It’s time again for the 74th Scientific Sessions of the American Diabetes Association (ADA) – and this year it’s right in our hometown of San Francisco! ADA begins in just a few weeks, and all of us at diaTribe will be headed to the conference to get the very latest insights into diabetes and obesity, not to mention the therapies and devices that could improve the health and happiness of those living with these diseases. We’ll be reporting back to you next issue with all the biggest takeaways from this year’s ADA, but while we’re on the topic San Francisco, I wanted to focus on the bigger picture: the relationship between cities, their citizens, and diabetes.

The modern city is a major under-examined part of the type 2 diabetes story, as a disproportionate percentage of the global diabetes population is found in urban environments, an effect that will just get worse as more and more people move to cities over the coming decades. If you haven’t had a chance yet, please read our piece on how cities can change diabetes, and make your voice heard in our reader poll. We’ve had a terrific response so far from our readers; all your stories have been even more thoughtful and compelling than I could have hoped! If you haven’t yet responded, would you take two minutes to do so?

It’s a powerful idea to reimagine and revitalize cities to make them places that naturally promote healthy lifestyles. It’s on my mind for ADA, because this year the conference is coming to us in our hometown of San Francisco. Our city is well known as a center for immigration and cultural exchange, the home of iconic sites like Alcatraz and the Golden Gate Bridge, and a place of progressive thought and civil rights activism. Now I hope that San Francisco will take a leading role in reshaping itself to address one of the great public health crises of our time.

We’re starting to see changes already. San Francisco is considering a soda tax, making it more expensive to buy sugary, high-calorie soft drinks. We think it’s a good idea to show we mean business – especially because the funds would all go toward making it easy to live more healthily. In the last year, we saw the introduction of a bike-sharing program similar to those already in place in London and New York. In this month’s issue, Adam Brown gives his top ten tips for surviving in a food environment where it’s hard to make healthy choices. The kind of progress we’ve seen here, and in other cities from Seattle to Birmingham, is inspiring, and now it’s time to push further by thinking about how we can change our environment to be happier and healthier. I’m looking forward to hearing what the thinkers and experts have to tell us at ADA – and this year, I can finally walk there!

Very Best,

[Signature]
quotable quotes

“No matter what the New York Times says, [diabetes] is a LOT of work!”

– Dr. Irl Hirsch (University of Washington, Seattle, WA) reacting to last month’s controversial New York Times article, which implied that technology that makes type 1 diabetes management easier may not be worth the cost; at the American Association of Clinical Endocrinology Annual Scientific and Clinical Congress (AACE) on May 14-18, 2014

“I don’t see on a personal level that I have any responsibility to a third party that’s trying to make a business out of insuring someone’s healthcare. My obligations are to my patients, first and foremost.”

– Dr. Alan Garber (Immediate Past AACE President) on the costs of appropriate medications at AACE 2014

“We need to look at all the data appropriately, critically, and scientifically, but let’s not overblow things.”

– Dr. Parresh Dandona (University of Buffalo, NY) on the difficulty of interpreting clinical trials at AACE 2014

fingersticks
JAMA study finds Dramatic Increase in Childhood Type 1 and Type 2 Diabetes

On May 7, the results of the SEARCH for Diabetes in Youth study published in JAMA found a 21% increase in type 1 diabetes and 31% rise in type 2 diabetes in children. The study tracked the prevalence of diabetes from 2001 to 2009, and found that type 1 diabetes rose from 1.48 to 1.93 cases per 1,000 people over that eight-year period. Meanwhile, type 2 diabetes in children increased from 0.34 to 0.46 cases in 1,000 people.

The study separated diabetes rates by race/ethnicity, age, and gender, which means it is the first multiethnic data on changes in diabetes in youth ever – that’s a big deal. Although it found that type 1 diabetes was highest in white patients and type 2 diabetes was highest in American Indian youth, there was clearly an increase in diabetes incidence across all groups. The fact that these rates rose noticeably and across many different groups in such a short time is worrisome, and calls for the importance of learning more about effective prevention for both type 1 and type 2 diabetes. As Mr. Jeff Hitchcock, the founder of Children with Diabetes states, “We as a community need to press for more research into why the prevalence of type 1 is increasing so we can begin to contemplate prevention as real.” You said it, Jeff – right you are. – NL

Invokana Enters Trials for Treatment of Diabetic Kidney Disease

In February, J&J announced that its SGLT-2 inhibitor for type 2 diabetes, Invokana Kidney Nephropathy CREDENCE Invokana (canagliflozin), will undergo trials as a treatment for diabetic kidney disease (nephropathy). That is great – it means J&J is serious about fighting kidney disease and that it thinks it has a treatment for it. As a reminder, you’ve probably heard about nephropathy when your doctor or nurse has talked about long-term healthcare complications (that dreaded term) related to diabetes. So, nephropathy occurs when high blood glucose levels over time cause damage to the kidney. According to our interview with the noted endocrinologist Dr. Norman Rosenthal at J&J, it is not yet entirely well understood how exactly Invokana might work to help chronic kidney disease patients; what experts there do say is that how it works to reduce kidney disease the mechanism is likely independent from its glucose-lowering benefits. Previous trials have shown a promising improvement in kidney health after taking Invokana, with about 50% improvement in urinary albumin/creatinine ratio (a measure of how healthy the kidney is – learn more here) compared to a 39% improvement from using losartan, the current standard-of-care therapy for nephropathy.

