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Why is Novo Nordisk focusing on cities?

According to President and Chief Executive Officer in Novo Nordisk, Lars Rebien Sørensen, cities are where we can scale solutions and maximise impact for as many people as possible. And partnerships are needed for change to happen.

At Novo Nordisk we have made it our business to change diabetes and this is where we’ve concentrated our efforts for almost a century. Since 1923, we have been working to improve our products, and the way we manufacture them. We have come a long way in improving lives for people living with diabetes.

Today, more than 400 million people are living with diabetes and less than 10% achieve desired health outcomes. It’s clear not only to Novo Nordisk but also to healthcare professionals, policy makers and patients that we must take a new approach to improving treatment and well-being. This goes for people living with diabetes and for those at risk.

Our actions must be directed where solutions can be scaled and deliver as much impact as possible. With half the world’s population, and two out of three people with diabetes, living in urban areas, starting at the city level is a decision that fits these criteria. To me, it is a necessary long-term investment that will deliver value for people with diabetes, city policy makers and for our business.

Focusing on cities is new territory for us, but our reason for this focus is not. In Novo Nordisk, we have a long tradition of making decisions where we weigh the costs and benefits from a financial, social and environmental perspective – we call it the Triple Bottom Line (TBL) business principle. And we know from experience that solutions often have to be found in partnerships that combine different expertise and knowledge.

Building momentum for change

When Cities Changing Diabetes was launched two years ago with University College London and Steno Diabetes Center, we knew we were on the right track.

Center, we started by building relationships with key stakeholders. This group included mayors, urban planners, ministers of health, academics, healthcare professionals and diabetes organisations. Our first five cities were Mexico City, Copenhagen, Houston, Tianjin and Shanghai.

In November 2015, we presented the results from extensive research conducted in the five cities. There have been some striking discoveries concerning the social and cultural factors that not only increase people's vulnerability to diabetes but also stand in the way of diagnosis and optimised treatment outcomes.

In Mexico City, for example, diabetes is perceived as a psychological issue that is caused by anxiety or stress induced by long commutes and social insecurity. In Shanghai, there’s a stigma attached to having diabetes, which is seen as a condition of the weak and elderly. One woman even feared her marriage would be called off if her fiancé’s family found out about her mother’s diabetes.

In 2016, Johannesburg and Vancouver will join Cities Changing Diabetes, and as we move into concrete activities in each of the seven cities, we have identified some priorities that will help guide us.

- **We must create new models for collaboration.** This means forging new partnerships that engage all sectors and levels of the community: local government, businesses, schools, non-profits, healthcare, grass-roots organisations, and individuals. This is critical to create policy change that promotes community-wide health and well-being.

- **Form peer-to-peer community networks.** Since the people most vulnerable to type 2 diabetes often are barely reached by the formal health care system, we must look beyond it. Peer-to-peer networks can play an important role in changing people’s ability to manage their own health and equipping them to live with diabetes.

- **Make health a priority in urban planning.** When cities are planned, managed, and governed well, they can be engines of prosperity and greater personal well-being. But when this isn’t the case, inequalities, working patterns, lifestyles, and cultural norms that cities foster can magnify vulnerabilities to diabetes and other chronic conditions. So leaders in health need to work more closely with those who design and manage cities to ensure urban spaces are thoughtfully optimised for their citizens’ health.

In this first issue of TBL Quarterly in 2016, we take you to the heart of cities around the world to show where change can happen, and in some places, where it is already in motion.

In the years to come, it is our hope that we will begin to see the positive change in cities benefiting individual and community health while simultaneously strengthening our diabetes leadership. This will provide a clear answer to why Novo Nordisk is focusing on cities.

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**Making change happen**

What is clear is the complexity of preventing and improving treatment for people living with type 2 diabetes in cities. We believe there is room for change. We can only ensure that city life becomes more sustainable in the future by taking a multi-faceted approach. By sustainable, I mean cities that thrive financially, socially and environmentally.

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“We can only ensure that city life becomes more sustainable in the future by taking a multi-faceted approach. By sustainable, I mean cities that thrive financially, socially and environmentally.”

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Lars Rebien Sørensen
President and chief executive officer
Novo Nordisk
Urban lifestyles often leave city dwellers with limited time for cooking, so a frequent reliance on processed food and fast food for meals leads to malnutrition and excess weight.

Traffic-related air pollution is linked to a higher risk of death from respiratory and cardiovascular disease.

Participation in physical activity is made difficult by a variety of urban factors, including heavy use of cars and trucks, and insufficient green spaces.

Many sedentary jobs, combined with urban infrastructure that makes active transport unpleasant or impossible, means that city dwellers are too physically inactive.

Can your peers help prevent type 2 diabetes? Henriette Curtz Jansen from Copenhagen municipality thinks so and shares how peer networks have been successful in Denmark.

‘Green’, ‘healthy’ and ‘liveable’ are words often used to describe Copenhagen. Part of this is due to its urban planning, where public spaces, green areas and cycle paths are an integrated part of the city. Another feature is the fact that Denmark is a welfare state with universal health coverage.

However, despite equal access to healthcare and preventive services, socioeconomic differences still exist in the city. For example, when it comes to type 2 diabetes and the risk of developing it, citizens with low levels of education, unemployment and a non-western background are more likely to be affected.

Henriette Curtz Jansen is very aware of this through her work at a community health centre in Nørrebro, a neighbourhood of Copenhagen with a high degree of residents with non-western background.

“We see that ethnic minority groups often have a different perception of health, do not know the risk factors and are sceptical towards the municipality’s services,” says Henriette. “There are also language and cultural barriers which contribute to making these people difficult to reach through the traditional Danish healthcare system.”

Health in your language

Therefore it was decided to try a new approach to improve access to preventive healthcare for ethnic minority groups. The intervention – named Health in your language – is based on peer education where health advisors with similar socioeconomic and cultural background are recruited to facilitate dialogue-based meetings with the target groups.

According to Henriette, the key is to “meet the participants where they are” and build trust. Mixed ethnic minority groups attend the informal meetings held in basic Danish and the health advisors use pictures and props. The topics include dental health, sexual health, exercise, type 2 diabetes, healthy diet, vitamin D deficiency and smoking.

In 2015, more than 4,500 people attended meetings facilitated by the health advisors. “The health advisors facilitate numerous activities in collaboration with staff members in the preventive health care centres,” Henriette explains. “The approach has enabled us to reach people that we would normally have a hard time reaching.”

