



**EXECUTIVE INNOVATION LAB IN
DIABETES AND PREDIABETES**

**PARTICIPANT PRE-READER
JUNE 19-21, 2018**



WHY IS DIABETES A PROBLEM?

★ 90 - 95% of diabetes cases are type 2 diabetes



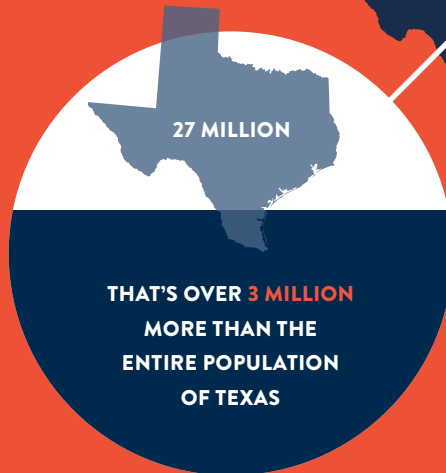
1 IN 7 US ADULTS HAS DIABETES¹



1 IN 3 US ADULTS HAS PREDIABETES



8 IN 10 US SENIORS HAVE DIABETES OR PREDIABETES



“ I just can't get the hang of managing my diabetes, even after 25 years of being a diabetic. Now I've been told I have CKD, and my kidneys are failing. I'm just ready to give up.”¹¹

DIABETES COMPLICATIONS IN THE US

168,000

ANNUAL HOSPITAL DISCHARGES DUE TO DIABETIC KETOACIDOSIS EACH YEAR⁴

245,000

ANNUAL ER VISITS DUE TO HYPOGLYCEMIA EACH YEAR⁵



ADULTS WITH DIABETES ARE 2-4 TIMES MORE LIKELY TO HAVE A HEART ATTACK OR STROKE⁶



DIABETES CAUSES A LOWER LIMB AMPUTATION IN THE US EVERY 5 MINUTES⁷



48 PEOPLE WITH DIABETES GO BLIND EVERY DAY⁹



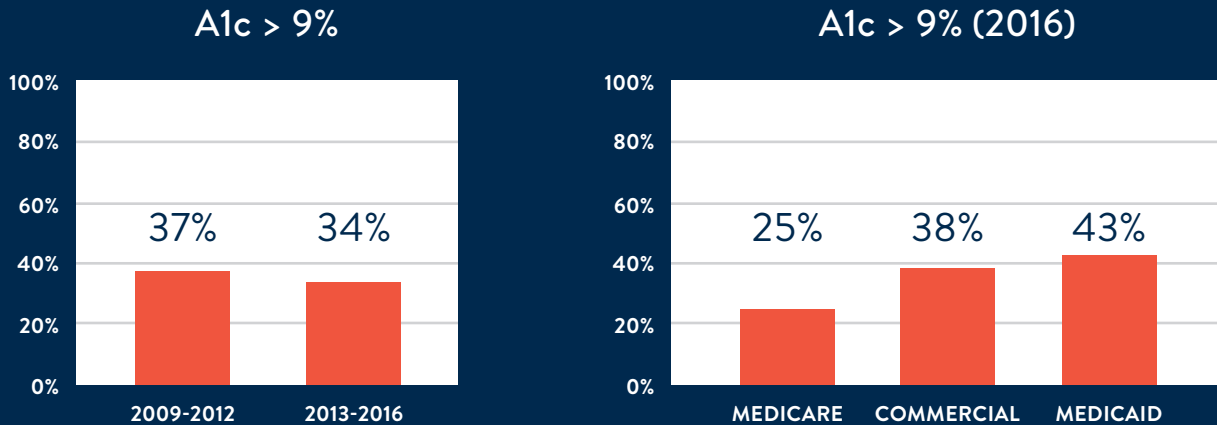
SOMEONE WITH DIABETES BEGINS TREATMENT FOR END-STAGE KIDNEY DISEASE EVERY 10 MINUTES⁸



TWO OUT OF THREE PEOPLE WITH DIABETES EXPERIENCE SOME FORM OF DIABETIC NEUROPATHY¹⁰

While much of the national diabetes data does not distinguish between type 1 and type 2 diabetes, for the purposes of d18 this document focuses primarily on type 2 diabetes and obesity

DESPITE ADVANCES IN TREATMENT, ONE IN THREE PATIENTS HAS BADLY CONTROLLED A1C'S. ALMOST HALF OF THE PEOPLE WITH DIABETES ON MEDICAID HAVE POOR CONTROL.¹²



Each percentage point reduction in A1C correlates with a 35% reduction in microvascular complications (blindness, kidney disease, nerve damage) and a 14% reduction in cardiovascular disease.¹³

COST OF DIABETES ON SOCIETY

Diabetes imposes huge economic burdens on the United States. We spend **\$327 BILLION** a year on direct (\$237 billion) and indirect (\$90 billion) costs. More than half of the direct costs are due to inpatient hospitalizations and prescription medications for diabetes complications. Per capita costs have increased since 2012, and overall costs are projected to grow as more people continue to get diabetes, and as type 2 patients live longer than ever before, more people are at higher risk of costly long-term complications.¹⁴

Globally, the economic burden of diabetes is estimated at \$1.3 trillion per year and is expected to increase to at least \$2 trillion per year by 2030.¹⁷ One in 11 adults worldwide has diabetes, with projections suggesting that one in nine will have it by 2045.



1 IN 4 US HEALTHCARE DOLLARS IS SPENT ON PEOPLE WITH DIABETES

1 IN 7 HEALTHCARE DOLLARS IS SPENT ON DIABETES ITSELF

\$327 BILLION (2017)

25% INCREASE FROM 2012

“ I no longer have the funds to buy the foods I need to eat to keep my diabetes under control. I eat far too many carbs because they are cheaper & go farther. I would rather be eating more meat and fruits & vegetables. ”





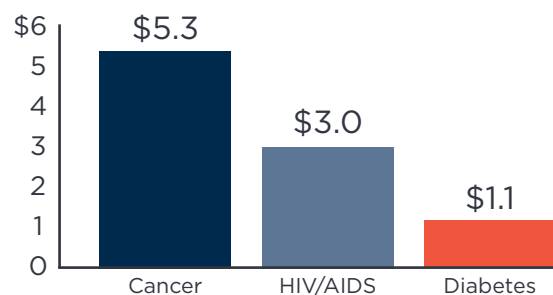
“I am very discouraged because I am not eating like I should. I haven’t been to the doctor in a while...I don’t have any insurance and am concerned because I haven’t been taking my medicines.”¹¹

How Much Public Research Funding Goes To Diabetes?

