Urban Health Promotion
Selected Case Studies on Diabetes
How we live and where we live is changing.

Many cases of non-communicable diseases such as type 2 diabetes can be prevented or delayed through tackling risk factors including poor diet and lack of physical activity. The lifestyle choices we make every day can have a lasting impact on our long-term health. Increasingly, these choices are taking place in urban environments: more than half of the world’s population now live in cities, and the number of urban dwellers globally is increasing at a rate of a million a week. City-dwelling can either foster or undermine good health – for example, through the availability (or otherwise) of fresh food, the use (or lack) of active transport such as walking or cycling, and the level of access to health information and care. Today, two-thirds of the 415 million people with diabetes in the world live in cities.

These case studies are seven examples of ways in which good health – addressing obesity and diabetes – is being encouraged in urban areas. Approaches range from whole-of-society (involving everyone in the community) to the hyper-local (small groups of people coming together to form diabetes ‘microclinics’). The examples are drawn from five countries – Belgium, Brazil, China (Hong Kong), Jordan and the United States – and cover both large and small urban areas.

The examples are at different stages of development – some have been running for years and have detailed data on their impact; others are more recent, with limited evidence to date. But there are a number of key themes across all these successful projects:

- There is a real need for trust among the different stakeholders – often overcoming initial scepticism as to what can work.
- While leadership from the top is important, there must also be significant and ongoing input from a wide range of community leaders and sectors.
- Both the physical (infrastructure) and social (networks and connections) environment should be supportive of the project.
- Challenges include evaluating the impact of projects, and guaranteeing the future sustainability of initiatives.

C3 Collaborating for Health was commissioned to identify, research and write the case studies by Novo Nordisk’s Cities Changing Diabetes programme (http://citieschangingdiabetes.com/), ahead of a Cities Changing Diabetes Summit in November 2015.

C3 thanks all the project leaders for their enthusiasm and collaboration in the drafting process, and we hope that this book will provide inspiration for others to take action on diabetes – one of the most serious health crises facing 21st-century cities.

Katy Cooper, November 2015
The aim of the Agita São Paulo initiative in Sorocaba, Brazil, is to raise awareness about the importance of physical activity – particularly walking – in improving health and quality of life. This case study summarises the practical efforts made to encourage physical activity in Sorocaba since the initiative’s inception in 2001 (as Projeto Caminhada – Project Walk), and the impact it has had on the local environment and people.

Why?
Lack of physical activity is a leading cause of illness and premature death – physical inactivity is responsible for around 5.3 million deaths globally, and the World Health Organization places it as the fourth leading risk factor for disease. It is the principal cause of around a quarter of cases of type 2 diabetes and 30 per cent of ischaemic heart disease.

Even moderate physical activity, such as walking, can have significant physical and mental health benefits. Encouraging people of all ages and all abilities to walk can help to shift the curve of population health. In a survey in the early 1990s in the state of São Paulo, Brazil, 80 per cent of women and 57 per cent of men did not reach recommendations on physical activity, with inactivity highest among lower-income sectors.

What?
The Agita São Paulo programme, of which Sorocaba’s Projeto Caminhada is a branch, was developed to tackle this epidemic of physical inactivity. It aims both to increase knowledge of the benefits of an active lifestyle, and also to enhance physical-activity participation (particularly walking). It works through grass-roots participation supported by top-down policy actions, and its message is simple: 30 minutes of physical activity a day.

Where?
Sorocaba is a city of 700,000 people in the state of São Paulo, Brazil, in the south-east of the country.

Who?
The whole population is targeted by the physical activity initiatives such as Projeto Caminhada, with a particular emphasis on children and students, workers and older adults.

The campaign takes a holistic approach, focusing not only on the individual, but also on their social and physical environment – family, teachers, peer groups, community values and media – and many thousands of people take part.

Cross-sector partnership and collaboration is key to the success of Agita São Paulo – and the Sorocaba programme is no exception. It brought together the Health Department, Department of Sports and Leisure and the Department of Education and Culture, as well as local organisations such as the Rotary Club. Sorocaba’s mayor from 2005–12, Dr Vitor Lippi (health secretary 1996–2000, and today encouraging the programme from Congress), recognised the value of Agita, and gave it his full support – this top-down approach ensured that the different departments fully embedded it.

When?
Agita São Paulo began in Brazil in 1996, and was formally launched in Sorocaba in 2001 (it has since spread to other Latin American countries and further afield). The range of activities had broadened over this time from walking to cycling and other physical activity.

How?
The focus of all Agita programmes is on ‘active living’ and ‘physical activity for health’ rather than on ‘sport’ and ‘fitness’. Everyday, lifelong physical activities (such as walking, gardening, home chores, dancing and active transport) are the most recommended activities – with the aim of encouraging 30 minutes a day.

The word ‘agita’ means not only ‘move your body’, but also suggests stimulating the mind and becoming a more active and engaged citizen.
In Sorocaba, the focus was particularly on Projeto Caminhada: walking. Local government plans formally brought physical activity into its plans, with three departments being the main funders of the programme, regularly reporting on their activities (today, only the Department of Sport and Leisure has technical and operational responsibility for the programme). Specific activities have been backed up by major investment in infrastructure to make it easier to be active: 23 new hiking trails and over 100km of cycle lanes have been established, and 21 municipal parks have been improved.