The new trial testing Invokana in nephropathy is expected to finish around February 2019, so it will be several years before we know if Invokana can ultimately be prescribed for nephropathy. This is big news for Invokana, as we do not know of any other SGLT-2 inhibitors being studied for the nephropathy. Nephropathy continues to be a major unmet need in patients with diabetes, so any therapy that improves kidney function would be a win for patients and providers. – NL/KC
FDA Proposes Accelerated Access to Medical Devices – A Faster Path to the Artificial Pancreas?

On April 22, the FDA announced an exciting new program to accelerate access to medical devices that address major unmet needs. This should mean earlier and more interactive discussions with FDA representatives, a collaborative plan with companies to ensure that review/approval goes more smoothly and predictably, fewer requirements needed before launch, and a faster review. (Close your eyes and say all that – it does sound too good to be true, doesn’t it!) It’s exciting to hear this new FDA effort to increase the speed of medical device reviews and approvals. While Europe has consistently seen new devices reach market before the US (e.g., the Animas Vibe, the Medtronic Veo/MiniMed 530G), we think things are slowing down there, in some cases, appropriately so – so it’s notable that, at least theoretically, the result of policy shifts on both sides of the water should ultimately result in timelines being more similar.

Notably, it’s believed that the new expedited program could apply to artificial pancreas systems currently in development. Indeed, devices that qualify for the program must treat a life-threatening or chronic condition, represent a significant advantage for patients, and have a data development plan approved by the FDA. Certainly, artificial pancreas systems could be transformative for patients, and the new program seems to fit well with a fully automated overnight closed-loop system that also incorporates some daytime automation (e.g., “control to range” that minimizes hypo- and hyperglycemia). It’s still unclear which devices will fit the new program’s guidelines – for instance, will predictive low glucose suspend count – but the FDA will likely decide on a case-by-case basis. This news continues a very positive recent trend of more interactive dialogue and patient-friendliness from the FDA. –NL/AB

FDA Draft Guidelines Receive 556 Comments – Thank you to the DOC!

On May 7, the FDA draft guidance for blood glucose monitoring at home and at healthcare facilities FDA draft guidance for blood glucose monitoring - 556 commentsclosed for comment – although that didn’t stop the 556 people from having their voices heard! This represented a notable patient advocacy effort and as a result, the FDA received more than three times the number of comments than on previous diabetes draft guidance documents. Special thanks go to Bennet Dunlap of Strip Safely, and all of the patients who took the time to comment on the FDA guidelines and advocate for policies that keep patients’ best interests at heart. With 30 million people diagnosed with type 1 and type 2 diabetes in the US alone, 556 might sound like a small number – but the growth, one by one, is terrific to see. With so much patient engagement from the diabetes community, we hope the FDA heard the clear call to provide accurate and safe meters (and, more to the point, exclude meters that aren’t accurate), maintain quality and access to diabetes supplies, and to establish postmarket surveillance programs that ensure meters maintain quality following FDA clearance. In regards to the latter, things do seem to be moving in the right direction – the Diabetes Technology Society announced on May 20 that it would initiate just such a program. As we understand it, the Diabetes Technology Society will also be writing more on policy, with
a program being established by the very highly regarded Dr. Bruce Quinn – more to follow on that front. The first step is to convene a committee to decide on the program’s specifics. We hope that Bennet is there to represent patients and the patient voices are heard. We’ll be back with more once there is more news to share. –NL/KC

Support Hope Warshaw for AADE President and Increase the Voice of the Diabetes Online Community – Polls Close June 16th!

We recently heard terrific news that Hope Warshaw, a long-time friend of diaTribe and Advisory Board Member, is running to be the President of the American Association of Diabetes Educators (AADE). We can’t think of someone more worthy of this key position, as she has been a diabetes educator for almost 35 years, founded the very respected Hope Warshaw Associates, and has been an active part of AADE and other organizations in diabetes. Throughout the years, she has been an important advocate for the diabetes online community (DOC) and diabetes patients, and plans to continue the dialogue while at AADE. If you are an AADE member, please consider supporting her presidency to give more voice to the DOC, and if you are not a member, please ask your educator or anyone you know in AADE. The election will close on June 16th and we encourage you to help any way that you can while we have this opportunity to help influence the future direction of AADE. –NL

FDA Issues Strong Safety Warning Against Shasta GenStrip

On April 29, the FDA issued a strongly-worded safety communication that advised patients and health care providers to stop using the GenStrip from Shasta Technologies, a third party “generic” strip that can be used with Lifescan’s OneTouch Ultra, Ultra 2, and UltraMini meters (i.e., the strip is not made by Lifescan, but works with Lifescan meters). The FDA also informed retailers to stop selling and distributing the product, as well as to remove unsold strips from shelves. The Agency believes that the GenStrip may report inaccurate blood glucose readings, a view that stems from a revealing inspection of Shasta Technologies’ facility – notably, the FDA found 11 (!) violations in quality systems. Disappointingly, Shasta refused to voluntarily recall its strips.