Men at risk

Based on the positive results of Health in your language, it has now been decided to focus on a different ‘high risk’ group – men who are unemployed, single, above 45 years and with short educational background. “We know that this is a group of people who are more vulnerable to lifestyle diseases and type 2 diabetes and we would like to reach them earlier,” says Henriette.

Peers were recruited in early 2016 and Henriette and her team used creative ways to recruit men, who represent the target group, by handing out flyers in different locations which even included the local pubs. The recruited men receive a course in various health topics, but the project will be co-created based on their experiences and will have a strong focus on social elements, such as physical activities and cooking classes, as a lever to better health. The aim is to reach 200 men in 2016.

Besides Copenhagen Municipality, other stakeholders involved include 3F, the largest trade union in Denmark, and the National Institute for Public Health. The municipality has included the ‘Men in Copenhagen’ project in the Cities Changing Diabetes partnership with Novo Nordisk, University of Copenhagen, Steno Diabetes Center and the national diabetes association.

Having just kicked off the project, Henriette looks forward to start the action: “I am extremely motivated by the difference that I think we can make with this project with the help from our peers.”

3. Findings from the Cities Changing Diabetes study in Copenhagen also confirm this. For more information about the findings, see http://citieschangingdiabetes.com/files/2015/11/Cities-Changing-Diabetes-Summit-Press-Release-FINAL.pdf

With a little help from our peers

Henriette and Ahmed, one of the peers recruited for the ‘Men in Copenhagen’ initiative
Putting the cook back in the urban kitchen

What’s cooking in the urban kitchen? Unfortunately in many city kitchens, the answer is either not much or something premade, easy and not always the healthiest.

Preparing meals at home can be challenging for the millions living in cities. Everything from long work days to cheap and convenient fast food options makes choosing to cook fresh and balanced meals difficult. But these dietary choices are also contributing to the rise of type 2 diabetes in cities around the world.

Cities were built on food

The production of food, growing crops and domesticating animals, provided the means for early civilisation to settle and begin living in dense populations. These settlements that started appearing more than 10,000 years ago were the first step towards today’s cities, now home to half of the world’s population.

The rise of farming changed how people lived in significant ways. Fewer people needed to focus on producing food which gave rise to specialised tasks such as builders.
Fast forward to the present and the role of food in city life has somewhat changed. According to Peggy Liu, one of the leading green voices in China, the rise of megacities like Shanghai and Tianjin have left a generation of people without daily access to small markets of farmers with fresh food. Today’s urban shopper is much more likely to go to supermarkets where premade and packaged foods, often high in salt and fat, are in abundance.

“The quick transition from rural to urban is disconnecting people from farm land, their food sources. All that is left is an urban concrete jungle,” says Peggy. “They do not know what an eggplant looks like before it becomes Yu Hsiang eggplant dish on their table.”

**Fast food nation**

The urban generation in China is the largest in the world. Over the next 35 years, 76% of China’s population is projected to move into urban centres. The current generation is already susceptible to the convenience of fast and packaged food. Peggy is concerned that the situation could get worse for future generations, especially if current trends continue.

“In 1990 there were no supermarkets in China,” says Peggy. “But in just over 20 years, China surpassed the US in supermarket revenue.”

The increase in packaged foods has added not only more calories to the Chinese diet, but also salt and industrial flavouring like MSG. The dietary transition, together with decreasing levels of physical activity, is thought to be a key contributor to the current prevalence of type 2 diabetes and other non-communicable diseases.

Combined, Tianjin and Shanghai have an estimated three million people living with type 2 diabetes. By 2040, this number could double if action is not taken.

One of the main challenges has its roots in food shortages that plagued China more than 50 years ago. For the generation over 65, the memory of hunger and scarce food resources is still fresh in their minds. With the opening up of Chinese markets in the 1990s, things changed quickly, as one 68-year-old woman with type 2 diabetes attests to: “There was nothing good to eat in the past. I can remember that when I gave birth to my son, even the eggs were in ration. There was nothing to eat at that time, not like now, when we can get everything.”
There is no difference between normal days and spring festival, as every day is like a festival."

The impact of this can be seen in the younger generation of today. They are being raised by a generation that was not taught to cook.

"Mothers and fathers did not learn how to cook because of food shortage during the Cultural Revolution," explains Peggy. "Fast food has replaced everything."

Peggy also attributes food safety concerns to Chinese parents’ preference for fast and packaged foods.

"Parents believe that large companies, like McDonalds, provide safer food," says Peggy. "This is a natural reaction to news stories such as 18,000 dead pigs floating down the river in Shanghai for example, or lamb hot pot turned out to be rat and mink meat. Of course they choose McDonalds or KFC as the safe option. They are thinking about their children."

**Going back to school**

All of this points to an urgent need to improve dietary education, something Peggy has been passionate about for nearly a decade. Peggy founded JUCCCE in 2007, an organisation aiming to foster sustainable cities.

As food is the single largest source of greenhouse gasses, JUCCCE aims to identify trigger points where small resources connected to the right people and key decision makers on the ground can make big change in China.

"JUCCCE’s A New Way to Eat programme is a great example of partnering with government organisations, schools, and food providers to create change quickly," says Peggy. "We are teaching primary school kids how to eat and in a way that is good for them and the planet.

The great thing about young people is they are impressionable and more likely to change behaviour and listen to teachers. They can also be change agents at home, influencing their parents as they bring home learnings and new demands."

Over time, Peggy believes A New Way to Eat can affect 1.4 billion people’s dietary habits if food culture is influenced top-down through national government mandates. In recent years, Chinese officials have begun revising nutritional frameworks and combining health and sustainability.

For Peggy, this is a golden opportunity. "There is no existing food curriculum, so the time is ripe to reinvent a way to talk to kids about food. We can get people back in the kitchen preparing fresh and nutritious dishes," says Peggy. "It starts with empowering children to help turn the tide on personal health and planetary wealth - with every bite they take."

Watch this video with Peggy Liu about urban food. Peggy is one of the 'Leading Lights' of the Cities Changing Diabetes programme.
Fixing broken promises of city life

Each day, 187,000 people are added to the global urban population. Their new life in the city can hold a promise of better job prospects and standard of living. For some new city dwellers, not all these promises are kept.
Access to a safe, healthy place to eat, sleep and raise a family is a fundamental human right. Unfortunately, this is not always the case. In some cities, a lack of resources and urban planning has led to informal settlements characterised by substandard housing and squalor, what is commonly referred to as slums. In others, the current refugee crisis in the Middle East has resulted in millions fleeing their familiar homes to take up temporary residence in unfamiliar cities.