Walking programmes include the following:

The Department of Health has worked with health-care workers to raise awareness of the importance of physical activity and walking, and today 27 out of 30 local health facilities have established walking groups. These involve guided stretching and walking, with short talks on health issues. The groups are largely made up of older women – who are often at the heart of social networks and spread the word locally. The groups have a clear itinerary and a uniform for those taking part, and are very popular. They also have a social justice aspect, including visiting nursing homes or collecting material for recycling as part of the walk. When they were first formed, 500 people took part; in 2011 there were over 1,300 regular participants. Today, health facility programmes are conducted under the supervision of a nursing assistant, nurse or physical educator, belonging to the Family Health Program.

A ‘walk truck’ visits neighbourhoods, manned by members of the local walking groups, to promote walking messages.

Walking groups were formed in 13 Sorocaba schools (today there are seven schools taking part), for children, parents and staff, including stretching classes with music. Parents and community members receive guidance from physical activity instructors – this is open to the whole community.

There is an annual ‘24-hour walk’ (on World Physical Activity Day) in which people and groups take part in a walking relay over 24 hours, with participation from the Rotary Club, schools, the Fire Department and the police. Around 4,500 people are involved on average – and in 2012 it was 10,000 people.

Other physical activity opportunities have also been established:

Pedal Sorocaba was launched in 2008 to encourage bicycle use – since then, over 100km of bike paths have been created, and mountain biking groups established. From 2012, 150 free hire bikes have been available at 19 docking stations (the Integra Bike programme).

Via Viva (Life Street) ran between May 2011 and December 2012, drawing on experiences of the ciclovía in Bogotá, Colombia. Every Sunday morning, 4km of a main road were closed to traffic, with the space being taken over by cyclists, skateboarders, wheelchair users, walkers and runners. Free activities were organised by over 50 local partners – martial arts classes, soccer, table tennis, health services (such as blood glucose screening), and cultural activities such as concerts. An average of 5,760 people took part, with 125 organisers. The event continues today in the Sorocaba River Park.

Ginástica no Parque (Gymnastics in the Park) was created by Mayor Lippi in consultation with local residents. Beginning in a single park in 2011, spreading to two more in 2012, it reached an average of 5,950 people each month for its first eight months. Classes are aimed at members of the public of all ages, and cover a range of activities including tai chi, resistance training and dancing. They are held morning and evening on four days a week, lasting 30 minutes, and are attended by an average of over 40 people. The majority of participants are women, and satisfaction with the programme is high (near 100 per cent, according to questionnaires).

A one-day event, Agita Galera, is held every year across Agita São Paulo sites, in which school children discuss active living and take part in physical activity. This is held in 5,500 schools across all 465 cities in São Paulo state.

Agita São Paulo

Agita São Paulo was launched in 1996 by the Centre for Laboratory Studies on Physical Fitness of São Caetano do Sul (CELAFISCS), to increase knowledge about the importance of physical activity as a way to promote health by 50 per cent, and to increase physical activity levels by 20 per cent over 10 years. It started as a grass-roots initiative, with volunteer participation of exercise scientists and physicians, and now Scientific and Executive Boards oversee the scientific development and assessment of the programme, and organise and plan the programme’s activities and messages.

What began as a state-wide initiative spread to become a model for similar programmes across the country and more widely.
Impact

The first measure of impact is awareness of the Agita São Paulo programme and its messages. By 2008, 60 per cent of São Paulo residents were aware of Agita (up from 37 per cent in 2002), and the proportion of inactive individuals fell from 10 per cent in 2002 to 3 per cent in 2008 – with the greatest increases in levels of walking found among those with lower incomes.

Over time, there was a significant improvement in the health status of the local population in Sorocaba, which is thought to be linked to the Projeto Caminhada programme. Between 2000 and 2004, hospitalisation from diabetes reportedly fell by 57 per cent, and hospitalisation for stroke fell by 50 per cent.

The economic benefits of the improvement to health have also been estimated – for Agita São Paulo as a whole, by 2005 the programme was reported by the World Bank to be saving the health sector US$310 million annually. The Via Viva programme has been estimated to have a cost–benefit of US$309 per participant (calculated from the difference between medical costs for active compared to inactive people).

Finally, the impact on the culture of Sorocaba is evident – local residents have taken possession of their urban spaces, including parks, streets and cycle tracks.

Challenges

Finding the budget for personnel and implementation and maintenance of the programmes is always challenging, and evaluation has not been easy – whether identifying appropriate indicators and tools to evaluate the different aspects of Agita São Paulo more widely or Projeto Caminhada and the other Sorocaba initiatives specifically. Data from the health system has not always been forthcoming.

More recently, a change of mayor and cuts in municipal funding have been challenges to the continuation of the programme. A dengue fever epidemic has also led the local government to make changes to its strategies (including changes to Projeto Caminhada personnel). In addition, the municipal budget has been reduced in the current economic crisis, which has had an impact on funding.