Around the same time of the FDA announcement, Decision Diagnostics acquired Shasta’s GenStrip technology. Notably, Decision plans to continue selling the GenStrip, a move that we assume will be further investigated by the FDA. Although it’s difficult to predict what will happen next, this certainly isn’t the end of the story. Indeed, UniStrip1, a new FDA-approved generic strip for Lifescan meters, was launched on April 9. There’s no question that third party generic strips do offer a cost advantage relative to their branded counterparts, but these companies’ quality systems and commitment to patient safety are a major unknown. –NL
**Vokanamet (Invokana/metformin IR) is Approved in Europe**

On April 25, J&J announced that a metformin/Invokana (canagliflozin) fixed-dose combination pill called Vokanamet was approved in Europe. This makes the combined pill the second SGLT-2/metformin fixed-dose combination drug to make it to market, following the approval of AstraZeneca’s Xigduo in Europe. Vokanamet will require a twice-daily dose (since metformin intermediate release is twice-daily), though J&J is currently working on a once-daily Invokana/metformin extended-release pill. Certainly, this would greatly reduce the hassle for patients that may take multiple drugs or use an add-on therapy to metformin to help control their diabetes (you can learn more about type 2 diabetes progression here). Vokanamet is not yet available in the US, but has just recently been resubmitted to the FDA for review. What we are really keen to see is “branded” fixed dose combinations – for example, an SGLT-2 and a DPP4 inhibitor combined in one pill. –NL/KC

**Can a text-messaging pilot improve diabetes care in Kenya and Uganda?**

German pharmaceutical company Merck KGaA has launched a pilot program in Kenya and Uganda to improve the outcomes of diabetes care through a text messaging campaign. Targeted at both the general public and the healthcare community, the program will send out approximately 100,000 messages each year concerning diabetes, as well as advice on staying healthy. Soon, Merck plans to expand its CAP program to other sub-Saharan countries, including Ghana, and will likely implement its SMS initiative there as well.

This represents the most recent initiative of a five-year Capacity Advancement Program (CAP) in collaboration with government health officials and universities. The CAP aims to increase public knowledge about diabetes in sub-Saharan Africa with the goal of reducing complications through earlier diagnosis, managed treatment, and better training for medical students. A 2010 estimate suggests that there were 12.1 million patients with diabetes in Africa overall. In Uganda and Kenya, diabetes impacted 625,000 and 749,000 individuals respectively. In two out of three cases, patients with diabetes do not recognize their symptoms and do not seek treatment until complications arise. –AG/KC

**diaTribe dialogue**

**The Future of the Type 1 Diabetes Field - What Challenges and Promises Lie Ahead? Our Interview with David Panzirer and Dana Ball**

*by Adam Brown, Hannah Deming, Nancy Liu, and Kelly Close*

**twitter summary:** What are the most promising and most challenging parts of working in t1d? Find out more from the experts in our HCT interview.

**short summary:** We had a wide-ranging interview with two of the pioneers of the
Helmsley Charitable Trust’s (HCT) Type 1 Diabetes (T1D) program (which gives $50 million a year to type 1 research, treatment, and services): HCT trustee David Panzirer, and patient advocate Dana Ball. In part two of our interview, David and Dana share incredible insights on what they view as the biggest challenges and promises in the type 1 diabetes field. What do they think is the most important advance? How would they define a cure? And what type 2 drugs can be used for type 1? Read on for more and stay tuned for further installments in our five-part series:

Part 1. How The Helmsley Charitable Trust became one of the most important players in diabetes, and the funding needs and challenges in type 1

Part 2. The Future of the Type 1 Diabetes Field – what challenges and promises lie ahead?

Part 3. Controversies in Diabetes: Technology, Debates, and the “Cure”

Part 4. The T1D Exchange: A story of David and Dana’s drive to accelerate innovative type 1 diabetes research.

Part 5. What can diabetes advocates learn from successes of the HIV/AIDs movement?

ADVANCES IN TYPE 1 DIABETES

KELLY CLOSE: What do you think will be the most important advance in type 1 diabetes in the next five years? The next 10 years?

DAVID PANZIRER: I think the most important advance in the next five years will be a CGM that will be accurate enough to begin to automate some insulin delivery. I have always said if we can automate basal rates overnight and keep people in control, that this would have a dramatic impact on those living with type 1 diabetes. I would hope that in the next ten years, we would move closer towards automation of insulin delivery, but I don’t believe you will ever have a device that you put on people and say, ‘Go live your life like you don’t have diabetes.” I do think we can have dramatic improvement from where we are today, but I think type 1 diabetes is way too complex to fully automate.

DANA BALL: In the next five years, incredibly accurate, easy to wear, connected sensors. I believe the future of personalized care for patients with diabetes is in sensor use and adoption. I hope to see progress towards automating insulin delivery and reducing the burden on patients through technology – low glucose suspend and treat to range systems; testing and greater awareness of type 2 drugs for type 1 diabetes; and standardization of device data. I hope we also see patients come to understand that they are the missing piece and they need to take action, whether that’s getting involved in a study, donating blood, or becoming part of our type 1 diabetes army.