The size of the problem can seem overwhelming. In Egypt for example, from Cairo to Alexandria, there are more than 11 million people living in slums. In Beirut, the ongoing civil unrest in Syria has brought more than 300,000 refugees to the city in 2015.

In cities around the world, governments are working to improve conditions in slums and ensure refugees receive adequate living conditions, but they cannot carry the responsibility alone. Luckily, there are those who believe small efforts, relative to the size of the problem, can lead to huge changes in people’s lives.

The cardboard city
Hood 13 is located in the bustling Egyptian port city of Alexandria. It is one of 1,221 informal slums in Egypt and living conditions are similar to those found in the majority – no access to proper medical care, inadequate housing and a lack of basic public services.

When winter comes, so does the rain and freezing temperatures. In Hood 13, this means flooding. The area is criss-crossed with open sewage channels which overflow into the streets and homes during the winter months.

Charity and non-governmental organisations (NGO) put focus on communities like Hood 13 at the start of winter, bringing food, blankets and other basic necessities. But there was another critical problem to address – the very houses where Hood 13’s residents lived.

“Once you are there, you cannot stop yourself,” says Engy Basiouny, public affairs manager at Novo Nordisk Egypt. “There are families living in cardboard houses.”

In November 2015, Engy and a group of colleagues joined forces with Innervene, an Egyptian NGO, on a four month project to improve houses in Hood 13. In some cases this meant fixing critical damage like wall cracks and in the worst cases rebuilding entire houses from scratch.

“We knew we couldn’t change the entire situation but we knew we could make a difference,” says Engy. “We needed to prioritise but each time we turned a corner we saw a new house and said ‘This is the one’. But as we got closer to the centre, I saw a strange container – a bit of iron, a bit of cloth and the rest cardboard.”

The structure was home to a mother, her two children and their grandmother. The children’s father had lost his eyesight and was living in a nearby Mosque. They had no money and nowhere else to go. Engy knew that their home was the most in need of help.

“We have rebuilt their entire house. They now have two rooms, a bathroom and a roof,” says Engy. “During the rebuilding, it became a family effort with both of the children and the mother getting involved.”

In fact, an unexpected outcome of the project so far is the skill building throughout the community. People from across Hood 13 have been helping and learning how they can repair damages to their own homes at very low cost. Once the project is completed in March 2016, there is hope that improvements will continue to flourish.

“There is still a journey ahead but every little bit helps to break the triangle of tragedy in areas like Hood 13 – poverty, uneducated and disease,” says Engy.
Moving into Beirut

Health risks are high when refugees move in huge numbers to new locations and in a relatively short period of time. This is especially true when the destination is already lacking systems that can cope with an additional population.

A whole range of health risks threaten refugees as they move from the ‘familiar’ physical and social environment to a completely new ‘unfamiliar’ place of residence. Their movement often comes at the cost to their health and social well-being.

Even before the onset of the Syrian crisis, Lebanon’s public health services were struggling to meet the needs of its population. When the refugee crisis started, the Lebanese healthcare system was ill-equipped to accommodate a large influx of refugees.

Dima Zayat, Health and In-Kind Programme Manager at American Near East Refugee Aid (ANERA), explains how these factors have left many refugees with limited access to quality health services in Beirut.

“Beirut was completely taken by surprise,” says Dima. “Most healthcare services sought by refugees are at sponsored primary healthcare centres, which provide most of their services at no-cost or low-cost basis. But a shortage of healthcare staff, limited space, lack of adequate funding, shortage of medicines and equipment has been a major challenge to the healthcare system’s capacity.”

ANERA is a non-political, non-religious and one of the largest American non-profits working solely in the Middle East. Working in partnerships and in close consultation with local groups and communities, ANERA has been able to help refugees through a variety of programmes and projects supported by its Medical In-Kind Program. The programme delivers multi-million-dollar worth of donations of medicines, medical supplies and equipment to primary healthcare centres and hospitals.

“Refugees have limited opportunities for income generation when they arrive,” says Dima. “This renders them highly dependent on services provided by aid agencies and whatever the host government is able to offer, which is certainly not enough to cover all their needs.”

One example is ANERA’s youth programme specifically tailored for refugee youth but also involving youth from the host communities. The programme allows young men and women to learn how their community operates and how it affects their eating and physical activity habits. It also creates safe spaces for young men and women to practice a variety of sports activities inside the camps or in close proximity. At the same time, youth are involved in cooking activities and mothers are encouraged to participate in nutritious feasts.

“In refugee communities, it may be difficult for youth to make healthy choices regarding their diet and physical activity,” explains Dima. “The physical setup and scarce resources may limit their options and dictate their choices. This renders them at high risk of developing chronic diseases like diabetes and heart disease.”

Dima believes that by working with local partner organisations, ANERA is able to build capacity at the local level and improve the likelihood of future project success by building trust with the community over the years. As refugees continue to arrive, there will remain many challenges for years to come.

“You want to help everyone, but the reality is you can’t,” says Dima. “Yet, it helps when you know that you were able to provide a refugee with a life-saving medicine that could have otherwise not been affordable, or a pair of shoes to cover tiny feet as they run between the tents. Those precious rare moments are worth it all!”

Watch this video with Dima Zayat about health in Beirut. Dima is one of the ‘Leading Lights’ of the Cities Changing Diabetes programme.
Bringing the doctor to the doorstep in Mexico City

In Mexico City, new knowledge about the underlying factors for developing type 2 diabetes has become a fundamental piece of one of the city’s public health initiatives.

With a population of nearly 10 million, Mexico City is the largest metropolitan area in the western hemisphere, and the fourth largest city in the world.¹

The city lies 2,230 metres above sea level in a bowl-shaped valley formed by high mountains and volcanoes. The geography of Mexico City on its own is the cause of a significant burden on its citizens’ health as these mountains trap the air pollution in the area, rather than allowing it to dissipate.² This, together with the sheer number of people living in the city, over 40,000 factories, limited fresh water supply, and high levels of traffic, impact how people live in Mexico City. But other characteristics of the city also play into the equation.

For the last 50 years, Mexico City has been experiencing an increase in its economic development, making its inhabitants eat faster, move less, live a more stressed life, spend more time in cars due to a heated traffic situation and for women to be professionally active.

Increased urbanisation has fuelled the consumption of processed food and beverage, rich in sugar, fat and sodium.³ Simultaneously, city dwellers have experienced a decrease in the time available for food preparation and physical exercise, which drives the rapid increase in levels of overweight, obesity and related diseases in Mexico City.⁴

Addressing the root causes of diabetes

It doesn’t have to be this way. On 28 March 2014, Mexico City, headed by Mayor Miguel Ángel Mancera Espinosa, decided to partner up with Novo Nordisk in what, in reality, no one knew exactly what was at the time.