Sources


Acknowledgements

This case study was written by Katy Cooper, C3 Collaborating for Health, and the help of Dr Victor Matsudo, Dr Cláudio Bacci and Dr Antonio Bramante in compiling it is gratefully acknowledged.

“The We need to get people off the sofa! It’s really important to think of the city as a healthy space, a space that creates opportunities for people to lead active lives and do physical activity... Today Sorocaba is known as a healthy city, a city that promotes people’s health, creates opportunities for people to lead active lives and raise their quality of life."

Vitor Lippi, Mayor of Sorocaba
Blue Zones Project

Albert Lea, Minnesota

The Blue Zones Project in Albert Lea, Minnesota, is changing health behaviour – and increasing life expectancy – by empowering schools, workplaces, restaurants and local communities to work together to create a local environment in which being healthy is the easy, obvious option. Blue Zones Projects take lessons from communities around the world in which long life expectancy is the norm (see box), and applies them in ways appropriate for the United States. A Blue Zones Community is one in which a cultural shift is taking place – it is not a ‘programme’ aimed at changing individuals, nor is it aimed at any particular demographic group.

Why?
Life expectancy in the United States has risen dramatically over the past century, but a change in lifestyles to become more sedentary and with an unhealthy diet, leading to a rise in non-communicable diseases, is now threatening this advance – perhaps to the point that the life expectancy of today’s children will be below that of their parents. Simply treating disease is not enough if we are to lead longer, healthier lives; efforts also have to be made upstream, encouraging healthier lifestyles. Merely telling people to change their behaviour is not sufficient – the whole environment needs to support healthy choices.

What?
Blue Zones Project is a whole-of-society initiative that takes a holistic approach to health. It draws on lessons learned from diverse communities around the world in which living a long, healthy life is the norm (see box), and applies them in ways appropriate for the United States. A Blue Zones Community is one in which a cultural shift is taking place – it is not a ‘programme’ aimed at changing individuals, nor is it aimed at any particular demographic group.

Where?
Albert Lea – the focus of this case study – is a city of 18,000 people in south-east Minnesota, in the heart of the midwestern United States. It was chosen because it is an average town in the state – obesity and smoking rates are average, the population is over 90 per cent white, and around 10 per cent of the population live below the poverty line. If change can happen here, it can happen in many other places!

Who?
The organisation lead in Albert Lea is the ‘connector and community navigator’ for the Blue Zones Project. The project receives strong support from the mayor, Vern Rasmussen Jr. A Leadership Team, co-chaired by the city manager, is key to the success of the Blue Zones Project in Albert Lea, consisting of decision-makers from across the local community, including the schools superintendent, the executive director of the Chamber of Commerce and the director of public health. They have met twice a month for the last six years – continuing to meet even after the pilot project ended.

During the initial pilot, 60 per cent of the city’s restaurants, over half its employers and all of its schools took part. In addition, 3,400 people (a quarter of the population) signed a pledge and took an active part in Blue Zones Project activities – and 2,500 have signed up or renewed their commitment since 2014. Today, grocery stores, schools, restaurants, workplaces and local residents are all working with the project.

Support for the Blue Zones Project began with funding from the UnitedHealth Foundation for the Albert Lea pilot, supported by the AARP. For the year 2014–15, funding was provided by Healthways (which also acts as administrator for the programme nationally), and this is now being superseded by community funding.
When?
In 2009, Albert Lea won a competition to become the first site of the Blue Zones initiative. This pilot phase lasted for 11 months, and showed significant impact on the health of the local population, prompting the partnership between Healthways and Blue Zones that continues today. In 2014, Albert Lea was once again chosen as a Blue Zones Project demonstration city.

How?
The startpoint for any Blue Zones Project is an evaluation of the existing environment – audits of the walkability of the local area, assessments of individual schools, grocery stores and workplaces (and even some family homes).

All Blue Zones Project demonstration sites work towards designation as Blue Zones Communities. To achieve this, a fifth of residents must pledge and complete at least one action to lead a healthier life, at least a quarter of schools, grocery stores and workplaces (and even some family homes). A fifth of residents are also encouraged to take active roles by signing personal pledges to take steps towards a healthier lifestyle. Life expectancy is benchmarked – and anticipated increases documented. Among local initiatives to empower people to fulfill their pledges are the following.

+ **Schools** have banned eating in classrooms and hallways, and no longer sell candy at fundraising events. There is a Healthy Snack Cart programme, school walk-a-thons, and three schools now have their own garden to grow fresh produce. Six of the seven local schools are currently designated as Blue Zone Schools – and the high school will follow suit this year. One school held a ‘Day of Awesomeness’ to celebrate designation.

+ **By August 2015, 15 Albert Lea workplaces** were Blue Zones Worksites – covering almost half of the workforce – with well-being ambassadors appointed and kickoff events held. Freeborn-Mower Cooperative Services, for example, now has a tobacco-free worksite, there is a healthy snack market, 'pickle ball' is offered at break-times to all employees, and a health fair was held in January. Metrics (health costs, productivity and absenteeism) must be measured and tracked.

+ **Restaurants** must take steps to improve the healthiness of options, such as removing the soda fountain from the counter, replacing crisps in lunch deals with fruit, and nutrition labelling on menus. To date, five restaurants have been designated.