ADAM BROWN: How would each of you define a cure for type 1 diabetes? Would putting a pump on every three days count as a cure, if insulin delivery could be largely automated?

DAVID: I define a cure as though you live your life like you never had the disease.

DANA: I think an automated insulin delivery system is in the cure family. I think it cures the burden. HIV patients that were once dying can now take three pills at bedtime. They understand intellectually that the disease is not gone, but they are not the same as they were before. I don’t define a cure as permanently reversing type 1 diabetes with no management required, whether it’s a medication or whether it’s a device. I think a “cure” is anything that relieves an individual from the burden of managing diabetes and blood glucose. Diabetes is time, it’s stress, it’s money, it’s worry.
HANNAH: What is the biggest thing the type 1 diabetes field is missing?
DAVID: I think that the groups working in type 1 diabetes are very separated; they don’t always work together and I think a huge reason for this is the competition for fundraising dollars. We have started and continue to help to build bridges and work together with all entities that have an interest in improving the lives of patients with diabetes.
DANA: I agree – too many competing interests and most people want to operate independently.

KELLY: Advocates should all think about that a little more. Switching gears a bit, can we talk about what you see the top areas of unmet need in type 1 diabetes globally?
DAVID: The fact that in some places in the world type 1 diabetes is a death sentence is horrible. We need to get people access to the tools required to stay alive. A stabilized insulin that isn’t affected by heat or cold would be awesome.
DANA: Agreed – we definitely need far better global care and access to insulin. In my view, the other major areas of unmet need include funding and expertise for translation studies; funding for phase 2 studies; data and care standards; new endpoints for studies (e.g., time-in-range); quality of life; and improving reimbursement and the financial burden of managing type 1 diabetes both in the US and around the world.

ADAM: Big picture, what do you each see as the biggest challenge or threat the field of type 1 diabetes faces in the next five or ten years?
DAVID: As far as within industry, we need to try and increase the number of people using technologies to manage type 1 diabetes – the companies need to see that the numbers are increasing and there is money to be made in type 1 diabetes technology products. If industry cannot see a way to make a profit in the space, the innovations will continue to be very slow.
DANA: Tailored therapies will create subsets of patients to market therapies. How will we incentivize financial investment and industry engagement? How do we prepare for success and accumulate the evidence to address a stressful reimbursement environment? Will patients show up and embrace changing care and treatment options? Who will care for the population with type 1 diabetes?

TYPE 2 DRUGS FOR TYPE 1 DIABETES
KELLY: That sets up our next question really well. Please talk to us a little more about how you are thinking about type 2 diabetes drugs for type 1 diabetes?
DANA: I think there’s a lot of promise. It’s not going to be an insulin-only world. In terms of moving forward, I think the trick is looking at what’s already been learned from some of these studies, and then creating partnerships with the companies that have the drugs. We can run some very smart clinical trials to figure out who’s going to respond to these drugs and why.

Throughout my career for 13 years, I never said “type 1 or type 2.” I always thought, “It can’t be right.” So many in the type 1 field were saying, “Well, this drug isn’t important. This is for the type 2 overweight population. It’s never going to help type 1. Why would we invest in this?” And I kept saying, “We don’t know that.” Glycemic variability! It’s glucose,
and there’s a connection here – I think in many ways we’ve done a disservice. Now the world thinks in black and white, type 1 and type 2, and here we are. Now 13 years later, I’m glad I never said a word, because now I’m knocking on all the companies’ doors and saying, “We want to design a study because your drug may be able to help people with type 1.”

KELLY: When you think about type 2 drugs for type 1 diabetes, what drug classes intrigue you the most?

DANA: Metformin is the low-hanging fruit, because it’s so safe and it’s safe for kids. If we talk about changing the perception that type 1 diabetes is an insulin-only system, metformin is so important. The world has also changed and type 1 isn’t a thin person disease anymore; there are plenty of people with an increased BMI that are going to benefit from metformin. [Editor’s Note: Courtesy of a $2.8 million JDRF grant, the T1D Exchange is studying the use of metformin in overweight adolescents with type 1 diabetes].

Right now, we’re focused on DPP-4 inhibitors, GLP-1 agonists, SGLT-1 and SGLT-2 inhibitors. This is going to take time and we need to figure out the right patients for these different classes of drugs. We need to escalate the conversation.

CHANGES IN HEALTH CARE INNOVATION

KELLY: When you look at the future of type 1 diabetes, do you think a lot of healthcare delivery innovation needs to happen? Or is it an exception to this growing theme?

DANA: I don’t worry about it as much for type 1 diabetes, because the average type 1 adult sees their physician twice a year for 20 minutes. So that’s 40 minutes out of the year that a physician is involved with a patient’s care. Type 1 is a primarily patient- or family-driven disease on a day-to-day, hour-to-hour basis. I think we need to improve the technology to relieve the burden.

DAVID: Type 1 diabetes is the only disease I know of that patients and their caregivers are making dosing decisions of a drug that if you get it really wrong, could kill you – and they are making these decisions 24/7/365. Type 1 diabetes is a relentless grind that never pauses. Ultimately patients and their caregivers become the lead in managing their disease if they are going to maintain good glycemic control. We strive to get technology to market that can ease the burden of managing this disease.