But one thing was clear; the urgent need to take drastic action on the diabetes and obesity challenges. And the answer was called Cities Changing Diabetes.

Cities Changing Diabetes is a partnership programme, founded by Novo Nordisk, University College London and Steno Diabetes Center, that seeks to identify and address the root causes of type 2 diabetes in cities.

“We decided to initiate this ground-breaking public-private partnership to improve our understanding of people with diabetes who are diagnosed and ultimately achieve desired health outcomes as well as the risk factors who make people predisposed to develop type 2 diabetes,” says Morten Vaupel, Vice President and General Manager for Novo Nordisk Mexico.

Now just over two years from its initiation, new knowledge⁵ about the underlying factors for developing diabetes in this megalopolis has become a fundamental piece of one of the city’s most ambitious public health initiatives: El médico en tu casa.

The doctor at your home

On September 2014, El médico en tu casa (the doctor at your home), was introduced in Mexico City by Dr Armando Ahued, Minister of Health of Mexico City. Its original objective was to prevent maternal mortality among the vulnerable population. As a result, in the following months 3,000 doctors and nurses were knocking doors in the most marginalised areas of the city, one by one, looking for pregnant women with no access to healthcare who would be at risk of dying as a consequence of their pregnancy.

The programme proved so successful that the scope expanded quickly, ready to include other disease areas, and Dr Ahued took on the challenge of tackling type 2 diabetes.

1. INEGI, national census, 2010 (latest available).
2. Taking control of air pollution in Mexico city. 2015; http://www.idrc.ca/EN/Resources/PublicationsPages/ArticleDetails.aspx?PublicationID=740
5. For more information about the findings, see http://citieschangingdiabetes.com/files/2015/11/Cities-Changing-Diabetes-Summit-Press-Release-FINAL.pdf
Research coming out of the Cities Changing Diabetes programme allowed him and his group of specialists to better understand the size of the diabetes emergency. It proved to be so alarming that drastic actions had to be taken as the findings showed that one third of all adults in Mexico City live with diabetes or pre-diabetes. So now El médico en tu casa will be screening people for diabetes in Mexico City.

“It is evident that the results from the Cities Changing Diabetes studies have surprised us all and it demonstrates that we need to continue educating our people in how to take care of their own health,” Dr Ahued explains. “But it also has enlightened us on the importance of detecting this silent killer. It has shown us that a lot of people are having difficulties going to a doctor or health centre. By initiating diabetes screening in people’s homes, we increase our chances of encountering the 29% of people who are living with diabetes without knowing it.”

One of the important findings was that especially many elderly people find it tough or even unmanageable to get to the doctor or a healthcare centre because of the traffic, because they cannot afford taking the public transportation system, they might be physically incapable of leaving the house or it is simply due to cultural reasons.

“Until El Médico en tu casa, I never went to the doctor’s office. First of all I did not find a reason and also it was hard for me to get to the public health centres as I don’t have a car. But after doctors visited in my home now I understand why it is so important to get checked once in a while,” said Gonzalo, a 71-year-old man who lives in Iztapalapa, one of Mexico City’s 16 municipalities.

Redesigning the healthcare system for the future

Although El Médico en tu casa started in the more humble boroughs of Mexico City, it is expected to spread to other neighbourhoods over time and even to the rest of the country.

“El médico en tu casa, I am convinced, consolidates as one of the most important social programmes in Mexico City and the country, because you will see, it will gain strength in such a way that it will be present in several states of the Republic,” said Dr Miguel Ángel Mancera.

In fact, since 1 December 2015, El médico en tu casa is no longer a pilot programme. The local Congress granted the status of law, meaning that it would go beyond Dr Mancera’s administration.

Morten Vaupel is excited about the news from the Mexico City Health administration: “After having worked with a multi-disciplinary group for the last couple of years on this project, it is a great pleasure to provide local policy- and decision makers with the insights necessary to adjust public health interventions to better target the population at risk in Mexico City. I am absolutely convinced that El Médico en tu casa, will be an inspiration to other cities involved in Cities Changing Diabetes.”

Dr Ahued also hopes that the policy change can be a strengthened force in the battle against diabetes and obesity: “Mexico ranks first in childhood obesity and second in adult obesity in the world – we have to work hard every day to change this situation to prevent diabetes and its negative health outcome. I am very happy to collaborate with Novo Nordisk in this initiative to ensure that we are able to build a better future for our residents,” he says.
A golden opportunity to change diabetes in Johannesburg

As the largest city in South Africa, Johannesburg is feeling the burden of type 2 diabetes, but according to Dr Basu there is light at the end of the tunnel and the answer is multi-sectorial collaboration.

In 1886 a large gold reef was discovered on a remote African farm setting off a major gold rush that led to the establishment of Johannesburg. As the news spread, the population of the city exploded with people hoping to find the riches and Johannesburg quickly became the largest city in South Africa. In fact, the Zulu name for Johannesburg is Egoli which means City of Gold.

Today, Johannesburg is still home to a considerable gold mining industry, and although gold is no longer the main thing drawing people to the city, the wish for prosperity and a better life continues to attract new arrivals. City life offers social and economic possibilities that rural areas cannot, but city life also has its downsides – one being the increased risk of type 2 diabetes.

A silent – and costly - epidemic

Urbanisation often leads to lifestyle changes such as food habits, physical activity, work patterns, smoking, alcohol consumption, leisure-time activities and travelling patterns which all impact health. Many of these factors are associated with an increased risk of diseases such as type 2 diabetes. The trend is also seen in South Africa as a whole where more than 2.7 million people have diabetes and 4 out of 5 of these live in urban areas.

"I do believe diabetes is becoming a silent epidemic in South Africa and there is an urgent need for a coordinated approach to manage it," says Dr Basu, who specialises in Public Health Medicine, heading up the Public Health Unit at the Department of Community Health of the Charlotte Maxeke Johannesburg Academic Hospital. He is also employed by the university of the Witwatersrand and teaches in a number of universities across the world as visiting faculty.

Diabetes complications not only impact the quality of life of the people affected. They are also costly entailing both direct costs, such as hospital and medication expenses as well as indirect costs, such as work absenteeism and reduced productivity. In South Africa, health expenditures for diabetes in adults are projected to be between 1.1 to 2 billion USD in 2030.