+ **The Hy-Vee grocery store** is the Blue Zones Grocery Store in Albert Lea, taking an active role in the initiative. It has a Blue Zones Checkout Lane of healthy produce and the in-store restaurant is a Blue Zones Restaurant.

+ **Community gardens** have been established, including Walking Moais, ‘Potluck’ (cooking) Moais and ‘Wine @ Five’ Moais. These provide not only physical activity and healthy eating, but also, and most importantly, strengthen social networks, which are so important for health.

+ **Free community-wide events** including an annual Family Bike Rodeo (free helmets for children, a used-bike give-away and an agility course), Open Streets day, and The Big Freeze to encourage active living in winter (including snowshoeing).

+ **Farmers’ markets** meet twice a week at two separate locations.

+ **There is a healthy concession stand** (food/beverage stall) at the local ice hockey arena.

“... At Freeborn-Mower Cooperative Services we value the well-being of our employees. Wellness programs in the workplace offer many benefits for a company as well as for its employees. Having healthy, engaged employees is one of those intangible benefits you really can’t put a price on. We are thrilled to be designated as a Blue Zones Worksites and look forward to continuing to create an environment for our employees where healthy choices are easy to make.”

Jim Kruger, president/CEO

---

Freeborn-Mower Cooperative Services celebrates designation as a Blue Zones Worksites
Impact
The success of 2009–10 served as the spur for Blue Zones Project continuing locally. During the initial year, residents added 2.8 years to their life expectancy, as measured by a ‘Vitality Compass’ online tool (developed with University of Minnesota’s School of Public Health). Other impacts to date include the following:

- ‘Trail counts’ are undertaken each year at three key points in the city (e.g. on a major street corner), showing that the total number of people walking and cycling has risen by 38 per cent.
- A benefit of Blue Zones Project is that a Gallup–Healthways Well-Being Index poll is regularly taken among citizens, with questions relating to wellbeing and lifestyle (including access to health care, physical activity, resources to buy healthy food). The 2014 poll found that Albert Lea is higher both than national and state average for being ‘active’ and ‘productive’.
- From 2009–14, sales of fresh produce at the Hy-Vee grocery store increased 12 per cent, water by 52 per cent, and soda sales fell by 5 per cent.
- Once embedded, the impact of being a Blue Zones Worksite has been shown to make a difference to the bottom line – in Freeborn-Mower Cooperative Services, health-insurance premiums have held steady for the last two years, in stark contrast to national trends.

Challenges
To change the mindset of the community – the aim of Blue Zones Project – all aspects of the community need to be engaged. This is potentially time-consuming – an individual workplace may be able to put interventions in place over the course of a few months, but a whole-community approach is also dependent on policy change, which can take much longer. The challenge is to build advocacy locally, to demonstrate that there is a real willingness to take action, and policy will follow. Finding long-term funding is also challenging.

The future
The ideal outcome for any Blue Zones Community is that it will become self-sustaining, with healthy choices embedded into the lifestyles of local people. All Blue Zones Communities are required to develop a sustainability plan, and in Albert Lea funding now needs to be solicited locally (from grants, local employers and public bodies) to pay for someone to continue to coordinate the Blue Zones Project activities. The hope is to continue on the same successful trajectory – continuing to designate workplaces and schools, work on healthy public policy, and improve the built environment.

Nationally, Blue Zones Project is scaling up rapidly, with future sites planned in Hawaii, Oregon, Texas and Florida.

Sources
1. Albert Lea Blue Zone: www.bluezones.com/communities/albert-lea
2. Blue Zones (Dan Buettner) on Twitter: twitter.com/BlueZones
3. Blue Zones on YouTube: www.youtube.com/use/BlueZonesProject
4. Albert Lea Blue Zone on Facebook: www.facebook.com/BlueZonesProjectAlbertLea
5. Vitality Compass tool: apps.bluezones.com/vitality/

Acknowledgements
This case study was written by Katy Cooper, C3 Collaborating for Health, and the help of Ellen Kehr and Shannon Sanders in compiling it is gratefully acknowledged.

Laura Lunde, Albert Lea resident

“Blue Zones Project has been a fabulous addition to our community and to my life. In the last year, I feel that my outlook has drastically changed for the good... I also met the love of my life by moving naturally and enjoying Wine@Five. Through the process of a more plant-based diet and by including fruits and vegetables into every meal, I have lost 40 pounds... [Blue Zones] works, it’s simple, and it feels amazing.”

Laura Lunde, Albert Lea resident

A challenge to the future scale-up of Blue Zones Project is that leaders within the community must be willing to welcome the initiative and to change, ready to lead from the top – the high-level commitment clearly evident in Albert Lea may be hard to replicate elsewhere.
The Durham Diabetes Coalition (DDC) is a five-year initiative. It identifies people who have been unaware that they have type 2 diabetes, and also works to reduce the disability and early death that can be caused by diabetes complications by offering appropriate care to individuals and establishing community-based programmes to encourage healthier lifestyles. High-risk areas and individuals are identified through the use of a sophisticated mapping tool and risk algorithm, which combines health data with social and environmental information about local neighbourhoods.