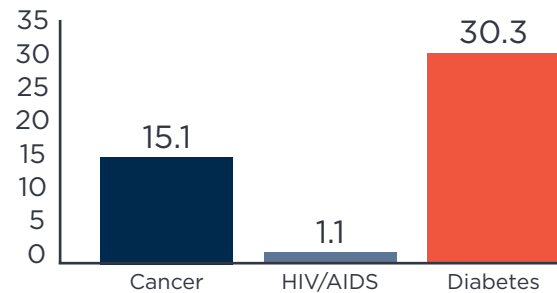
In 2015, cancer accounted for \$5.3 billion (roughly 21%) of total NIH funding, HIV/AIDS accounted for \$3.0 billion (roughly 12%) of total NIH funding, and diabetes accounted for \$1.1 billion (roughly 4%) of NIH funding (chart 1).¹⁹ There were roughly 15.1 million people living with cancer²⁰ and 1.1 million people in the US with HIV/AIDS,²¹ compared to over 30 million living with diabetes (chart 2). By that comparison, the NIH spends about \$2,727 each year per person with HIV/AIDS, \$350 each year per person with cancer, and only \$36 per person with diabetes (chart 3). These disease areas have benefited tremendously from this amount of funding—and rightfully so—serving as a point of reflection on how funding dollars can impact outcomes.

Moreover, funding for innovation in health services and delivery, which examines access, care quality, and population health, **amounts to just 0.3% of total healthcare expenditures and roughly one-twentieth the sum that goes into science research.**²² These areas could move the needle on many aspects of diabetes management, yet they continue to be underfunded.

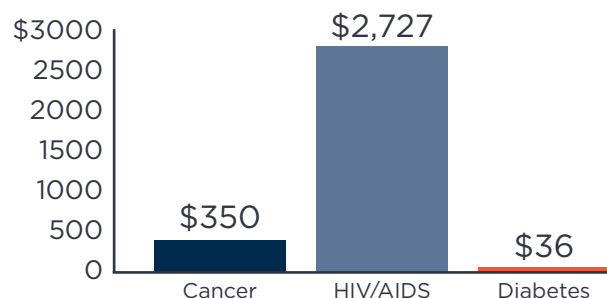
Total NIH Funding per Disease¹⁹
(in Billions)



Prevalence in the U.S.
(Number of People in Millions)



Annual NIH Dollars Spent
(Per Person with the Disease)



“My numbers are high and climbing. Can’t seem to get them to go down and also cannot get any weight to come off. Frustrated!”¹¹

The Challenge of Type 2 Diabetes

In Summary

Type 2 diabetes is not an easy disease to live with. While public perceptions of diabetes tend to paint it as simply a “touch of sugar” that is easily managed, that is not the case. Not only

can it lead to devastating complications, it causes a significant amount of emotional and financial stress for patients and their families.

What Do People With Type 2 Diabetes Think About?



Patient Perspectives

Diabetes is a complex condition that affects almost every part of day-to-day life. Everyone with diabetes has a different experience, but for most it represents a significant source of physical, emotional, and mental distress.

- Every bad glucose reading, high A1c, unhealthy meal choice, and day without physical activity represents a new failure, leading to feelings of helplessness, fear, and frustration.
- People with diabetes are twice as likely as the average person to have depression,²³ and are also at risk for experiencing

burnout (exhaustion from the endless attention diabetes care requires).

- The majority of people with diabetes feel stigma surrounding their disease. This can make people feel that they are a burden on friends, family, or society at large, and may ultimately hide their disease from others.
- For many, diabetes can feel like a full-time job, and there simply aren’t enough hours in the day to give it the attention it requires.
- Living with complications drastically impairs one’s daily life, impacting all aspects of social, professional, and personal life.



“The endocrinologist told me to ‘starve’ myself because I am obese. I wanted to cry, but I did not.”¹¹

Social Stigma: What Messages Do People with Type 2 Diabetes Hear from Society?

Just eat less sugar.
 You have no self-control.
 YOU DON'T CARE ABOUT YOUR HEALTH.
 My grandpa died from diabetes.
YOU'RE GOING TO GO BLIND.

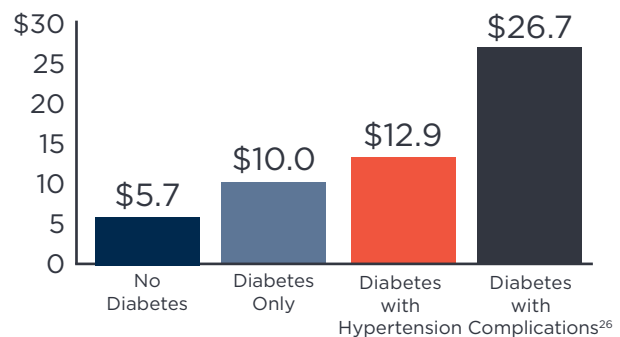
failed.
YOU
Diabetes is preventable. It's your fault that you are sick.
DIABETES IS EASY TO MANAGE.

JUST LOSE WEIGHT.
YOU'RE LAZY.

Personal Expense of Diabetes

Diabetes is also expensive for individuals. People with diagnosed diabetes incur annual average medical costs of about \$16,500, more than two times higher than those without diabetes. The majority of these costs is attributed to the treatment of hypoglycemia and diabetes complications. Each American adult spends more than \$900 per year to pay for diabetes healthcare costs, whether that adult has diabetes or not.

Total Annual Healthcare Costs²⁴ per Person²⁵
 (in Thousands)





*“As it relates to our health, our zip code may be more important than our genetic code.” —Dr. James S. Marks,
Executive Vice President, Robert Wood Johnson Foundation*

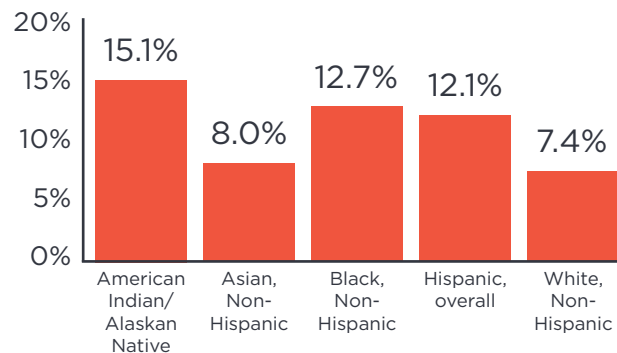
What Factors Contribute to Type 2 Diabetes Risk?

Type 2 diabetes is influenced by a host of complex factors. Genetics and lifestyle choices (namely, diet and exercise) are certainly major contributors. However, it is also impacted by a multi-factorial set of cultural, societal, and environmental factors that are less understood and often harder to address. According to Novo Nordisk’s Cities Changing Diabetes Program, the four greatest social contributors to type 2 diabetes risk include time constraints, financial constraints, geographic barriers, and resource constraints (e.g., lack of access to healthcare, medications, nutritious foods and exercise, etc.). These factors are absolutely critical to addressing and contextualizing diabetes—and why pharmaceutical therapies alone are not enough to fight this growing epidemic.

