidney Diseases, compared standard and intensive therapy of type 1 diabetes through glucose control measurements. The findings were dramatic. Eye disease was reduced by 76%, neurological pathology was reduced by 60%, and kidney disease was cut in half.

Based on a list of key measurements on diabetes furnished by the Health Disparities Collaborative on diabetes, the Boston Health Care for the Homeless Program chose several indicators to be followed on a monthly basis among the diabetic patients included in the collaborative:

- two HgbA1C's annually (at least 3 months apart);

- blood pressure control (under 130/80);
- annual dental exam;
- documented self-management goals;
- ACE inhibitors used in patients over 55 years of age;
- HgbA1C under 7.0%;
- population of focus size.

Components of Care

As discussed in a previous chapter, the Care Model has six components of care, which are explained in detail. The remainder of this chapter will use one example from each component to illustrate current testing or complete implementation of change within the diabetic collaborative patient population.

Health Care Organization

The organization has begun integrating the Care Model into the business plan in several ways. The spread of this effort through additional parts of the organization is part of the Annual Plan for the upcoming year. Participation in the model of care is a part of performance evaluations for all clinicians. The Board receives regular informational updates, including monthly reports.

Clinical Information Systems

Through the use of the software and registry system provided by the Health Disparities Collaborative, reports are now generated for the diabetic population of focus that indicate areas where further actions are likely indicated. For instance, we can generate a report of all those diabetics in our population who have not had dental exams in the past year. This report can then be used to generate reminders or inform the clinician so that these services will be scheduled at the next visit.

Decision Support

The organization now has deployed portable HgbA1C devices at selected sites. These devices provide a way to measure this number accurately and have results within minutes, so that feedback to the patient occurs during the same visit. The devices also need no electric supply, and are useful on the street or in other locations without power.

Delivery System Design

A team has been created which is multi-disciplinary and allows for better coordination of access for our diabetic patients and more complete exchange of information. Other areas of change



The patient dials in the desired number of units of insulin instead of manually filling a syringe.
Photo by
Jessie McCary MD

have included the use of an eye specialist referral form which patients take to the eye doctor and then return with the necessary information. This form has improved greatly our ability to obtain feedback from specialty visits.

Community Resources

Using qualified volunteers, diabetes education classes have been instituted at our 92-bed respite care facility and one large shelter in our system. These classes have allowed for more detailed and individualized information exchange in a place where access for our patients is easy and the setting familiar. These classes have been extremely successful, both as measured by participant enthusiasm and overall attendance.

Self-Management Support

An easy-to-use handout has been used to work with diabetic clients to choose a self-management goal that they want to work on. Clinicians in the collaborative have established standardized ways to document and follow these goals in the electronic medical record.

Summary

The delivery of care based on the Care Model has been shown to be effective and realistic. The Boston Health Care for the Homeless Program can document wonderful examples that serve as proof that this model of care works. Although we have only been involved in this initiative for less than a year at the time of this writing, staff members involved in this initial phase have enthusiastically supported its use and endorsed its spread to all areas of the organization. Comparison of the care delivered through this approach versus the traditional model reveals gaps that must be eliminated in order to assure high quality care for all of our diabetic

clients. Diabetes management is difficult even under the best of situations, and for the homeless diabetic, broad support and access to appropriate services is extremely difficult. This model of care results in an evidence-based prioritization of actions by both the patient and the clinician. Care moves

from an approach characterized by more episodic, reactive visits with little patient involvement to a model that includes the patient and results in improvements that will hopefully reduce morbidity and mortality in the future. ■■

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Web sites:

American Diabetes Association	www.diabetes.org
Health Disparities Collaboratives	www.healthdisparities.net
National Guidelines Clearinghouse	www.guideline.gov