Why?
The rate of type 2 diabetes in the United States has been rising steadily, from 5.6 million in 1980 to an estimated 29 million in 2014 – and if this trend continues, one in three Americans will have diabetes by 2050. In Durham County, North Carolina, around 12 per cent of adults in the county are thought to be living with type 2 diabetes (around the national average) – but almost half of those with the condition do not know that they have it. Identifying people with diabetes, and providing good care and management, are key to reducing diabetes’ toll on individual health and wellbeing, the health system and the economy.

What?
The Durham Diabetes Coalition (DDC) is a five-year initiative. It identifies people who have been unaware that they have type 2 diabetes, and also works to reduce the disability and early death that can be caused by diabetes complications by offering appropriate care to individuals and establishing community-based programmes to encourage healthier lifestyles. High-risk areas and individuals are identified through the use of a sophisticated mapping tool and risk algorithm, which combines health data with social and environmental information about local neighbourhoods.

Where?
Durham, North Carolina, is the county seat of Durham County and the home of Duke University. The county has a population of around 280,000, of whom over 90 per cent live in the city, and of whom at least 23,000 have diabetes. Three areas in Durham have been identified as hotspots for diabetes risk, and are the primary target of the DDC.

Who?
Duke University, in collaboration with Durham County health organisations (including the Department of Public Health and Lincoln Community Health Center), local government, and academic partners at Duke University and the University of Michigan, developed a partnership between a wide variety of organisations to change diabetes within Durham County. Local partners include Ebenezer Missionary Baptist Church, local NGOs CAARE and Community Health Coalition, East Durham Children’s Initiative, American Diabetes Association, El Centro Hispano, Cooperative extension, city and county partners (Parks and Recreation and the Office of Workforce and Economic Development), and community members living with diabetes. A vibrant Community Advisory Board brings together the partners on a monthly basis – there are over 40 active members.

The DDC is run from Duke University and has multiple teams working to address diabetes. Three teams (clinical, communications, and neighbourhood intervention) are based at Durham County Department of Public Health; three teams at Duke University (analytics, predictive medicine, and SEDI); and one team, geospatial, at the University of Michigan and Duke University. The Geospatial and Analytics Teams collect and process data; the Clinical Team works to improve the health of people living with diabetes; the Neighbourhood Intervention and Communications Teams work within the community to raise awareness of type 2 diabetes and encourage healthier living to prevent complications; and the Predictive Medicine Team is working to describe the environmental characteristics of diabetes.
The Durham Diabetes Coalition is a wonderful collaborative partnership that works together to move the needle on diabetes in the County. Each and every partner brings a unique perspective and skill set to the table and the synergy together is amazing! It is phenomenal to see the impact that we are having at multiple levels and to know that each and every day we are positively impacting the lives of people living with diabetes.”

Dr Lisa Pullen Davis, senior project manager, Durham Diabetes Coalition, and project leader, Duke Translational Research Institute.

---

The Bristol-Myers Squibb Foundation has contributed $6.25 million to the DDC over five years, and the Center for Medicare and Medicaid Innovation also provided three years of funding from 2012, which allowed the team to be doubled in size and become part of the Southeastern Diabetes Initiative (SEDI) that encompasses Mississippi, West Virginia, and Cabarrus County (North Carolina). Local in-kind funding has been provided, for example by the Save-a-Lot grocery chain that has a store in one of the target neighbourhoods.

**When?**

The mapping system on which the programme is based took three years to construct, and the Durham Diabetes Coalition launched in December 2011 as a five-year programme, with the hope that it will continue beyond this time horizon.

**How?**

Forming a unique part of the programme is a **geographic health information system** (GHIS). This compares data on patients in the Duke University Health System (around 80 per cent of the local population) with a wide range of information about the local area: demographics, crime, housing, land use, traffic patterns, environmental exposures (e.g. air pollution) and community resources (e.g. green spaces, health centres, leisure centres, schools and offices). The combined information provides a basis for understanding patients’ lives, and the health challenges and opportunities faced by local communities. Patient data is strictly controlled, but anonymised data can be used by community health workers to create hyper-local diabetes management plans based on the social, health and environmental characteristics of a neighbourhood. The GHIS is operated by Duke University and the University of Michigan Center for Geospatial Medicine.

It is into this sound knowledge base that the Durham Diabetes Coalition has been planted – focusing particularly on three neighbourhoods that the GHIS identified as being particularly high-risk clusters that would benefit from assistance, both in screening for diabetes and also for help at local level to spread the word about healthy living.

There are two main facets to the DDC: **care** and **community-based health**.

- **Two Clinical Teams** (including a supervising physician, nurse practitioner, social worker, dietician and community health worker) link patients referred to them to existing resources in the community. They also run an intensive, in-home clinical care programme for those who are identified as being at highest risk of death or hospitalisation in the coming year (including visiting people who are homeless or uninsured). How often they are visited depends on the patient, but this will be at least every six months, and more frequently in the early stages – there may be a ‘tag team’ approach where a patient is initially visited by a nurse, then a dietician, then by a social worker for follow up (for example, if a patient needs help getting back into employment).