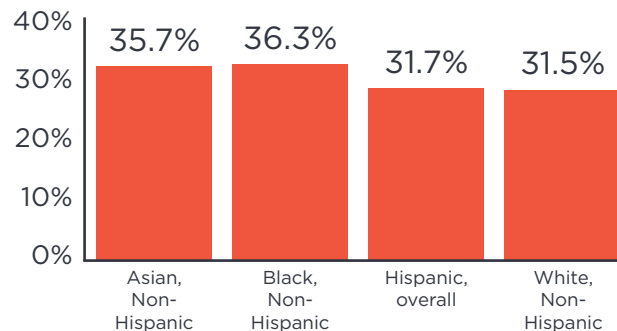
What Causes Diabetes?

At its core, diabetes is a metabolic dysfunction in which the body cannot properly process glucose. In type 1 diabetes, the body’s own immune system attacks and kills the beta cells in the pancreas that produce insulin. Behind type 2 diabetes is a disease where the body’s cells have trouble responding to insulin—this is called insulin resistance. Over time, though, the beta cells in the pancreas will fatigue and will no longer be able to produce enough insulin—this is called “beta burnout.” While type 1 diabetes has no known cause, the majority of type 2 diabetes cases are ultimately due to a combination of people eating too much and not performing enough physical activity. This is why type 2 diabetes risk strongly correlates with obesity levels. Different people are at various levels of predisposed genetic risk for developing type 2 diabetes, which is partially why some overweight or obese individuals never develop type 2 diabetes, while others do.

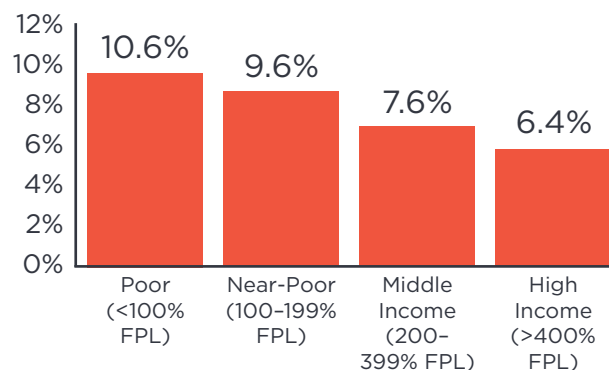
Rates of Diagnosed Diabetes²⁷



Prevalence of Prediabetes²⁸



Diabetes Prevalence by Income²⁹

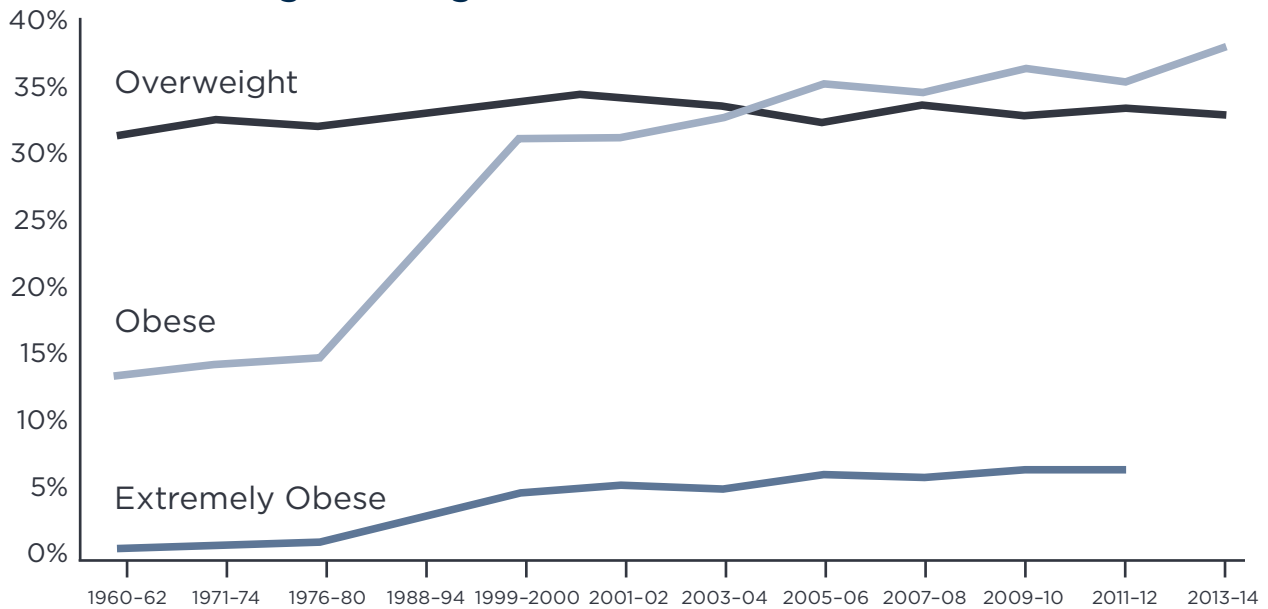




“My health complications (nerve damage, pain, etc.) continue to worsen due to compounding effects of prior years of mismanagement.”¹¹

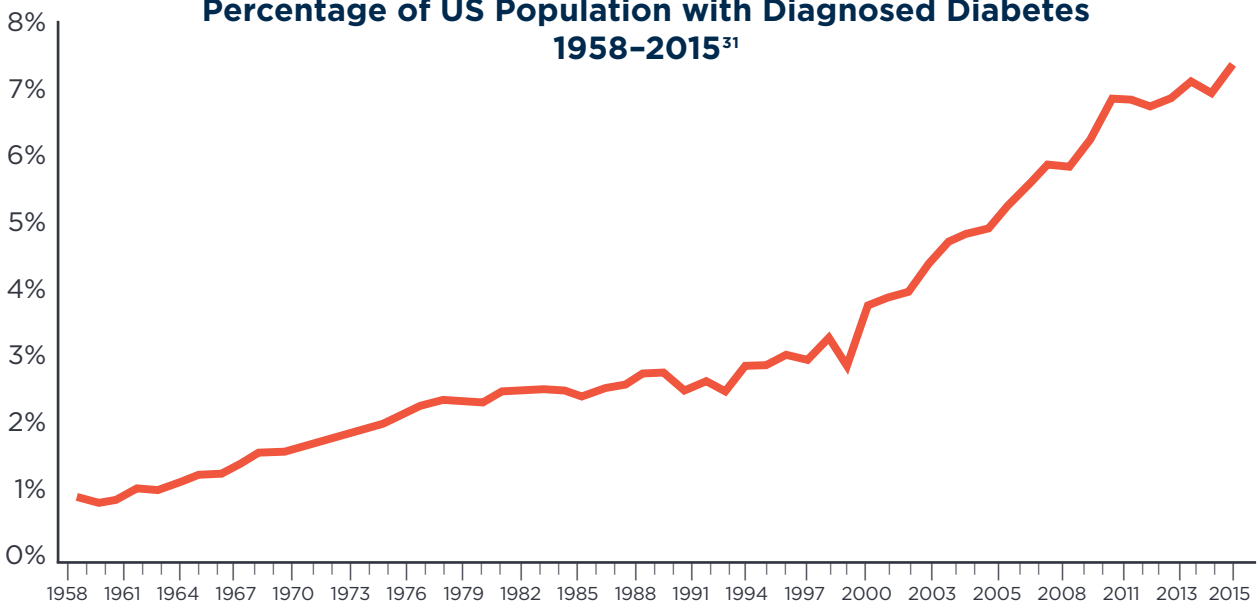
Obesity and Type 2 Diabetes Trends Over Time