As the largest city in South Africa, Johannesburg is already feeling the burden of type 2 diabetes and according to Dr Basu, there is a need to better understand the disease and its risk factors in Johannesburg.

“The biggest challenge when it comes to diabetes in Johannesburg is integrated preventive and promotive care based on evidence,” he says. “Although there is a plethora of activities undertaken in both public and private sectors, in primary health care and hospitals, in schools and work places, they are sporadic, not evidence based and not integrated, thereby resulting in poor outcomes for patients.”

Light at the end of the tunnel

In November 2015, Dr Basu embarked on a trip to Copenhagen, Denmark, where he attended the Cities Changing Diabetes Summit.

Cities Changing Diabetes is a partnership programme to identify and address the root causes of type 2 diabetes in cities founded by Novo Nordisk, University College London (UCL) and Steno Diabetes Center. The summit marked the completion of the world’s largest study on urban diabetes, led by UCL in collaboration with leading researchers in five study cities – Mexico City, Copenhagen, Houston, Tianjin and Shanghai.

The study findings suggest that in cities around the world, social and cultural factors play a far more important role in the spread of type 2 diabetes than previously thought.\(^5\)

The summit brought together more than 250 international delegates to discuss the findings and share local learnings and experiences. To Dr Basu, the sharing of ideas and success stories was key.

“I saw that cities with less resources than Johannesburg have managed to find ‘light at the end of the tunnel’ through this programme. This raises hope to find a long lasting effective and efficient model for diabetes in Johannesburg and South Africa as a whole.”

At the summit, it was officially announced that Johannesburg will join the Cities Changing Diabetes programme in 2016.

The aim is that the knowledge gained in the initial study cities about the social and cultural factors driving type 2 diabetes, can help Johannesburg examine the nature and extent of the challenge here.

**An integrated approach to tackling diabetes**

Dr Basu plays an important role as he will be one of the technical leads for the project and form part of the team coordinating activities among the many stakeholders involved.

“Cities Changing Diabetes in Johannesburg provides us a platform to bring together different players to challenge this epidemic,” he says. This is an opportunity to take a multi-faceted integrated approach to tackling diabetes in Johannesburg which has been lacking so far according to Dr Basu.

He expects that the stakeholders involved will include the City of Johannesburg, health and educational authorities, academic institutions, schools, private hospitals, general practitioners as well as civil society organisations.

In the short term, the collaboration will help the city to integrate all activities related to diabetes services, research and training. In the medium term, the project will map diabetes and its risk factors across the district, which should lead to a sustainable plan of action. And in the long run, Dr Basu hopes that it will reduce the mortality and morbidity associated with diabetes through all levels of prevention.

Although he acknowledges that it will be challenging, Dr Basu is confident that the project can make a difference. “I am an ever optimistic person. I am a hawker of dreams. I dream that my country will be the place where people live in peace and harmony and are healthy and gainfully employed. As a public health physician, I am uniquely positioned to achieve my dream.”

In the end, there seems to be a lot of truth to the famous words of Mahatma Gandhi saying that *it is health that is real wealth and not pieces of gold and silver.*

**Watch this video with Dr Basu about tackling the diabetes challenge in Johannesburg**
When the city becomes the lab

David Napier is Professor of Medical Anthropology at University College London and he is in charge of overseeing and supporting the research of the Cities Changing Diabetes programme. But unlike scientists in a lab studying molecules, Dr Napier’s research focuses on the complexity of human behaviour and what better place to study this than in cities?

Tell about your role in Cities Changing Diabetes?
As global academic lead for Cities Changing Diabetes, it is my role to foster new collaboration and existing connections and to bring the academic groups together along a mutual research and dissemination trajectory. I also oversee the design, implementation, and analysis of all Cities Changing Diabetes qualitative research and publication. My team and I provide support throughout the research planning, data collection and analysis phases, but make sure that local research stays local!

As we have five cities on board at the moment, we work with quite a number of really dedicated and impressive local academic partners and their teams. These are true innovators and leaders in their fields, and it is a true pleasure to be connected to such a great network of researchers. We have different cultures, different research foci, and different needs and priorities in our research; yet we have all come together to do something really new in the academic world.

Why is there a need to undertake research on type 2 diabetes in urban settings?
We focus our work on diabetes in cities because it’s so much needed and there is still so much to learn: a) two thirds of all people with diabetes live in cities today and this number is expected to increase, yet we still have only a general idea about why cities seem to fuel the proliferation of diabetes; b) we know that living in cities can be detrimental to overall health, especially when it comes to lifestyle behaviours and environmental factors, but, they also present new challenges and opportunities in terms of infrastructure and care; and c) cities provide us with complex microcosms, where we can study very different populations and many variables at the same time in one location.

What is unique about the way that you are conducting the research?
Crucially, and somewhat paradoxically, when one considers how much diabetes research is done every year, there are very very few high quality, larger scale studies that examine broadly the social and cultural factors. I think that often researchers are put off by the complexity of human behaviour, opting rather to examine simpler cause and effect relationships that are easily quantified. Well, diabetes is not like that, and our vulnerability assessment is a very nice way of trying to capture this causal complexity.

Our programme is unique because it goes into the field to gain a real - not a laboratory or experimental - understanding of how an individual’s capacity to affect his or her life varies in the face of complex biological, social and cultural risk factors. What is often problematic with large-scale surveys of people with diabetes is that data is provided by people in a position to respond in the first place. If a vulnerable person is too vulnerable to answer a survey, there is only one way of finding him or her and that’s to seek that person out.

How did you do that?
Our research is based on in-depth interviews carried out ‘in the field’ with real people and real living contexts – in people’s homes, mostly, but also in other places that are meaningful to their diabetes care, such as their local hospital or community care center.

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1. A partnership programme to identify and address the root causes of type 2 diabetes in cities founded by Novo Nordisk, University College London (UCL) and Steno Diabetes Center. For more information, see http://citieschangingdiabetes.com/
2. Mexico City, Copenhagen, Houston, Tianjin and Shanghai.
3. For more information about the findings, see http://citieschangingdiabetes.com/files/2015/11/Cities-Changing-Diabetes-Summit-Press-Release-FINAL.pdf
What is more, our data collection is carried out by really dedicated people who we trained not only to follow a questionnaire, but to observe and take notes of each person’s environment. So we get a pretty good picture of what it’s like to be the person we interview.