- **The Neighbourhood Intervention Team** of five community health integrators works with local partners to link people to available resources, coordinate events and health fairs, and teach classes in self-management of diabetes, such as a ‘Living and thriving with diabetes’ workshop series (which is provided free of charge). Other activities include grocery-store tours, walking groups (following new ‘Healthy Mile Trails’ on sidewalks), a community newsletter and a monthly support group. Individual events are also organised – such as an annual Diabetes Alert Day, in partnership with the American Diabetes Association, and a ‘health day’ at a local baseball game, in conjunction with Sanofi (which included screening and awareness-raising).

The Clinical Team had expected that junk food would be an issue for high-risk patients – but they found that, in many cases, the problem was food insecurity: ‘it wasn’t junk food – it was no food’. In 2014, a Diabetes Food Pantry was launched, with weekly group sessions (currently about 30 people) on diabetes-related issues (nutrition, foot care, etc.), and with a bag of healthy food provided to those attending. The food is donated by local people and grocery stores to partner organisation Healing with Care, which hosts the sessions.

A ‘411 series’ is now also being run, organised through Durham County Department of Public Health and Duke University, in which talks are given to the community by experts in topics related to health and diabetes – these include a workshop on medication, a podiatrist, a nephrologist (kidney health) and an ophthalmologist.

**Campaigns** have also been run on local radio and in newspapers, which are estimated to have reached over 160,000 listeners and readers. One smaller campaign – ‘Take 2 for Type 2’ – encouraged people to spend two minutes taking a diabetes risk test. If the result was high risk, they were asked to visit a health-care provider. A total of 39 organisations displayed and distributed campaign materials in the county and 640 risk tests were distributed; however, data on the number of people referred were not captured.

The Durham Television Network has produced a series of **30-minute programmes** called ‘Living Healthy’. This features segments on nutrition, physical activity, diabetes information and signposting to local resources, as well as personal stories from residents living with the condition, and episodes are available online.
I was diagnosed with diabetes in 2007. My doctor gave me a prescription and threw me to the wolves. I found out about the Durham Diabetes Coalition through Facebook. The Durham Diabetes Coalition gave me wonderful care, nutrition, and education. My A1c has come down to around 7." - Evangeline Howard, diabetes patient reached through the DDC Clinical Team

Impact
Over 200 high-risk patients are currently being reached (the majority in their own homes), and there have been 6,300 contact logs with these patients. Soon-to-be-published data show decreases in in-patient admissions, emergency department visits and the number of patients with uncontrolled diabetes, and an increase in the proportion of patients achieving their A1c goals. A team is also analysing the Medicare claims data, so estimates of cost reductions will also be available.

The success of the collaborative approach is clear through the many partners who are now on board, and the range of events being organised. Finally, in June 2015, a ‘patient appreciation day’ was held in one of the neighbourhoods, to let patients know how much they are appreciated for being mindful about their health. There was an open mike for people to share their stories – and some were moved to tears. The impact on their lives was clear.

Challenges
The initial – and significant – challenge was building sufficient trust to develop the GHIS system, as it required the buy-in of local health providers (including being willing to give the time to learn about and use the system once established). This task was made easier in Durham because of the single major health supplier (Duke University Hospital System) – but despite this it took three years of negotiation and relationship-building with the universities, public-health agencies and community stakeholders to agree to share the data.

Hiring the right staff, scheduling patients, and engaging the community takes time. This process can be challenging and iterative, but patience and flexibility based on patient and community needs build trust over time, ensure that the best staff are hired, and result in better engagement in the needs of community partners.

The greatest challenge is the sustainability of the programme, which is currently being planned. This includes ways to incorporate the DDC staff within the existing health system structure, integrating DDC activities within community partner organisations, and actively seeking additional funding sources to continue DDC activities with collaborating partners.

The future
As of September 2014, the Lincoln Community Health Center has become part of the same electronic health record as Duke – so the analytics team is working to bring together the data sets and will soon have additional maps covering almost 100 per cent of the population.

The DDC approach – both the mapping and the interventions – is being rolled out more widely, in West Virginia, Mississippi and elsewhere in North Carolina (known collectively as the South Eastern Diabetes Initiative, SEDI). Information will be shared between the different sites, which are taking different approaches – for example one site focuses particularly on physical activity.

The system has the potential to be an important tool for neighbourhoods that have been shown to be at high risk of poorly controlled diabetes – providing them with a strong rationale to call for funding from local government to tackle health inequalities.

Sources
1. Durham Diabetes Coalition: www.durhamdiabetescoalition.org/home
3. Durham Diabetes Coalition on Twitter:twitter.com/DrhmDiabetesNC
4. Living Healthy TV show: durhamdiabetescoalition.org/tv-show
5. Durham Diabetes Coalition YouTube channel: www.youtube.com/user/DurhamDiabetesNC/videos
7. CDC information on the number of people with diabetes: www.cdc.gov/diabetes/statistics/prev/national/figpersons.htm

Acknowledgements
This case study was written by Katy Cooper, C3 Collaborating for Health, and the help of Dr Lisa Davis in compiling it is gratefully acknowledged.
The Joint Asia Diabetes Evaluation Programme (JADE) is a quality improvement programme augmented by an electronic platform (e-portal) that provides a structured template for data collection, risk categorisation and personalised reporting with decision support. It allows clinicians, health-care providers and patients to track progress, make shared and informed decisions appropriate to their risks, and facilitate implementation of evidence-based medicine for prevention of complications. As well as serving as a quality improvement tool, the e-portal also enables the establishment of a regional diabetes registry and conduct of intervention programmes in a real-world setting.