Trends in Overweight, Obesity, and Extreme Obesity Among Adults Aged 20-74 • United States 1960-2014³⁰



Over the past 26 years, diabetes has gone from being the twelfth to the eighth leading cause of premature death in the US, and from being the eighth to the third leading cause of disability and injury.³²

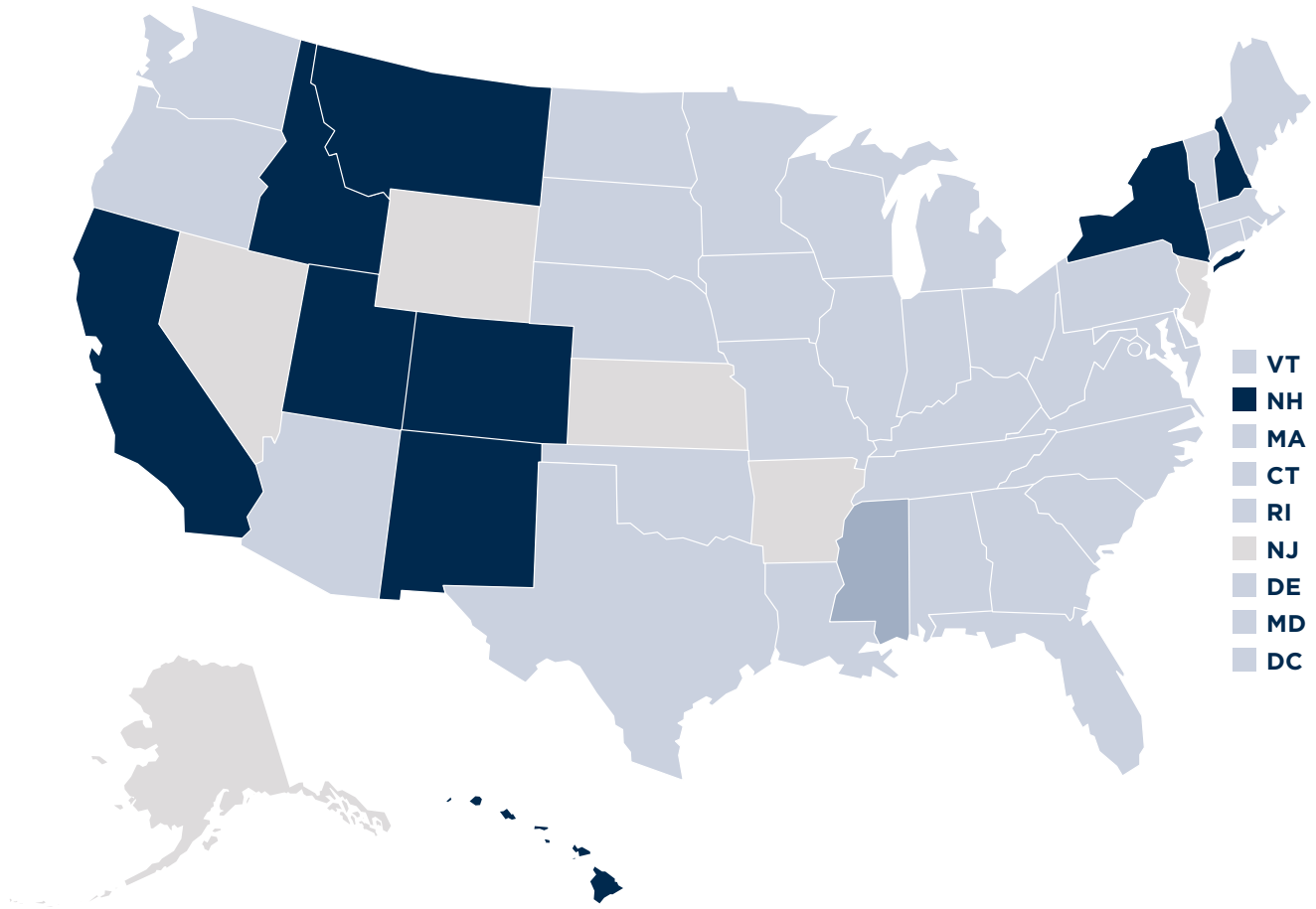
Percentage of US Population with Diagnosed Diabetes 1958-2015³¹



Adult Obesity Rate by State, 1995³³

Percent of obese adults (Body Mass Index of 30+)

