

Diabetes: Treating the Coming Tsunami

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Editor's note: This article is adapted from the address of the American Diabetes Association (ADA) President, Health Care and education, given in June 2012 at the Association's 72nd Annual Meeting and Scientific Sessions in Philadelphia, Pa. A Web cast of this speech is available for viewing at the ADA Web site (<http://professional.diabetes.org/Webcasts.aspx>).

I am honored to be able to address you and share some of my thoughts about the growing epidemic of diabetes, some of the ways in which we are making progress, and some of the ways in which we need to be much more proactive.

In the next 25 minutes, 80 people will be diagnosed with diabetes: one every 18 seconds. One of them could be your family member, your child, or the man that rides next to you on the train to work each morning. Diabetes: we all know what it is. For many of us, it has been our life's work. Unfortunately, there is enough work in the field of diabetes to last for generations to come.

My fondest dream would be to hold high a vial of a miraculous serum, as Jonas Salk did when he announced the polio vaccine, and tell you that we have found the cure for diabetes, that the work of the American Diabetes Association (ADA) is done, that our mission is fulfilled. A life free from diabetes and all of its burdens.

However, lately, I have been having two recurring nightmares. In one, there are lines and lines of people, all with diabetes, who are typing their names into a vast computer program. They fill in a questionnaire

and then download a list of lab work to be done before a 3-minute telephone or e-mail appointment time.

The lucky ones will talk with a real person; the unlucky will get an automated response from a very clever program that allows them to select options. It is similar to the airlines, but instead of the voice asking if you want flight information, it will ask if you need insulin or dietary adjustments.

My second nightmare is actually real. It is the story of a village where the people with diabetes buy one vial of insulin, and each person gets his or her share: 20 units, just enough to keep them alive and functioning.

Why am I having these nightmares? It all started with a *New York Times* headline that read, "Diabetes and Its Awful Toll Quietly Emerge as a Crisis: As Cases Surge in New York, So Do Fears of an Overburdened Medical System."¹ This headline made me understand in a new way just how big a problem we are facing with the surge in numbers of people with diabetes and how that surge will affect so many people, not just in the United States, but around the world.

What does it mean for the *New York Times*, one of the most prestigious papers in the world, to say we have a crisis, an epidemic, an unprecedented number of new cases of diabetes?

Cold Hard Facts

I am not a facts-and-figures person, and I admit to a certain level of number blindness. I struggle with numbers that are so big they cease to have a real and meaningful impact, such as the national debt ("\$15 tril-

lion, give or take \$1 billion"). But when I see that this number translates into a debt of \$50,000 for every man, woman, and child, it becomes personal and more meaningful to me.

But when I see that there are 380 million people in the world expected to have diabetes by 2025,² I do not see numbers; I see people. I see people like my patients who struggle every day to live a life with a disease that demands so much and gives back so little.

So now, I am going to throw out some facts and figures, and I want you to hear them with new ears and see them with new eyes. I am going to ask you to imagine the faces of the children, men, and women who will be looking at you from the future as we predict it. And then I am going to tell you about some of the ways we are addressing this challenge and about the work that is yet to be done.

I began to think about this unprecedented growth in diabetes as a huge wave in the ocean, a large tidal wave, because of its rapid rise and prolonged length. We are currently in the midst of a prolonged wave train—a tsunami in diabetes.

The first wave we are facing is the ever-rising wave of obesity, which is the underlying current to the increase in diabetes. Just how large is this wave, and what destruction is it causing? Worldwide, 2.8 million people die each year as a result

of being overweight or obese (BMI > 26 kg/m²).³ In a period of 28 years, between 1980 and 2008, the worldwide prevalence of obesity doubled.⁴

Figure 1, released this year by the World Health Organization,⁵ shows the latest mapping of obesity trends from around the world. In it, we can clearly see that North America leads with a prevalence of > 30% obesity. The Middle East and the tip of Africa also have extreme rates of obesity, followed by Europe and Asia with a prevalence of 20–29%.

In our diabetes wave train, the second wave is hyperglycemia. Worldwide, we are seeing an alarming rise in hyperglycemia that closely follows the trends and prevalence of obesity.