Why?
Among people with diabetes, the ‘rule of halves’ is said to hold – only half of people with diabetes are aware that they have the condition; half of those who have been diagnosed receive treatment; only half of those receiving treatment achieve their care targets; and only half of those achieving the targets actually have the desired outcome.

Hong Kong is no exception to the rule of halves – 38 per cent of the population may have or be at risk of diabetes. An estimated 1 million people have the disease, of whom 650,000 people are thought to be undiagnosed and a further 1.6 million have pre-diabetes. The consequences of suboptimal diabetes care can be serious. Based on the Hong Kong Diabetes Registry which tracked the progress of 8,439 Chinese patients with type 2 diabetes from 1994 to 2007, after an average follow-up period of seven years, 20 per cent and 10 per cent of patients developed chronic kidney disease and cardiovascular disease, respectively. Using ABC targets (HbA1c<7%, blood pressure<130/80 mmHg and LDL-C<2.6 mmol/l) as quality indexes, attainment of multiple targets can reduce the risk of these life-threatening complications by 50 per cent or more.

What?
JADE directly addresses vulnerabilities in the care pathway that are highlighted by the rule of halves. It promotes the change of workflow and uses task delegation to standardise care processes augmented by the e-portal. The latter uses information technology that incorporates validated risk engines and care protocols to collect, integrate, analyse and communicate personalised health data and reminders. By systematically collecting these health data as recommended by international bodies, the e-portal stratifies patients into risk categories based on various combinations of complications, risk factors, risk scores and kidney function, to inform them of their personalised risk profile. The e-portal also uses visual images to inform the patients and care providers about their trends of ABC and body-weight targets with decision support. By integrating these inter-linked components of quality improvement with particular focus on empowerment and information support, the utility of JADE to reduce clinical inertia and treatment non-adherence has been confirmed, as well as improving psychological health with improved efficacy, self-care and control of cardiometabolic risk factors.

Jade is a precious and popular gemstone especially in Asia. Its green colour deepens with prolonged wearing and increasing price. Like jade, the value of the JADE Programme grows with time and the human touch.
Where?
The design of JADE is based on a wealth of data collected from Asian populations and specifically caters for the needs of Asian countries. For example, the risk stratification is based on the lower cut-off values for body mass index and waist circumference that is appropriate for Asian populations. It is now in use in 11 countries/areas and has been translated into eight languages – English, Korean, Thai, Malay, Vietnamese, Bahasa Indonesian, and simplified and traditional Chinese, with enrolment of over 100,000 patients. This case study focuses particularly on its use in Hong Kong, a city of 7 million people leading a largely westernised lifestyle and with access to a highly subsidised health-care system.

Who?
JADE is an extension of the Hong Kong Diabetes Registry established in the 1990s in response to the growing number of people with diabetes and lack of enough health-care providers to meet the service demands. It adopts the key components of clinical trials that use protocols, nurses and monitoring to achieve treatment targets, with particular focus on education and standards of operation. JADE further expands this concept using information technology to issue personalised reports with decision support

How?
Before joining JADE, all clinicians are briefed on the what, why and how of JADE. They are strongly encouraged to train nurses and health care assistants to collect and enter data under their supervision. All patients provide written informed consent to having their anonymised data entered on the e-portal to contribute to the Asian Diabetes Database for research and publication purposes with institutional approval.

JADE was developed in 2006 and the e-portal has been available to registered users in Hong Kong since 2007.

How?
Before joining JADE, all clinicians are briefed on the what, why and how of JADE. They are strongly encouraged to train nurses and health care assistants to collect and enter data under their supervision. All patients provide written informed consent to having their anonymised data entered on the e-portal to contribute to the Asian Diabetes Database for research and publication purposes. Based on parameters including age, sex, disease duration, smoking, renal function, blood pressure, body weight, A1C, lipids, haematocrit, and prior complications, the e-portal estimates the five-year probability for major events, such as stroke, heart disease or kidney failure. These data are used to group patients into one of four risk categories (from Low Risk to Very High Risk), which correspond to an annual all-event rate ranging from 1 per cent to 8 per cent. Based on these risk categories, the e-portal generates a personalised report supplemented by a care protocol (e.g., follow-up intervals, education and periodic assessment). Although JADE does not register subjects with prediabetes, the Asia Diabetes Foundation has developed a self-assessment application to detect prediabetes/diabetes (RUBY: Risk Understanding By Yourself), which can eventually be incorporated into the JADE platform (www.adf.org.hk/en/program/rubyconcept).