KELLY: Then it’s also about influencing the decision makers on reimbursement. More investment in health care provider’s time now could reap great rewards later.

DAVID: I think automated insulin delivery has the potential to revolutionize care of people living with type 1 diabetes. We know from data in the T1D Exchange that the large majority of people are failing to meet their A1c goals. In most cases it isn’t for lack of trying. People with type 1 must become a part-time pancreas, a job that is exquisitely done by the body in people that don’t have diabetes.

[Editor’s note: Disclosure: diaTribe is supported in part by a generous grant from the Helmsley Charitable Trust.]
**learning curve**

How can we Build Healthier Cities? A New Program, plus a Reader Poll!

by Alex Ganninger, Nancy Liu, Manu Venkat, and Kelly Close

Twitter summary: How can we build healthier cities? Novo Nordisk tackles the challenge with an innovative new program. Plus, a reader poll!

Short summary: 64% of the 342 million people with diabetes globally now live in cities. As more people move into cities and the rates of diabetes increase, how can we learn how to build healthier cities? Novo Nordisk aims to do just that by launching what looks to be a very cool and smart “Cities Changing Diabetes” program. Read on for the considerations we believe will be the most important for cities to be able to impact people with diabetes and a reader poll of which city would be your top pick!

Fifty percent of the world’s population, or around 3.6 billion individuals, live in cities, and by 2050, it is estimated that the number will rise to 70% of the global population. So how are our cities doing from a health perspective? Unfortunately, a disproportionately high percentage (64%) of the 342 million people with diabetes live in cities. Of course, this is not to say that type 2 diabetes prevention should focus solely on cities, as it is a severe problem in rural areas as well. However, as both urbanization and the incidence of type 2 diabetes are on the rise, cities are increasingly being looked at as a part of the global diabetes pandemic. It is important to consider why this is the case, and how we can take steps to build healthier cities.

While movements toward cities have long been considered a marker of prosperity due to increased job opportunities and easier access to healthcare and educational resources found in urban areas, the development of cities may also be contributing to the increased prevalence of type 2 diabetes. Drastic lifestyle changes associated with urbanization have led to the rise of unhealthier lifestyles and increased type 2 diabetes. City design in the past half century has largely centered on cars, allowing people to commute from the suburbs instead of walking or taking public transit. Additionally, people who live in cities are more likely to have sedentary office-based jobs. As a result of these two factors, the opportunities for residents of cities to engage in enough physical activity are relatively low. Maintaining a healthy eating plan in cities can also be challenging because of the easy access to fast food restaurants and convenience shops, as well as the decreased availability of fresh produce. Although it might appear on the surface that decisions concerning eating and exercise are a matter of personal choice, they are greatly influenced by the structure and culture of our surrounding environment.

If cities are playing a role in the increase of type 2 diabetes, can they also be part of the solution? Based upon the wide disparity in diabetes prevalence throughout the United States and around the world, there seems to be a connection between a city’s infrastructure and policies and the incidence of type 2 diabetes and obesity. Though comparisons are usually made between states, cities too display wide differences in diabetes rates like San Antonio, which boasts a 12.7% rate of diabetes, more than double the 6.7% diabetes rate found in Denver.
Although the factors that lead to increased type 2 diabetes rates in certain cities are complex, some smart policies can certainly make some urban areas healthier than others. A major factor in a city’s role in public health is transportation infrastructure. Over the past ten years, cities like Seattle and Denver have significantly upgraded their bicycle infrastructure by dedicating lanes on major roads to bicycles, helping cyclists take back the roads from the dominance of cars. Well-developed public transportation systems encourage individuals to use their cars less and to walk more. The availability of recreational facilities through parks is another factor built into a city’s blueprint that can also have a positive impact on individuals’ average daily physical activity, especially for children (who are a key target in efforts to prevent future cases of type 2 diabetes and obesity).

Cities are also excellent laboratories for policy initiatives to improve public health. Places like Mexico City have tried to discourage the purchase of sugary soft drinks by imposing a soda tax. Other cities are exploring ways to make healthy foods both more affordable and more accessible to populations that live in “food deserts,” or areas where fresh fruits and vegetables are not readily available. The past few decades have seen an explosion in urban farms and gardens, which help move sources for fresh produce closer to the urban populations that have the least access to healthy food. Promoting physical education in schools and preserving recess would be other ways to help future generations be healthier. However, while local initiatives have demonstrated some success, broader initiatives are needed to combat the urban diabetes epidemic on a global scale.

In collaboration with the University College of London, one of the foremost research institutions on the impact of the built environment on human health, and the Steno Diabetes Center in Denmark, Novo Nordisk is pioneering the Cities Changing Diabetes initiative. This program seeks to combat urban diabetes through study of selected focus cities. Novo Nordisk hopes to identify the unique challenges that cities present and develop solutions for combating type 2 diabetes that can then be replicated elsewhere. Once the company creates agreements with partner cities, it will conduct a period of observation, to learn more about urban diabetes, share best practices, and begin policy conversations. As more people move to cities, the importance of addressing the relationship between type 2 diabetes and urban lifestyles lies not just in making people healthier today, but also in laying the proper groundwork for the future.