0-9.9% 10-14.9% 15-19.9% 20-24.9% 25-29.9% 30-34.9% 35%+

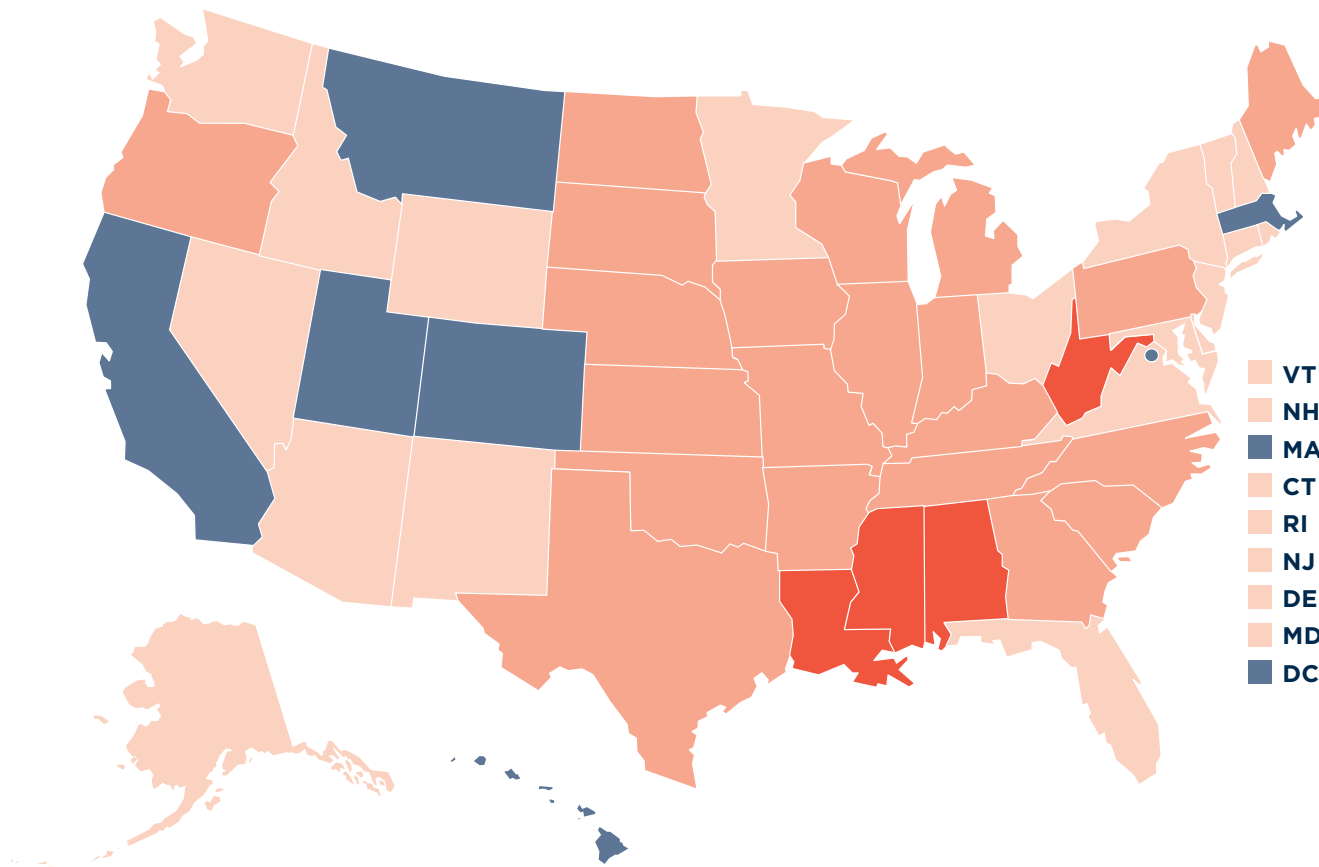




Adult Obesity Rate by State, 2016³³

Percent of obese adults (Body Mass Index of 30+)

0-9.9% 10-14.9% 15-19.9% 20-24.9% 25-29.9% 30-34.9% 35%+



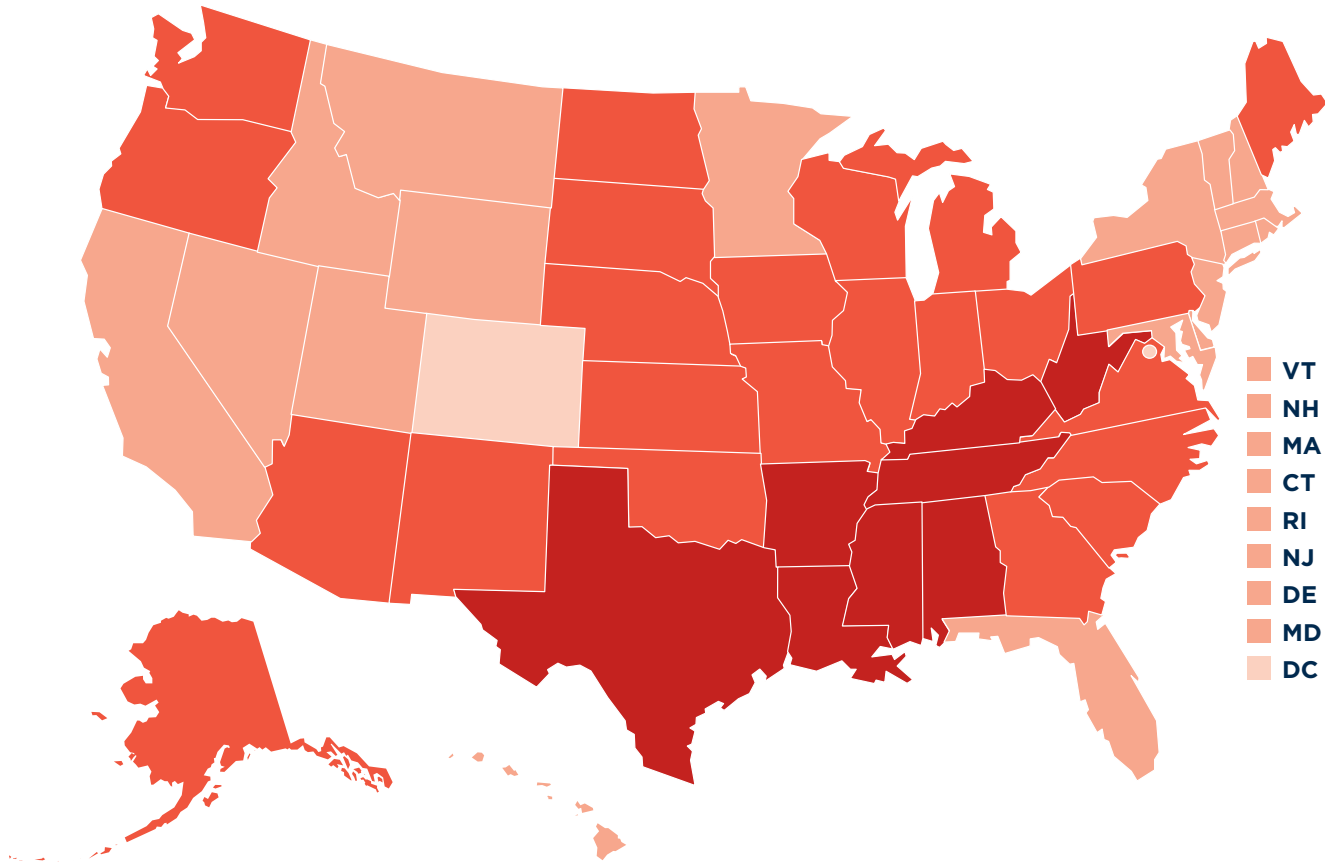
State-by-state discrepancies in life expectancy reveal the imbalanced toll of chronic disease. Life expectancy in Hawaii is 81 years and in Mississippi 75 years; diabetes contributes to over twice the number of years of life lost in West Virginia as it does in Massachusetts.³⁴



The Estimate of The diaTribes Foundation & Close Concerns: Adult Obesity Rate by State, 2016³⁵

Percent of obese adults (Body Mass Index of 30+)

25-29.9% 30-34.9% 35-39.9% 40%+



Please note that this map is based solely on our team’s estimates. Given that the CDC’s state-by-state obesity prevalence maps relied on self-reported data from the Behavioral Risk Factor Surveillance System (BRFSS)³⁵ and thus may underestimate the extent of the obesity epidemic, The diaTribes Foundation estimated the “actual” 2016 obesity data using assumptions based on discrepancies in previous years’ data between BRFSS and National Health and Nutrition Examination (NHANES)³⁶ data. Our

calculations (represented in this map) suggest that the obesity rate is much higher than thought. Recent results from the CDC’s NHANES 2015–2016 survey,³⁷ based on more rigorous methods of data analysis including interviews and physical examinations, confirmed that the national prevalence of obesity was indeed much higher—39.6% among adults. Yearly self-reported BRFSS state-by-state data is a sizable underestimation, potentially due to stigma and under-diagnosis.