One of my patients, Inez, represents the increasing impact of diabetes on indigenous peoples. Inez is from Ecuador. In her mother's generation of the family, Inez's mother was the only one with diabetes. Now, Inez and three of her eight siblings have diabetes. In 2004, Inez had a kidney transplant. Inez has four children in their 30s; all are overweight. And, so far, one of those children has diabetes. It is not difficult to see the future of this family.

Figure 2, from the Centers for Disease Control and Prevention (CDC),⁶ clearly shows how the prevalence of diagnosed diabetes is increasing rapidly across the

United States. In just 10 years, the areas across the southern tier of the country have reached a prevalence of > 10%. Tragically, these rates show no sign of abatement.

This is a global epidemic. In 2009, the International Diabetes Federation (IDF) made regional and global projections for the prevalence of diabetes in adults between 2010 and 2030.⁷ In that 20-year time period, it projected an increase in diabetes of 98% in Africa, 94% in the Middle East and North Africa, 72% in Southeast Asia, 65% in South and Central America, 47% in the Western Pacific, 42% in North America and the Caribbean, and 20% in Europe. Worldwide, an estimated 285 million adults—nearly 7%—had diabetes in 2010. The IDF conservatively estimates that, by 2030, 438 million adults—nearly 8%—will have the disease.

Diabetes: An Economic Tsunami

Economic tsunami is a term used to describe a set of economic forces that are propelled by a single triggering event. The results are felt far and wide, affecting numerous geographical regions and industrial sectors.

The projected growth in the prevalence of diabetes not only will cause a crisis in health care delivery, but also will send destructive waves throughout our health care economy.

The effects will be widespread. Costs will soar, affecting our state and federal programs. Small business will bear the burden of trying to provide health insurance. The need for health care services across sectors will increase, placing a larger burden on the field of primary care, where there are already diminishing numbers of family and internal medicine physicians.

The U.S. economy as a whole will be affected in that the fastest-growing diabetes rates are in the demographic group encompassing those aged 40–59 years. Typically, this age-group is viewed as the most productive segment of society. The bottom line: this will affect our gross national product.

A recently published article in *Population Health Management*⁸ took the most recent statistics available for diabetes and obesity in the

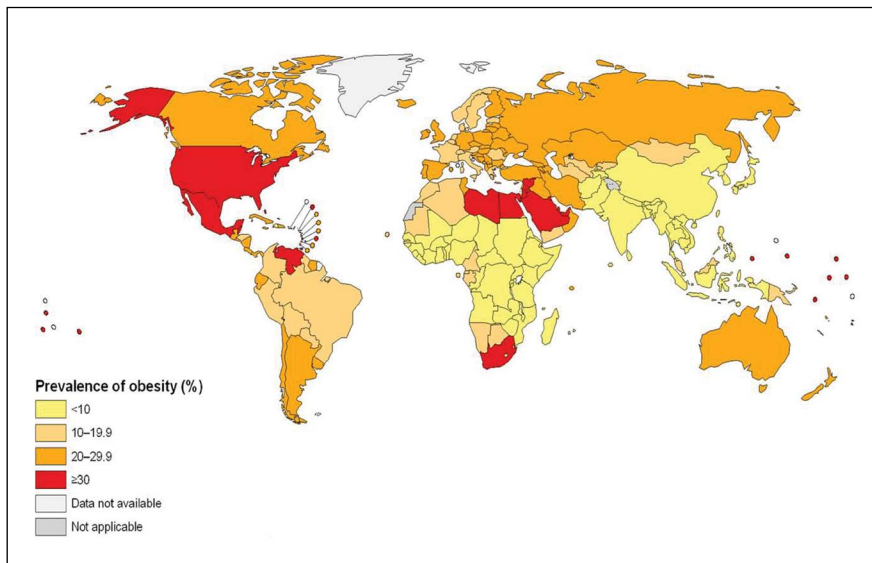


Figure 1. Prevalence of obesity (BMI ≥ 30 kg/m²) in individuals ≥ 20 years of age, 2008.⁵