**Could you elaborate a bit more on what you mean by ‘vulnerability’?**

Type 2 diabetes is an illness which is significantly driven by social risk factors and cultural determinants. When we talk about social risk factors, we mean influences on a person’s life like economic circumstances, living environments, geographical locations, one’s health status. Similarly, what we mean by ‘cultural determinants’ is not that ‘culture’ somehow gives you type 2 diabetes, but that our shared conventions and habits – our taken-for-granted assumptions about what we value, what our priorities are, and what is good for us in terms of diabetes and diabetes prevention – mediate all of our health behaviours – both good and bad.

**How can the research insights be translated into actions that will improve health?**

Part of the big problem with research aimed at the global rise of type 2 diabetes in cities is that science is so much oriented towards biology and medicine. While we undoubtedly owe immeasurable debt to medical advances in diabetes research, the best intervention won’t help someone living with diabetes if that person is not seeking out care, or remains undiagnosed. Likewise, no prevention strategy will be successful if we don’t start thinking about what really shapes a person’s experiences – their needs, their wants, and their habits.

The more comparative data we gather, the better positioned we will be to identify what really matters most.

We need to build an evidence base and build one fast, and we need to share what we learn in publications, conference presentations, advice strategies for cities, and future dialogue meetings.

**What are the next steps?**

We are now considering how what we learn in our inaugural cities can inform not only local policies, but policies in other cities and even national programmes designed to curb the rise of diabetes.

Another key way of translating ideas into action is to champion existing community innovations with the view to seeing which of them can be scaled up. Over the coming year we intend to build an online ‘anthology’ of best practices. Some of these will be city driven, others community driven, other still individually driven.

**What personally motivates you the most about being part of this research?**

Frankly, the thing that motivates me most is witnessing what devoted people can accomplish if they set their minds to working together. I can honestly say that Cities Changing Diabetes is as much a bottom-up as a top-down endeavour.

Though change will surely depend on getting innovative mayors to join our initiative, it has also become abundantly clear that we have so much to learn – both from the devoted community advocates who by and large form the research teams we have trained, and from those living with type 2 diabetes who can tell us better than anyone what obstacles they face in improving their personal health goals.
A ‘Close’-up look at diabetes in cities

With many years of personal and professional experience in the diabetes field, patient advocate Kelly Close and her colleague Emily Regier from Close Concerns offer their perspective on Cities Changing Diabetes. We asked them what they find exciting about the research and what benefits it could bring to people who are at risk of developing or already living with type 2 diabetes.

In your opinion, why is there a need to focus on type 2 diabetes in cities?
The sheer number of people with type 2 diabetes in cities – two-thirds of patients – makes it a worthwhile area of focus. A number of factors related to urban life, such as air pollution, poor walkability and easy access to junk food, can also put people at particular risk for the disease. We have learned from the Cities Changing Diabetes programme that cities represent excellent ‘laboratories’ for sociological research and policy change: they concentrate a diverse group of people in a single location, and city governments can often be more effective and less hampered by ideology than their state or national counterparts.

The Cities Changing Diabetes programme has propelled a conversation about how urban environments can contribute to type 2 diabetes risk and how there is a need to bring together a variety of actors – from urban planners to community health workers to a range of patients at every end of the socioeconomic spectrum – to address this issue.

How does the Cities Changing Diabetes research differ from previous research?
This research incorporates the social and cultural components of diabetes risk to a much greater extent than most academic studies we have seen. We think the thorough interviews and the conscious effort to incorporate the complexity of everyday life make this research an outstanding complement to randomized controlled trials (RCTs), which seek to isolate single causes and purposely exclude much of the complexity of everyday life.

The RCTs are invaluable in assessing a range of interventions, of course, but we may also need different types of studies to fully understand why so many patients continue to do poorly despite scientific advances. This research will hopefully provide insights about human behaviour that can inform better approaches to diabetes prevention and urban health.

What initial findings from the Cities Changing Diabetes research excite you and why?
We were excited to see that some of the cities did much better than the ‘rule of halves’ would predict. For example, almost everyone diagnosed with type 2 diabetes in Copenhagen receives treatment – stats like these give us hope that this can be done. We were also glad to hear that at least in Copenhagen, it is more a matter of enabling patients to use existing health resources than building the infrastructure from scratch. While most of the other findings were more sobering than exciting, we were impressed by the quality of the research and its ability to apply rigorous scientific methods to the complexities of the real world.

We think the concept of ‘vulnerability’ that goes beyond economic scarcity and biological risk is one of the more fascinating findings. For example, the research emphasises that financial constraints include not only absolute poverty that prevents people from accessing basic resources, but also perceived constraints that limit people’s capacity to be proactive and hopeful about their future.

In Houston, one of the study cities, researchers found that even people with health insurance, economic advantages,

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1. A partnership programme to identify and address the root causes of type 2 diabetes in cities founded by Novo Nordisk, University College London (UCL) and Steno Diabetes Center. For more information, see http://citieschangingdiabetes.com

2. A randomised controlled trial (RCT) is a type of scientific (often medical) experiment, where the people being studied are randomly allocated one or other of the different treatments under study.

3. The rule of halves is a model to map out the diabetes situation in a given location, and suggests that only half of people with diabetes are diagnosed, half of these receive care, half of these achieve treatment targets and only half of these achieve desired outcomes (Hart JT. Rule of halves: implications of increasing diagnosis and reducing dropout for future workload and prescribing costs in primary care. British Journal of General Practice, March 1992; 42(356):116-119.)
and few clinical risk factors can still be vulnerable to type 2 diabetes due to factors like time constraints and social isolation.

Why is this interesting?
We think that this is not necessarily intuitive to society although from a patient perspective, it makes complete sense and we are very happy to see this finding highlighted. The social isolation piece in particular is very important and very addressable and being able to show the importance of time constraints to patients and healthcare providers could be critical. We have never heard that in all our study of diabetes but it rings so very true.

The research is helping make everyone smarter – and indeed, the urgency of what needs to be done is even greater. Although type 1 diabetes is not the focus of Cities Changing Diabetes, some valuable insights for type 1 will also undoubtedly emerge – we believe the social isolation and time constraints noted above may well be two valuable examples.

Have you heard any reactions to Cities Changing Diabetes by people living with diabetes?
We have heard very positive feedback from the broader diabetes community about the inclusion of social and cultural determinants of diabetes in the discussion. We also appreciate that including patients’ perspectives to a greater degree should be one of the main goals going forward. While we haven’t heard a lot of patient impressions yet, we know there will be great enthusiasm.

Inviting more patient advocates to participate in future Cities Changing Diabetes Summits will be a valuable step. We also think patient feedback would be valuable in informing the proposed solutions as much as possible.