With its launch on March 28, the Cities Changing Diabetes initiative announced the partnership with its first regional urban center, Mexico City. Aside from being one of the most populated metropolitan areas in the world, Mexico City, according to the Mexican Minister of Health Dr. Armando Ahued Ortega, views type 2 diabetes as its most significant health problem, making it ideal for this urban experiment. The leaders of the Cities Changing Diabetes program plan to work with additional partner cities in Asia, Europe and North America. Those who are interested in learning more about Cities Changing Diabetes should check out the program’s gripping 75-second introductory YouTube video.

Which cities would be the most promising partners for the “Cities Changing Diabetes” program with Novo Nordisk? The team at diaTribe brainstormed some ideas on what makes a city healthy, how they could change diabetes, and our top picks on future partners.
What makes a city ready to change diabetes?

1. **Acknowledgment that diabetes is an issue**: Different groups ranging from the general public to city leaders would need to recognize that diabetes is a problem worth addressing in order to mobilize resources and to engage residents to fight diabetes. There is no room for a halfhearted effort.

2. **High diabetes prevalence**: Cities that have a high number of people with diabetes could make a big impact through public health initiatives like improving city design and policy interventions. Examining cities with the highest diabetes prevalence could also help identify the distinctive factors in these areas that make diabetes such a pressing problem. In this regard, cities such as Baltimore and Birmingham, with above average diabetes prevalence (10.5% and 10.7%, respectively), have a particularly high level of unmet need.

3. **Community engagement**: Cities with active health movements would be great partners for the “Cities Changing Diabetes” program, as residents would be more willing to assist with the implementation of proposed solutions. These cities may also be able to take advantage of the positive foundation built by pre-existing public health initiatives. The prevalence of programs like urban gardens and farmers’ markets could be a marker for the enthusiasm and grassroots activism of the cities’ residents. Detroit’s push for urban vegetable gardens and San Francisco’s bicycling movement are compelling displays of communities addressing health problems in their cities and implementing solutions to fix them.

4. **Urban structure and infrastructure**: Cities that are physically concentrated and less politically divided could facilitate the implementation of new programs. For example, it would be much easier to implement a public transit system in cities that have a dense urban core and well-defined areas of development (such as Chicago) than in a sprawling city like Houston. There is a wide variety in the way cities are structured politically; for example, St. Louis’s metropolitan area is divided among smaller suburbs, each with its own government, and would require coordination with more local governments than would more politically integrated cities.

5. **Interest and engagement from government leadership**: Certainly, it is critical to have the support of local governments when making policy changes in cities. A demonstrated interested in health issues on the part of policymakers could be a good barometer of the support they would offer to type 2 diabetes prevention efforts. Several cities across the US have recently witnessed public health campaigns driven by innovative politicians who have thought creatively about how to improve the health of cities. Former Mayor Michael Bloomberg pushed for regulations on soda size in New York City, Philadelphia Mayor Michael Nutter is working to reduce sugar sweetened beverages in schools and homes, and other leading policymakers have begun to step up to the table (especially Michelle Obama and her influential role in the Partnership for a Healthier American).

6. **Existing healthcare infrastructure**: Scalability of type 2 diabetes prevention strategies will require effective use of cities’ pre-existing healthcare providers and infrastructure. Cities with large and well-respected medical centers can contribute through research or by sponsoring health-related programming. Boston, New York, Chicago, and other large US cities are known for possessing a large number of world-class medical centers.
Every city in America faces a diabetes problem that can only be solved with active public engagement. Please help ensure that the cities of tomorrow and healthy places for future generations.

7. **Opportunity for public-private partnerships and other collaborations:** A comprehensive solution will require the active engagement of multiple stakeholders. Cities with more opportunity for collaboration can pool resources and create broader and more effective outreach. Businesses such as the food and beverage industry as well as pharmaceutical and other healthcare companies, could facilitate the process of designing and implementing public-private initiatives. Partnerships with schools and universities might be useful way to galvanize support and raise awareness for future generations of leaders. Atlanta is an example of a city with great opportunities for a range of partnerships, due to the presence of the CDC, major universities, and a range of corporations.

**Our list is highly speculative, and is intended primary as a starting point for consideration and discussion of the factors that are important for healthy cities.** Although we have mentioned a few contenders for the spot as Novo Nordisk’s US partner city, the decision has not yet been announced. What do you think? Vote below for the city you think has the most potential to change diabetes. But don’t stop there – although the Cities Changing Diabetes program will only be able to select one program in the US to begin with, every city in America faces a diabetes problem that can only be solved with active public engagement. You can communicate with your government representatives to advocate for more walkable cities, better access to healthy food, health education programs for center-city schools, and other important programs that can help ensure that the cities of tomorrow are healthy places for future generations.

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**adam’s corner**

How to Thrive in a Toxic Food Environment that Encourages Bad Choices

*by Adam Brown*

**twitter summary:** How to thrive in a food environment that encourages bad choices – ten tactics that I use!

**short summary:** It can be really hard to make healthy choices when our food environment encourages the opposite. My top ten ways to survive: avoid processed foods/sugar; choose natural foods when possible; cook at home; don’t bring tempting food home with me; be smart when eating out; eat fruit when craving something sweet; choose nuts and salads when I’m on-the-go; ask, “Am I really hungry?”; know my weaknesses; and follow this simple rule by the master, Michael Pollan: “Eat food. Not too much. Mostly plants.”