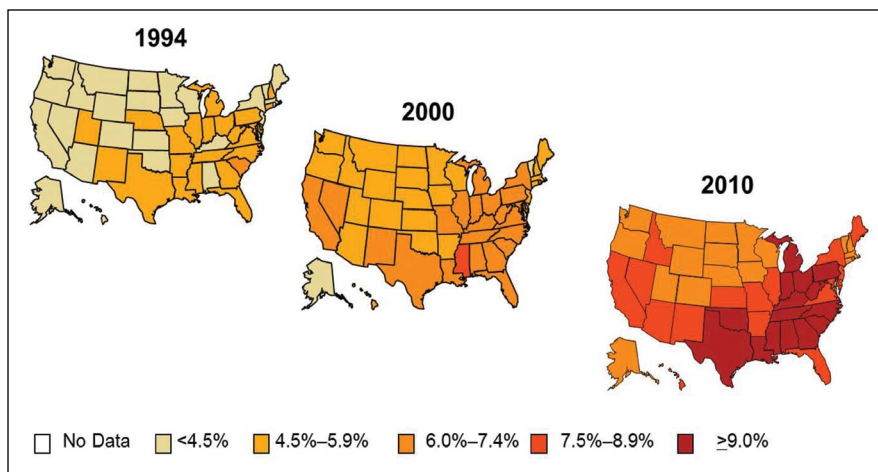


Figure 2. Age-adjusted prevalence of diagnosed diabetes among U.S. adults ≥ 18 years of age.⁶

United States and calculated, at the current rate of increase, projections for 2025, both on a national level and state by state. This was done in an effort to help states plan for the unprecedented growth in chronic disease.

Their findings were mind-boggling: the total number of Americans with diabetes will increase by 64% to 53.1 million in 2025, and the annual medical and societal costs will increase by 72% to \$514 billion.

Tsunami Survival

Faced with this astounding prediction, we must act now to take the necessary steps to survive the tsunami of diabetes. We must sound the alarm today to warn the public of the dangers to come, prepare ourselves and the health care system to reduce the impact, and, ultimately, take to higher ground.

Diabetes is a word that is known to many but understood by only a few. In the 34 years I have worked in diabetes care, I have heard misconceptions, false information, and myths about diabetes from every sector of society, including health care professionals. Diabetes is a disease without a public face. There is little recognition of its potentially life-threatening nature or the daily self-care demands it places on patients. For the public, diabetes is about not eating sugar and taking a shot each day. To gather strength in numbers, we must convince the public that diabetes is a serious dis-

ease with devastating personal and societal consequences.

I would like to see a billboard on every highway in America stating, “Diabetes kills more Americans each year than breast cancer and AIDS combined. Take Diabetes Seriously.” We want people to know that diabetes kills and to equate its consequences to those of HIV and breast cancer.

You may think this is an extreme measure. But let me give you an illustration: When asked to rate the seriousness of diseases on a 1–10 scale with 10 being the most serious, a focus group rated cancer and heart disease as a 8–9 on average and diabetes as a 4–5, even among people who had relatives with diabetes.⁹

The ADA believes so strongly that we must heighten the sense of urgency about the growing diabetes epidemic that it has made that goal a platform in its strategic plan. We must expand our reach, deepen our community engagement, and develop partners across the nation.

The Stop Diabetes movement, now in its third year, is a crucial component of this plan. Its simple message and logo, shown in Figure 3, is recognizable. It expresses a clear but powerful message: Together We Can Stop Diabetes.

The next step in tsunami survival is preparation, and for this, we need to gather our resources. In diabetes, this means we must push hard to attain the needed funds to support research for prevention, cure, and care for those already diagnosed.

This year will see the launch of Pathway to a Cure, a distinct campaign to raise money for research that will encourage young researchers to enter the field of diabetes. It will be a funding source for new and innovative ideas targeting a cure for diabetes.

Another important effort has been TRIAD (Translating Research into Action for Diabetes), a program of the CDC and the National Institute for Diabetes and Digestive and Kidney Disease. This program focused on care delivery, identifying both facilitators of and barriers to high-quality diabetes care and evaluated the structures and strategies of managed care organizations. TRIAD was composed of six translational research centers and their health plan partners and provided one of the largest cohorts of patients with diabetes ever studied.

Publications from the TRIAD study groups have contributed valuable information about ways to improve care for people with diabetes. The study linked data from provider groups, patients, and health plans and collected a diversity of patient data from surveys, medical records, and administrative records. Whites, African Americans, Latino, Asians, and Pacific Islanders were well represented.