Continued efforts to create awareness about the initiative to the public will be an important part of this, as many people living with diabetes or pre-diabetes are probably not yet aware of the programme at this point.

What change do you foresee that an initiative like Cities Changing Diabetes can have for people living with type 2 diabetes?
Our hope is that this research can lead to pilot programmes in cities in the relatively near future that can directly improve the lives of people with type 2 diabetes. Examples could include community health centres, peer support programmes, efforts to create more walkable neighbourhoods, policies to make healthy food more affordable and appealing, and much more.

Longer term, we can imagine a world in which cities are built and governed with health as a top priority, which would have an enormous impact on public health even beyond those currently living with type 2 diabetes. We hope to see this research result in far more concerted focus on pre-diabetes. We heartily applaud your work, we thank you for your remarkable focus and drive, and we hope to see the extensive resources already applied increase even further.

About Close Concerns
Close Concerns is a healthcare information company founded by Kelly Close in 2002. Close Concerns’ mission is to improve patient outcomes by making researchers, clinicians, scientists, companies, patients, and families smarter about diabetes and obesity.
For more information, see https://www.closeconcerns.com/
Why might cities be the best place for social change to happen? Who better to answer this than Mark Watts, Executive Director of C40 Cities Climate Leadership Group (C40). C40 connects more than 80 of the world’s largest cities, where change can have impact and scalability. We talked to Mark about the connection between climate change and type 2 diabetes.

What does C40 do?
C40 is a network of the world’s megacities committed to addressing climate change. With more than 10 years experience working with mayors to drive actions that reduce greenhouse gas emissions and climate risks, while increasing the health, well-being and economic opportunities of urban citizens, C40 has demonstrated the impact cities can have on a global scale. Since 2009, C40 cities have taken 10,000 climate actions.

C40 offers a forum where cities can collaborate, share knowledge and drive meaningful, measurable and sustainable action on climate change. Today, C40’s network of 83 cities represents more than 640 million people and one quarter of the global economy.

You recently announced a partnership with Novo Nordisk - why is C40 collaborating with a pharmaceutical company?
It might not seem obvious at first glance that a healthcare company specialised in diabetes and a city organisation focused on climate change should join hands. However, we see that climate change and health issues share some of the same root causes which means that there can be strong health co-benefits from climate action and vice-versa.

By collaborating with Novo Nordisk and their Cities Changing Diabetes programme, that seeks to address the root causes of type 2 diabetes in major cities around the world, C40 hopes to generate new insights on these co-benefits.

Could you give an example of such co-benefits?
The way that urban citizens live, travel and eat all impact their health and these are also factors that impact a person’s carbon footprint. For example, we know that regular exercise, such as cycling, helps to prevent chronic diseases like diabetes. We also know that policies to encourage more cycling through bike share schemes and safe cycling infrastructure help cities to reduce their greenhouse gas emissions from private vehicles. A 2014 survey of people who cycle to work in Copenhagen found just 7% do so for environmental reasons. The vast majority cycle because it is faster, easier and cheaper. Sometimes it’s worth remembering those motivators when trying to promote greener lifestyles. Low carbon cities are cities with healthy citizens.

Mayors have told us that one of their biggest challenges is convincing their citizens of the value of climate friendly policies. If we are able to show evidence that action on climate change will also contribute to curbing the diabetes epidemic, we can help solve two of the most urgent challenges of the 21st century. Mayors will certainly welcome that news.

1. Cities Changing Diabetes is a partnership programme to identify and address the root causes of type 2 diabetes in cities founded by Novo Nordisk, University College London (UCL) and Steno Diabetes Center. For more information, see http://citieschangingdiabetes.com/
Why can mayors be important change agents?
Benjamin Barber, author of the book *If mayors ruled the world*, argues that cities, and the mayors that run them, are incubators of the cultural, social, and political innovations which shape our planet.

Mayors face similar challenges and have to innovate to solve them, which make cities arenas of social change. Mayors are often action-oriented and eager to share solutions that work. For example, what we see in the C40 network is that 30% of the cities’ climate action is delivered through collaboration and knowledge sharing.

The urgency of the climate crisis also makes mayors vital agents for change. The Paris Agreement will not come into force until 2020. Yet C40’s research has found that based on current trends, in less than five years time, we will have built enough roads, power stations and buildings to lock us in to 2 degrees of warming. Up to a third of this ‘carbon budget’ – the total amount of greenhouse gas emissions we can risk putting into the atmosphere – will be determined by mayors in office now.

What other partnerships is C40 involved in?
We recently partnered with MasterCard to set up a mobility management network, which will connect city administrators and experts to find ways to encourage people to use public transportation. MasterCard and C40 are working with cities to enable commuters to pay for bus and subway fares more easily, instead of needing to buy tickets as a separate step or having to carry cash or exact change.

What are some of the next things that you look forward to in your work?
The aspiration to limit temperature rise to 1.5 degrees, included in the Paris Agreement, was extremely welcome. But even if every country met their pledges, it would only deliver emission cuts that would hold warming to 2.7 degrees.

Therefore the next five years are crucial, and it is cities where the real difference will be made. We are going to spend that time urging mayors to be bold - to look to other cities, see what has worked, avoid what hasn’t worked and aim to deliver the same benefits more quickly, at a lower cost and to greater benefit to their citizens. Our partnership with Novo Nordisk will have a huge impact on making the co-benefits argument and seeing real action in all our cities.

Watch this video with Mark Watts where he talks about the correlation between health and climate change

If you want to know more about C40, check out http://www.c40.org/
Shuhong Wang and Jeanette Nielsen are located on each side of the globe but they share a common interest in promoting a healthier lifestyle among employees at Novo Nordisk. Here, they discuss why employee health is good business and how you must think globally but act locally to have an impact.

Could you briefly describe your roles in Novo Nordisk?
Jeanette: I am part of the NovoHealth team in Denmark. NovoHealth is a programme to support a healthy and engaging working environment and we seek to develop a workplace culture where we inspire, enable and support each other in living healthier and more productive lives. We work with making insights, resources and tools available to make the healthy choice easy regardless of where in Novo Nordisk you are located. As a global programme, NovoHealth provides an opportunity to bring the organisation together across the globe, address our social responsibility as an employer and improve our business performance.

Shuhong: I am Vice President of HR and Communication in Novo Nordisk China and based in Beijing. I work with developing the competencies of the organisation, strengthening employee engagement and cross-organisational communication. Part of my job is to champion the NovoHealth programme together with a group of colleagues and thereby make sure that we live up to our social commitment of helping people live healthier lives.