“Been in the hospital three times in a month...I’ve packed on a lot of weight. My blood pressure and blood sugar are way out of range and because of that, I’m on a lot more medicine. I’m on oxygen so I don’t have the independence that I once did. I’m tired all the time. I want to feel better, but I don’t know how to get there.”¹¹

What Causes the Diabetogenic Environment?

On a broad scale, economic growth in the US coupled with our increasingly Westernized, modern lifestyle have led to a significant increase in type 2 diabetes over recent decades. While the problem is complex and the list below is by no means exhaustive, certain key areas of influence include:

Food Culture

On a national scale, calorie-dense foods with low-nutritional value are often the cheapest, most readily available option. Moreover, foods of all kind come in larger portion sizes than ever before. While intake of specific foods, such as sugar, has increased over time, so has our intake of food overall.

Urban Planning and Physical Activity

The built environment can encourage or deter physical activity. For instance, a lack of green space and urban violence can pose barriers to exercise, especially in low-income neighborhoods where residents may not be able to afford gym memberships.

Healthcare Coverage

Healthcare coverage is associated with type 2 diabetes diagnosis rates and glycemic control. Even with the Affordable Care Act, 18 states have not expanded Medicaid, leaving some of the most vulnerable individuals uninsured.³⁸

Food Deserts

Food deserts are areas without ready access to fresh, healthy, and affordable food. These environments often foster poor dietary habits, especially in children, that can contribute to the onset of type 2 diabetes.

Geographical Barriers

Distance from healthcare can influence how often patients seek healthcare. This is particularly a problem in rural areas, as the US is facing a shortage of primary care providers and endocrinologists. In 2011, there was an estimated shortage of 1,500 endocrinologists based on patient demand. Moreover, an estimated shortage of up to 45,000 primary care providers (who provide 85% of diabetes care) is expected by 2020.³⁹ As a result, patients often have to travel long distances while facing transportation barriers in order to receive care.

Time Constraints

Type 2 diabetes prevention and management is time consuming, often requiring more time than people have in their daily lives. One study found that if people with type 2 diabetes followed every recommendation by the American Diabetes Association, it would add two hours to their daily routines.⁴⁰ When conflicted between jobs, caring for children and family, and other life priorities—diabetes prevention and management can fall to the side.

Lack of Peer Support

Studies have shown that social isolation can be as lethal as cigarette smoking.⁴¹ For people with diabetes—a disease that comes with a great deal of social stigma—peer support can often be challenging to attain.



“I worry literally every day about what might happen if I lose my job, and it increases my stress and depression, making it harder to deal with diabetes.”¹¹

What Causes the Diabetogenic Environment? (cont.)

Cultural Attitudes

How people perceive diabetes can play a significant role in our ability to prevent and treat it. From how people prioritize diabetes in their own lives (is diabetes management a top priority?), to societal perceptions of “normal” body weight, to public perception of the severity of diabetes compared to other diseases, these cultural attitudes influence behavior and ultimately health outcomes.

Limited Health Literacy

In the US, only 12% of US adults have proficient health literacy, and over one third have issues with common medical tasks such as following prescription directions. Moreover, health literacy disproportionately affects different groups of people: 28% of white adults have “basic or below basic” health literacy, compared to 65% of Hispanic adults.⁴² Of course, limited health literacy influences many other factors that contribute to type 2 diabetes risk.

Where Is Diabetes Care Today?

What are Some of the Current Focus Areas in Type 2 Diabetes?



“Traveling, living alone, managing the food, timing food intake, and exercise make it difficult to control sugar levels and effects of medications.”¹¹

Where Is Diabetes Care Today? (cont.)

The Anthology of Bright Spots

The Anthology of Bright Spots in Type 2 Diabetes was conceived during The diaTribe Foundation’s d16 Executive Innovation Lab on Diabetes and Obesity. Several participants in the Innovation Lab asked, quite simply, “What’s working? Where can we find out about existing successes? What’s scalable?” It quickly became clear that no such inventory exists—which meant we had no way of identifying common traits of successful interventions across different populations. By creating a unified collection of success, or “Bright Spots,” we hope to promote awareness, collaboration, further innovation, and investment.

The Anthology is divided into three sections: **Prevention, Workplace Wellness, and Healthcare Teams of the Future.** The

Prevention section details prevention programs that have demonstrated positive outcomes, inspire others, and show potential for impact, scalability, and investability. Workplace Wellness delves into programs that aim to improve health outcomes for employees, while Healthcare Teams of the Future explores structural initiatives to reorganize, streamline, and improve how practitioners interact to care for patients. Though there is inevitably some overlap between the three categories, each section also details the top insights distinguishing its key needs and priorities.

The Anthology of Bright Spots will launch online in June 2018. You will be able to read about these programs at www.diatrube.org/foundation/anthology.

Current Efforts in Type 2 Diabetes Prevention

While the field of diabetes prevention is extensive, a few key areas of focus include (but are not limited to) the below:

Diabetes Screening

- Increased screening can help catch prediabetes and type 2 diabetes in its earlier stages of development, allowing patients to begin treatment earlier and help prevent long-term complications.
- Guidelines⁴³ published by the US Preventive Services Task Force recommend blood glucose checks for overweight people age 40–70.
- An observational study from Quest Diagnostics found that states that expanded

Medicaid as part of the Affordable Care Act saw a 23% rise in new diabetes cases vs. a 0.4% increase in states that had not expanded Medicaid over the same period.

National Diabetes Prevention Program

- Several prediabetes interventions exist based on evidence from the landmark Diabetes Prevention Program (DPP) study.⁴⁴ The DPP study reported that moderate weight loss (5–7% of body weight), counseling, and education on healthy eating and behavior reduced the risk of developing type 2 diabetes by 58%. Data presented at the ADA 2014 conference showed that after 15 years of follow-up of

"I can't keep my blood sugar under control. I wake up every morning with at least a 250 or higher reading. It scares me. I have now been diagnosed with congestive heart failure. But I don't give up. I have altered my diet drastically and will bring my numbers down one way or another!"¹¹

Current Efforts in Type 2 Diabetes Prevention (cont.)

the DPP study groups, the results were still encouraging: 27% of those in the original lifestyle group had a significant reduction in type 2 diabetes progression compared to the control group.