We live in a food environment that is truly toxic for diabetes and obesity. It relentlessly and constantly encourages bad choices in just about every domain one can think of. It ingrains bad habits from an early age and reinforces those habits through the ~6,000 food ads children 2-17 years old see each year. Even at diabetes and obesity conferences – where the frontline medical professionals are learning cutting edge science – junk food is abundantly served (see my chronicle on twitter at #ConferenceFoodFail). Though I’ve always recognized this fact, I recently saw food writer Michael Pollan speak here in San Francisco, read one of his terrific books (In Defense of Food: An Eater’s Manifesto), and watched the compelling new documentary Fed...
Up (now playing in select theaters nationwide). All pointed to the same conclusion – each of us is fighting a major uphill battle to make healthier eating choices every single day.

With this in mind, I thought I would share my own personal strategies for navigating our modern day food system. I recognize that many of these rules are quite strong, fervent, and they are absolutely not for everyone. This is just what works for me, but I thought sharing it might be useful for some diaTribe readers. Here goes!

1. **Avoid processed foods and sugar whenever possible** – that includes soda, fruit juice, desserts, candy bars, chips, crackers, etc. (what Michael Pollan humorously terms, “Food-like substances”). I find a black-and-white rule like this is much easier than, “I’ll buy chips and candy but hide it in the pantry, and only eat it at certain times in moderation.” No! Your brain is hardwired to love and crave sugary processed foods. Some research suggests sugar is eight times more addictive than cocaine. I find it’s easier to just stay away from it altogether. Of course, I do recognize that having these items on hand for hypoglycemia makes sense, but resisting the temptation to eat/overeat them is often incredibly hard (see #3). That’s why I use glucose tabs when I’m low – they may not taste great, but I certainly won’t eat a pile of them either.

2. **Choose natural, whole foods as much as possible.** Fewer ingredients is always the way to go. Even things as simple as bread these days have 40+ ingredients – like Michael Pollan urges, I try to stick to food items that look, sound, and feel like “real food.” Single ingredient items are my goal at every meal – fruits, vegetables, lean proteins, nuts, and seeds.

3. **Cook at home whenever possible.** One of my favorite things to do at restaurants is to look at nutrition information – it’s truly astonishing how many unhealthy added calories are embedded in what seem like “healthy” foods (e.g., Cheesecake Factory’s Chicken Caesar Dinner Salad is a mind-blowing 1,510 calories!). Rather than try to navigate these dark and murky waters, I find it’s just easier to sail home and cook in my own kitchen – I can control exactly what’s in my food and count the carbs accurately. Plus, I find it’s a lot of fun.

4. **When shopping, don’t bring temptation home.** A great way to eat better is simply not to buy junk food in the first place – if it’s not in the pantry, you automatically prevent yourself from eating something damaging. When you’re hungry at 11 pm and all you have are whole foods in the kitchen, you’re much more likely to make a good choice.

5. **When you do eat out, prepare for war!** You must be strategic to avoid a menu of landmines. Here are a few tactics I use:
   - Substitute vegetables for high-carb restaurant side dishes. Even nutritionists cannot correctly guess the carbs in that pile of rice or potatoes. I certainly can’t either, so I just steer clear of it.
   - Don’t eat the bread. In fact, I often don’t even let them bring it to the table.
• If you order a salad, get the dressing on the side. Those calories are empty and add up FAST. Balsamic vinegar and/or olive oil are my default options.

• Avoid white foods, especially potatoes, French fries, rice, and white bread.

6. **When desiring something sweet, eat fruit.** I opt for lower glycemic index fruit whenever possible – berries are my go-to (strawberries, raspberries, blueberries), since they raise glucose slowly, are super filling and tasty, and can be purchased frozen. I always steer clear of dried fruit – it’s a sugar bomb and spikes my blood glucose very quickly.

7. **When traveling and in need of a snack, nuts or a salad are a safe and healthy go-to.** You can generally always find these in airports, convenience stores, and gas stations. I’m always guilty of overeating the calorie-heavy nuts, so I try to buy unsalted options and smaller packs. As noted above with salads, I get the dressing on the side and avoid anything crouton-like.

8. **Always ask myself, “Am I really hungry?”** Often, I find my brain is craving food, but I am not truly “hungry” in the stomach-grumbling sense. Being more mindful of how I feel is an ongoing learning process, and a huge asset when I get it right. Certainly, it prevents me from overeating right after a meal and in between meals.

9. **Know my weaknesses.** What food can I not stop eating once it’s in front of me? Goldfish crackers. The best way I’ve learned to combat this is to never buy them or eat them. Period. I know that’s what some might consider extreme, but I absolutely prefer to give up Goldfish crackers than to deal with the nightmare blood sugar consequences of eating multiple cups of them.

10. **When in doubt, follow Michael Pollan’s seven-word maxim:** “Eat food. Not too much. Mostly plants.” These seven words are what he calls “the short answer to the supposedly incredibly complicated and confusing question of what we humans should eat in order to be maximally healthy.” We all can remember seven words!