How are you working to roll out the NovoHealth programme globally?
Jeanette: When working with health promotion in a global/local context, it is important to recognise that social and cultural aspects contribute to inspire, motivate and enable employees and affiliates to act on health. To support, we are developing guidance and easy-to-use tools addressing health from a structural, group and individual perspective. We compliment these tools with a platform for reflection, best practice sharing and idea generation to encourage our colleagues to co-create activities and become social architects of their own and their team’s health and well-being.

Shuhong: Actually, China was one of the first affiliates to adopt the NovoHealth programme locally back in 2010. In fact, we have worked with employee health long before that but it has provided us with an umbrella for all our health related initiatives as well as a range of ideas and tools that we can adapt locally.

Could you give some examples of health initiatives in China?
Shuhong: We focus on both physical and mental well-being. For the latter, we have an employee assistance programme where we organise wellbeing seminars and also a hotline operated by an external professional vendor that employees can contact anonymously. This is something that we have developed locally here to address the Chinese context where there is a lot of focus on preventing employee burnout.

On the physical side, we for example organise sports days where we have different teams led by people in our organisation who are passionate about tennis, basketball or other sports. We also provide gym subscriptions and create awareness about healthy eating.

What are the challenges to promoting a healthier lifestyle for employees in China?
Shuhong: We mainly work with office based staff since we have another unit that focus on the health of our production workers. Here in Beijing, it is a challenge that people work long hours and many spend 3 hours each day on transportation which means that they are not very active and that there is little time for exercise.

As Novo Nordisk is rapidly growing, we are recruiting more and more people globally. Going from approx. 40,000 employees now to well over 60,000 already in 2020, we are increasingly turning the lens towards support of and integration of the health programme within affiliates across the globe.

1. NovoHealth focuses on four key health areas: 1) access to healthy eating, 2) smoke-cession, 3) physical activity and 4) health checks.
It is also important to say that it is not enough just to offer gym subscriptions. People do not automatically go there, they need to be motivated. In the beginning, only a few colleagues went to the gym, but we had some good ambassadors – also from management’s side – showcasing the health benefits and that it is ok to set aside time for this. In this way, we have seen a positive ripple effect and we have had to buy additional gym subscriptions to keep up with the demand.

**Could you mention a specific initiative that has worked really well in Beijing?**

**Shuhong:** Last year, we introduced a health app with a competitive element which worked really well. The app measured the distance that you walked or ran and there was a prize for the winning team. Here, peer support from colleagues was crucial to increase the incentive to become more active. It is really about finding creative solutions that can create better habits because we all know that changing behaviour can be difficult.

**What are the business benefits of focusing on employee health?**

**Shuhong:** Promoting employee health certainly has mutual benefits. It can be challenging to document but I receive a lot of feedback from employees who enjoy it and feel better and more engaged. This has a positive effect on sick leave and productivity.

We also use it as a differentiator when attracting employees. Most companies offer different health options, but not all provide it in the same degree. Once I did a speech as part of a recruitment event and afterwards one of our new employees told me that this was why he joined the company. And it is particularly important for young people.

**Jeanette:** I agree and we are aware that the employee value proposition must include an offer to support health as part of the company’s competitive edge. At the same time, we are facing a global aging workforce, which over time inevitably will be more susceptible to short and long term health related risks unless we act proactively on health before the risk behaviour becomes a chronic condition.

**Some people argue that health is a personal matter and companies should not interfere – what’s your view on this?**

**Shuhong:** I do not agree with this. Work and personal life have become more and more interrelated in the past years and if you spend the majority of your waking hours on the job, then I believe that the employer has a responsibility. It is short-sighted to say that it is just a personal aspect that companies should not care about.

**Jeanette:** As a company focused on chronic disease, I believe it makes perfect sense that we not only concentrate on health and well-being for the people using our products but also encourage a healthy lifestyle among our own employees. It gives us an opportunity to practice what we preach and take care of ourselves and each other in a long-term perspective.
The healthy city

City life can also be an enabler of good health. This infographic illustrates how a range of different actors in society could contribute to this.

CLEAN AIR
Electricity generated from the wind, the sun, and the waves, not the combustion of fossil fuels, cleans the air and reduces exposure to fine particulate matter.

SPORTS FACILITIES
Integrating recreational and sport facilities into the city inspires people to become more physically active.

SCHOOL KITCHEN GARDENS
Local farmers help maintain school kitchen gardens where young children can grow their own vegetables and learn about healthy food.

BICYCLE PATHS
Bicycle paths detached from big roads ensure safety and persuade people to choose the bike as the favored means of transportation.

SUPERMARKETS & LOCAL AGRICULTURE
In-store displays are organized to promote healthy products like in-season fruits and vegetables, which are supplied by local farmers at competitive prices.
WORKPLACES
A healthy employee is a productive employee. Workplaces encourage healthy lifestyles through lunch programs, corporate sports, and workshops.

BIKE TO WORK
Efficient public transportation linked with corporate or public bicycles encourage employees to leave their cars at home and get some exercise on their way to and from work.

HOMES
Healthy indoor climates are a product of building materials that don’t emit harmful chemicals, proper ventilation, and access to daylight.

WALKING MEETINGS
Green areas around office buildings encourage employees to get up and go outside for walk-and-talk meetings, rather than sitting inside all day.

GREEN AREAS AND PLAY GROUNDS
Green areas and playgrounds invite people of all ages to come out and play, do sports, or simply go for a walk.

SCHOOLS
By making health an integrated part of everyday school activities, children have become a catalyst to improving public health.

THE WALKING SCHOOL BUS
With a grownup ‘driver’ and ‘conductor,’ a walking school bus picks up children at various stops and teaches them they can easily and safely walk to school.

About Novo Nordisk and the Triple Bottom Line

Headquartered in Denmark, Novo Nordisk is a global healthcare company with more than 90 years of innovation and leadership in diabetes care. This heritage has given us experience and capabilities that also enable us to help people defeat other serious chronic conditions: haemophilia, growth disorders and obesity.

We believe that a healthy economy, environment and society are fundamental to long-term value creation. This is why we manage our business in accordance with the Triple Bottom Line business principle and consider the financial, environmental and social impact of our business decisions.

The best way to comment on any article is on:
Email: sustainability@novonordisk.com
Facebook: facebook.com/novonordisk
LinkedIn: linkedin.com/company/novo-nordisk
Twitter: twitter.com/novonordisktbl

For a deeper look at how Novo Nordisk works with sustainability visit our website at: novonordisk.com/sustainability

The next issue of Novo Nordisk’s TBL Quarterly will be available in June 2016