This study provided a wealth of information about factors that most affect care and will reinforce and guide decisions made for health care delivery in the future. Despite



Figure 3. Logo for ADA Stop Diabetes initiative.

comparable coverage, some groups had poorer outcomes. Factors such as physician-patient interaction, the prevalence of untreated depression, a lack of resources, and increased stress and out-of-pocket costs were instrumental in determining outcomes.¹⁰

As we move forward in developing systems of care for diabetes, translational research studies such as TRIAD will be imperative to guide and inform decision-making.

Preparation also encompasses focusing on the delivery of care and the ability of the health system to respond to both individuals and the larger community. The goal here is to ensure that every person will have access to medical care and the supplies necessary to adequately treat diabetes.

Already we are experiencing the challenges of providing care for those with diabetes. The landscape is becoming larger and more complex all the time. The current shift from specialty to primary care is being driven by the growing population in need of care and the lack of enough endocrinologists. However, we must be aware that the number of primary care providers (PCPs) is also shrinking. Improved health care delivery systems must focus on making quality diabetes care cost-effective and easier to deliver in primary care settings.

In an effort to assist PCPs in the education of newly diagnosed patients with diabetes, the ADA launched its Living With Type 2 Diabetes program. This free program begins with a booklet given to patients at the time of diagnosis. This booklet contains all the basic information on topics such as meal planning and physical activity. Patients are encouraged to become part of a larger program with ongoing support provided through newsletters, online community message boards, and telephone information lines. So far, nearly 600,000 booklets have been distributed, and 150,000 patients have been enrolled in the program.

Patient-centered medical homes are another effort to improve health care delivery. This new form of

health care delivery incorporates the chronic disease model, evidence-based practice, team care, and shared medical appointments. Conversion to this model has the potential to deliver cost-effective, holistic care for people with diabetes, while reducing fragmentation and integrating education. The model is being implemented in many key areas, including Boston, Mass., Baltimore, Md., and Pittsburgh, Pa. However, it is too early to tell whether it will meet its objectives.

The next level of preparation must include revamping the ways we currently deliver and pay for diabetes self-management education (DSME) and support. As we all know, diabetes education is integral to patients' welfare. In the current system, access is limited or restricted by payers in both private and government programs.

There are also other factors limiting access to DSME. Although there has been growth in the number of certified diabetes educators (CDEs), there still are not enough CDEs to meet the upcoming need. Indeed, there is now approximately 1 CDE available for every 1,500 people with diabetes. In certain geographical regions, a paucity of CDEs results in an even worse ratio.

To help address this problem, the University of Pittsburgh Medical Center developed, with funding from the Department of Defense, Chronicle, a streamlined system for registering education programs to gain ADA recognition. This data repository will become important in benchmarking improvements in education strategies and demonstrating outcomes through diabetes education. Ultimately, it will lead to improved outcomes for people with diabetes and prediabetes by assisting diabetes educators in providing high-quality care (personal communication, Paulina Duker, 28 May 2012).

Taking to High Ground

Change is never easy. For me, taking to high ground means making change happen because it is the ethical and right thing to do. If everyone reading this were able to inform people in their communities

and heighten public awareness of the dangers inherent in the increasing prevalence of diabetes, think what that could accomplish.

We are all stakeholders in our health care system, whether we are researchers, educators, or clinicians. Our current delivery system responds best to acute and episodic care, but that model will not address the burgeoning needs of a population requiring chronic care. Change must start with those of us who are touched by diabetes and have made it our life's work. It MUST start with us.

And so, in using the metaphor of the tsunami, I have described the challenges that are ahead of us on the not-too-distant horizon and described the components necessary to our survival, as I see them. Time is fleeting, and we have our work cut out for us.

The National Diabetes Prevention Plan¹¹ has defined several important goals. These include building community awareness, improving nutrition from farm to table, fostering physical activity in communities, and securing reimbursement for counseling and education services for those at risk of developing diabetes. So, in closing, I will tell you about one last dream I have: that in understanding and responding to the crisis of diabetes, we all view such a National Diabetes Prevention Plan as important for the health of all our citizens and that the work we have done becomes a beacon for the future.

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