- The CDC offers a one year long lifestyle change program through its National Diabetes Prevention Program (NDPP) at various locations throughout the US to help participants adopt healthy habits and prevent or delay progression to type 2 diabetes.

Digital Health

- Omada Health, Noom Health, and Canary Health have all taken the DPP curriculum and translated it onto an online format.
- Omada Health recently launched the largest-ever digital DPP clinical trial, which will enroll about 500 people with prediabetes and is estimate to be completed in late 2019.⁴⁵

Community Health Initiatives

- The Partnership for a Healthier America⁴⁶ is a non-profit organization with extensive partnerships in the private sector, including Mercedes-Benz, Dannon, Walmart, and Birds Eye, to collectively combat childhood obesity.
- Michelle Obama's initiative, *Let's Move!*⁴⁷ was a comprehensive effort to tackle obesity and type 2 diabetes, specifically among children. The program encouraged

kids, families, schools, elected officials, and healthcare providers to work together to change kids' lifestyles to be healthier.

Nutrition Policies

- Sugar-sweetened beverage taxes have been passed in Albany, Berkeley, San Francisco, and Oakland (CA), Boulder (CO), Philadelphia (PA), Seattle (WA), the Navajo Nation, Mexico, and a number of other countries. While there is no long-term data on these initiatives yet, early data found that in the first year after Mexico's 10% on soda, the purchasing of sugary beverages decreased by 6%.⁴⁸
- One 2015 cost-effectiveness study modeled that a national excise tax on sugar-sweetened beverages would prevent 576,000 cases of childhood obesity and would save \$14.2 billion dollars in healthcare costs over 10 years. This represents a significant return on investment, saving \$32 for every \$1 invested.
- The FDA has mandated all retail food establishments, chain restaurants, and vending machines must include calorie labeling on their menus, though the effectiveness of this approach is up for debate.
- The FDA is enacting several changes to nutrition labels, including greater emphasis on added sugars and calorie count per serving. This rule is already in effect at chain restaurants, and food manufacturers will have until 2020 or 2021 to comply.

d18: Where do we come in?

As showcased in the Anthology of Bright Spots, there is no shortage of work being done in type 2 diabetes and prediabetes today. From prevention programs to science research to digital health, the diabetes ecosystem is large and varied. All of these efforts—and the people behind them—are doing difficult, important work in the fight against diabetes.

Obviously, there will be no one single solution to diabetes. If one thing is clear, it's that diabetes is an incredibly diverse and complex disease. No one person with diabetes is the same, and solutions will only come from collective impact.

Although new therapies significantly reduce cardiovascular and kidney disease, drugs and devices alone will not solve diabetes. Policy changes will not solve diabetes, nor will patient education. What will solve diabetes are all of these working together. We need an integrated, cross-systems approach focused on prevention and behavior change to reverse these trends. That's where d18 comes in. Together, we will focus on collaborative approaches that have potential to generate collective impact.

Key questions we will consider include:

1. What might the diabetes ecosystem look like in 2030?
2. What are the most significant obstacles holding back progress?
3. Where have we seen systemic leadership already practiced in diabetes?
4. As leaders in this field, what actions can we take to turn the tide?

Key questions we considered at d17 include:

1. How might we mobilize patients and leaders to reduce stigma and improve public attitudes and social norms surrounding diabetes and prediabetes?
2. How might we re-design the acute-care-oriented healthcare system to better serve chronic disease management?
3. How might we make prevention of diabetes and prediabetes a priority in the health system and beyond?
4. How might we design programs that result in behavior change?
5. How might we change/create policies that promote health and wellness?

We have included background information on each of these key questions in the following pages.



How might we make prevention of diabetes and prediabetes a priority in the health system and beyond?

Background

- 84 million people in the U.S. have prediabetes.⁴⁹ It is estimated that people progress from prediabetes to type 2 diabetes at a rate of 10% per year.⁵⁰
- Only 11.6% of people with prediabetes report that a medical professional has informed them that they have this condition.⁵¹
- The Diabetes Prevention Program (DPP) study found that an intensive lifestyle intervention featuring 5–7% weight loss and 150 minutes per week of physical activity reduced the rate of progression to diabetes by 58%.⁵²
- Based on the DPP study and subsequent translational studies, Medicare decided in 2016 to provide reimbursement for accredited DPPs.⁵³

Key questions

- How might we make a compelling case for the public investment in prevention, especially in the context of wide social need?
- How might the private sector play a greater role in prevention and public health promotion?
- How might we alter the health care payment, education, and food & beverage systems to reflect increased needs for prevention?

Selected prevention insights from The Anthology of Bright Spots

- “Make it cool—media and marketing are essential tools for social change.”
- “Don’t blame individuals for social and environmental challenges; work to change places and not just people.”
- “People make decisions based on their priorities. Prevention is rarely a priority”
- “Peer education and support help people engage with, and even accept, interventions.”
- “Make it unavoidable. Meet people where they are, and often.”

Examples of prevention programs

- A number of digital platforms have translated the DPP model, including Omada Health, Noom, Lark, Canary Health, and Yes Health.
- UCSF’s Healthy Beverage Initiative ended the sale of sugar-sweetened beverages from all locations on its three campuses.
- Shape Up Somerville uses a “collective impact” model and community-based participatory research (CBPR) methods to create complementary interventions to improve citizens’ health in Somerville, MA.
- See more examples in the “Prevention” section of The Anthology of Bright Spots.



How might we re-design the acute-care-oriented healthcare system to better serve chronic disease management?

Background

- \$2.3 trillion dollars are spent each year on people with chronic diseases—this number can be reduced.⁵⁴
- America's healthcare system was developed as an acute care management model, and the payment structure of healthcare in the US is still largely biased toward resources spent rather than delivering patient outcomes.
- The three highest-paid specialties in the US are orthopedics, plastic surgery, and cardiology, while the lowest-paid specialties are pediatrics, family medicine, and endocrinology.⁵⁵
- Medical training on average leaves students with \$190,000 in debt; primary care exposure is also lacking in medical schools.⁵⁶

Key questions

- How might we adapt the American health care system to better align with the growing need for chronic disease management?
- How might we make longitudinal care of patients relevant and compelling as a profession to young medical students?
- How might we create incentives for healthy behaviors outside of clinics, such as in businesses, schools, and households?