**What strategies do you use to stay healthy in our modern food environment?** Email me with any that I missed!

[Editor’s Note: Adam is a patient with diabetes and not a healthcare provider. Please consult with your healthcare provider before making any changes to your diet, insulin, or medication regimen.]
sometimes it pays to go with your gut

by Geoffrey Martello and Nancy Liu

twitter summary: A new and innovative way to address diabetes and obesity? Learning more about what’s in your gut.

short summary: A paper in Nature Medicine takes a look at the connections between the microbes in your gut, metabolism, and medication. Learning more about the gut microbiome could lead to clues about how weight loss occurs and how complicated our metabolisms can be. This growing new field of study linking the gut to type 2 diabetes and obesity is in its infancy, and many hope future therapies could be developed from this research.

A recent article in Nature Medicine titled “Microbes, metabolism, and medications” presents an exciting new tool that may soon find a place in the diabetes and obesity treatment arsenal. Even more exciting – it lives inside you and me!

The microbes that live in our gut, also called the “gut microbiome” or “intestinal flora,” are a significant contributor to human health. These organisms serve many important roles including helping with immune function and cell tissue growth. An emerging area of research concerns the role of the intestinal flora in “host metabolism” – in other words, the organisms in our gut actually influence how we digest our food. What’s more, the intestinal flora is directly shaped by our genetics, medications, our exposure to different bacteria, diet, and more. For example, some research suggests that consuming a high-fat diet can negatively impact the gut microbiome. Other studies have found that changes in the microbiome can promote obesity.

Fascinating research on mice shows that transplanting the gut microbiome of an obese mouse can actually make a thin mouse become obese, suggesting that gut microbes influence obesity. Recent animal studies have also found that metformin may actually play a role in shaping the gut microbiome. Metformin is a first-line drug for treating type 2 diabetes, but it is also sometimes prescribed for overweight and obese individuals seeking to lose weight. Although metformin has been used for decades, new research suggests it could hold the key to new treatments that target the intestinal flora. Preliminary studies reveal the positive effects of metformin – changes in the metabolic pathways of bacteria and growth of helpful bacteria, to name a few. While the exact details remain unknown, it’s fascinating to find that the medications we take can actually affect the microbes we host.

This is an area of research that we expect to hear much more about in the coming years, for both type 1 and type 2 diabetes, as well as obesity. When we realize that we have 10 trillion cells that are host to 100 trillion bacteria, it certainly puts the importance of the gut microbiome into perspective. And remember that the next time you eat, to think about your own health along with the health of your gut microbiome.
A better basal insulin?

**trial watch**

### T1

#### Comparing the Safety and Efficacy of Insulin Degludec and Insulin Glargine in Type 1 Diabetes (SWITCH 1)

*ClinicalTrials.gov Identifier: NCT02034513*

http://clinicaltrials.gov/ct2/show/NCT02034513

Insulin degludec (iDeg) is a new once-daily ultra-long-acting basal insulin analog being developed by Novo Nordisk for type 1 and type 2 diabetes. iDeg is not currently approved in the US but is available in Europe under the brand name Tresiba.

This study will examine the safety and efficacy of insulin degludec compared to Lantus (insulin glargine) while using NovoLog (insulin aspart) as a mealtime insulin in people with type 1 diabetes. At least one of the following criteria must be met for people to participate in the trial: they have experienced at least one severe hypoglycemia episode within the last year, have moderate chronic renal failure, have hypoglycemia symptom unawareness, have had diabetes for more than 15 years, or have had a recent episode of hypoglycemia within the last 12 weeks prior to their screening visit. Trial participants must also have an A1c below or equal to 9% and a BMI below or equal to 35 kg/m², among other criteria. The study will be held in 80 locations across the United States and in Puerto Rico. If interested in participating, please visit the trial website at Switch1Trial.com to see if you are eligible. You can also visit the ClinicalTrials.gov site or contact clinicaltrials@novonordisk.com to learn more information.

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### T2

#### Evaluation of Intra-Abdominal Fat in Patients with Type 2 Diabetes Using a Non-Invasive Method

*ClinicalTrials.gov Identifier: NCT01283113*

http://clinicaltrials.gov/ct2/show/NCT01283113

BMI, or body mass index, has been the traditional way to measure obesity, but a growing portion of the scientific community has argued that the formula is flawed – for example, a person with a lot of (heavy) muscle can be mistakenly categorized as overweight or obese, simply because BMI does not differentiate between muscle and fat. So what’s a better way of measuring ‘fat’ and connecting it to overall health? This study will examine the measurement of waist circumference and bioelectric impedance (a non-invasive method of measuring fat with electrodes) as risk factors of coronary artery disease in people with type 2 diabetes. To be eligible for the study, participants must have type 2 diabetes, be between the ages of 18 and 80, have a BMI between 20-45 kg/m², and be willing to participate in the study assessments. The study will be held in Boston and includes 500 patients. To learn more and participate, please visit the ClinicalTrial.gov site or contact adham.mottalib@joslin.harvard.edu and osama.hamdy@joslin.harvard.edu.

- NL

Plus, a way of thinking past BMI.