Selected insights from The Anthology of Bright Spots

- Cost effective team-based care involves many professionals all working at the “top of license.” For instance, behavioral specialists may be better in addressing motivation in chronic disease than doctors.
- Primary care is currently limited by insufficient time and incentives, but it has the potential to be more cost-effective.
- Patients are currently accountable for ensuring that their many providers meet their various needs. This contributes to increased fragmentation and lack of communication among providers.

Examples of current efforts

- The Affordable Care Act (ACA) encourages testing new models of healthcare delivery, shifting from a reimbursement system based on the volume of services to one based on the value of care, and investing in resources for system-wide improvement. Part of the ACA included Accountable Care Organizations (ACOs).⁵⁷
- Institutions are beginning to respond to needs of patients with chronic diseases—USC's Lifestyle Redesign program uses an occupational therapy model of life intervention to support people with a wide variety of chronic conditions, and Vanderbilt's Program in Interprofessional Learning prepares students in medicine, nursing, social work, and pharmacy for the future of collaborative student care.



How might we design programs that result in behavior change?

Background

- Of the \$2.7 trillion the US spends on healthcare, about 70% of total costs are heavily influenced by consumer behavior.⁵⁸
- In 2015, 50% of US adults did not meet recommendations for aerobic physical activity, 40% of adults said they ate fruit less than once a day, and 22% of adults said they ate vegetables less than once a day.⁵⁹
- Dr. BJ Fogg's top ten mistakes in behavior change include: relying on willpower for long-term change, attempting big leaps instead of baby leaps, and ignoring how environment shapes behavior.
- Dr. BJ Fogg's model shows that motivation, ability, and triggers must converge for behavior change to happen.

Key questions

- How might we provide incentives for healthy behaviors outside of the clinic, such as businesses, schools, and households?
- How might we change the built environment to promote healthy behaviors and make behavior change easier?
- How might we use Dr. BJ Fogg's framework to strengthen programs in The Anthology of Bright Spots? How might we create a "toolkit" for programs on how to best catalyze behavior change?

Selected insights from The Anthology of Bright Spots

- Behavior change should start early—prevention needs to start before people develop prediabetes.
- The most frequently cited barrier to healthy decisions is money.
- There is widespread misperception about what constitutes meaningful lifestyle change—even minor weight loss (5–7% of body weight) makes a difference, but most people think meaningful weight loss means drastic weight loss.
- Effective incentives reward behavior, not outcomes.

Examples of current behavior-change programs and policies

- Brighter Bites not only distributes fresh fruits and vegetables to underserved communities but it also focuses on multi-generational engagement to encourage parental role modeling for children.
- Cooking Matters promotes healthy behavior by providing cooking lessons in addition to standard nutrition lessons.
- Complete Streets policies have been adopted by over 1,140 agencies across the US in order to safely accommodate public health recommendations that walking and biking be incorporated into daily routines.



How might we mobilize patients and leaders to reduce stigma and improve public attitudes and social norms surrounding diabetes and prediabetes?

Background

- A majority of people with diabetes report experiencing stigma, which disproportionately affects those with a higher BMI, higher A1c, and poorer self-reported glucose control. Social identifiers of diabetes can include insulin injections, dietary restrictions, blood glucose monitoring, obesity, and hypoglycemic episodes.⁶⁰
- Last year at d16, the concept of a National Diabetes “Show Up” Day was created, modeled after the LGBTQ movement’s “Coming Out” Day. This day would provide a safe place for people with diabetes to speak publicly to their family and friends as people living with type 2 diabetes and for their community to show people with type 2 diabetes that they are supported in all areas of their lives.
- Over 8 million people with diabetes in the US are undiagnosed, and 90% of the 86 million Americans with prediabetes don’t know they have prediabetes; underlying causes for this high rate include lack of education and screening.
- Lack of representation in mainstream media, including film and television, is another contributing factor to the stigma surrounding diabetes.
- Though diabetes support groups exist, many are large in size, impersonal, and overwhelming for the newly diagnosed.

Key questions

- How might we increase general public awareness about diabetes and prediabetes?
- How might we create and popularize diagnosis support groups, or support the development of support groups that exist within larger organizations?
- How would a program like “Show Up” Day be funded? How might we engage stakeholders to make the event more successful?

Selected insights from The Anthology of Bright Spots

- Interaction with medical professionals in Diabetes Prevention Programs (DPP) may, in fact, increase stigma in prediabetes and diabetes by “medicalizing” lifestyle choices rather than supporting and uplifting patients.
- Clinicians need increased training to avoid stigmatizing patients who are counseled on weight loss and lifestyle changes.

Examples of current efforts to reduce stigma in diabetes

- The Ad Council’s national prediabetes awareness campaign (in partnership with ADA, AMA, and CDC) encourages people to learn their risk for type 2 diabetes at DoIHavePrediabetes.org.
- Diabetes Canada’s recent “End Diabetes” campaign focused on ending the “health impacts of diabetes as well as the shame, blame, stigma, and misinformation that surround it.”



How might we change/create policies that promote health and wellness?

Background

- Out of acknowledgment that policy change is critical for addressing the epidemics of diabetes and prediabetes, several policy ideas emerged from d16:
 - Nutritional guidelines for food distributors (manufacturers, restaurants, vending machines, etc.) and “awards” for those that meet the guidelines.
 - A nationwide tax on sugar-sweetened beverages (SSB)—this measure has been approved in San Francisco, Berkeley (CA), Oakland, Philadelphia, Seattle, Boulder (CO), Cook Country (IL), and Albany (CA).
 - A low-cost “Blue Apron” program for low-income populations.
 - Employee wellness programs.
- Full-time employees spend a third of their day, five days a week at work—workplace wellness programs have great potential, but they have been proven to be controversial.^{61,62,63}

Key questions

- How might we scale and distribute employee wellness programs through policy efforts?
- How might we make public investment in health a priority, especially in the context of built environments, healthcare systems, and education?
- How might we pass local soda taxes and coordinate larger national efforts related to decreasing consumption of sugar-sweetened beverages (SSB’s)?

Selected insights from The Anthology of Bright Spots

- The past decade has seen a “healthy lifestyle” movement in America; however, this focus on healthy living has largely been concentrated in higher-income, mostly white communities.
- There is often a gap between the availability of health and wellness programs and awareness and uptake by target populations.
- The most frequently cited barrier to healthy decisions is money.

Examples of current policies around health and wellness

- In 2010, Congress passed the Healthy, Hunger-Free Kids Act aimed at improving child nutrition, and in 2016, the final rule was published, strengthening public involvement, transparency, implementation, and evaluation.⁶⁴
- The Affordable Care Act (ACA) allows employers to charge higher premiums to workers who choose not to participate in workplace programs or fail to meet certain health outcomes.⁶⁵
- Complete Streets policies have been adopted by over 1,140 agencies across the US in order to safely accommodate public health recommendations that walking and biking be incorporated into daily routines.

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