The JADE report provides personalised risk information and reminders to promote a dialogue between care providers and patients for shared decision-making. Depending on attained treatment targets, doctors are reminded to refer patients for education, initiate treatment to control blood pressure, glucose and lipids, monitor renal function and use angiotensin system (RAS) inhibitors, while patients are reminded to adhere to treatments, perform regular self-monitoring and control body weight by regular weight recording and avoiding sugary drinks. By entering clinic measurements to provide 3–4 monthly feedback reports that display trends of ABC and body weight, JADE has applied sound cognitive-psychological principles to bring about positive behavioural changes by reducing clinical inertia and treatment non-adherence.

The use of modern technology allows for adherence to strict security practices including full encryption of anonymised data and facilitates data collection using standard protocol through the internet. By controlling access to these anonymised data, the Asia Diabetes Foundation administration and research project teams, site- or country-specific researchers and coordinators, as well as designated health-care providers from participating clinics/centres, can have different levels of data access for research, analysis, audit and clinical use purposes.

The apostrophe here represents communication of knowledge to change practice, with the ‘A’ sign representing Asia and a book standing on its ends. The blue colour is that of the International Diabetes Federation and the sky – the ceiling with no limits.

...after having more than 10 years of diabetes, I finally have learnt so much through this programme, I have lost weight, improved my A1C and made new friends, thanks to the diabetes team!“

Patient testimonial

www.adf.org.hk/en/program/rubyconcept
Since the mid-1990s, the Hong Kong Diabetes Registry, precursor of JADE, initiated by the Chinese University Hong Kong Diabetes Research and Care Team, has provided a template to the Hong Kong Hospital Authority in formulating its multi-component diabetes care programme. This includes 1) development of career paths for diabetes nurses tasked with providing comprehensive assessment and empowerment under medical supervision; 2) establishment of diabetes centres, which provide an infrastructure for care coordination; and 3) extension of these programmes into the community-based clinics and other supporting organisations.

The adoption of these integrated care models has motivated the establishment of multi-disciplinary diabetes care centres, including nurse-led diabetes centres, to complement primary care in the private sector to increase treatment choices for patients with different needs.

In a collaborative study where JADE enrols more than 40,000 diabetic patients from nine Asian countries/areas, major treatment gaps were confirmed in patients with young-onset diabetes diagnosed before the age of 40, which affects one in five adult patients with type 2 diabetes. In part due to the long duration of the disease, these patients are at high risk for developing cardiovascular-renal complications with premature mortality in their early 60s. Compared to those with late-onset disease, these young patients were less likely to attain treatment targets and receive life-saving drugs such as statins or RAS inhibitors, which call for urgent public-health solutions.

In a randomised trial that examined the effect of a one-year telephone-based peer support programme (PEARL: Peer Support, Empowerment and Remote Communication Linked by Information Technology), 632 Chinese people with type 2 diabetes were managed by JADE, with half of them randomised to receive peer support. The latter was provided by trained peer supporters, who were first introduced by nurses to their assigned peers in a 1:10 ratio, to ensure linkage to clinical care. After one year, irrespective of randomisation, the rate of attainment of ABC targets increased by 25–40 per cent with 10–20 per cent of patients started on insulin, RAS inhibitors and statins. There was substantial improvement in negative emotions and self-care with reduced non-adherence confirming the utility of JADE. Patients who received additional peer support had reduced hospitalisation, especially amongst those with emotional distress, highlighting the importance of ongoing support to maximise the impact of integrated care.

Impact
JADE is designed to use protocols, information technology and team-based care to translate efficacy data in controlled settings to clinical effectiveness in real-world practice. It also aims to collect real-world data on an ongoing basis to inform policymakers, payers, patients, the public and care providers on the value of good clinical practice in order to make our care practices accountable and our care system sustainable.

From a research perspective, it enables the establishment of a regional registry to confirm treatment effectiveness in real-world practice, identify treatment gaps and make novel observations to generate clinically relevant hypotheses for further testing. Importantly, it has provided a sustainable platform to conduct multicentre research projects and evaluate various interventions, including comparative effectiveness studies to guide clinical practice for patient benefits.

The following examples demonstrate the utility of the JADE concept in changing practice and influencing policy through research.

Since the mid-1990s, the Hong Kong Diabetes Registry, precursor of JADE, initiated by the Chinese University Hong Kong Diabetes Research and Care Team, has provided a template to the Hong Kong Hospital Authority in formulating its multi-component diabetes care programme. This includes 1) development of career paths for diabetes nurses tasked with providing comprehensive assessment and empowerment under medical supervision; 2) establishment of diabetes centres, which provide an infrastructure for care coordination; and 3) extension of these programmes into the community-based clinics and other supporting organisations.

The adoption of these integrated care models has motivated the establishment of multi-disciplinary diabetes care centres, including nurse-led diabetes centres, to complement primary care in the private sector to increase treatment choices for patients with different needs.

In a collaborative study where JADE enrols more than 40,000 diabetic patients from nine Asian countries/areas, major treatment gaps were confirmed in patients with young-onset diabetes diagnosed before the age of 40, which affects one in five adult patients with type 2 diabetes. In part due to the long duration of the disease, these patients are at high risk for developing cardiovascular-renal complications with premature mortality in their early 60s. Compared to those with late-onset disease, these young patients were less likely to attain treatment targets and receive life-saving drugs such as statins or RAS inhibitors, which call for urgent public-health solutions.

In a randomised trial that examined the effect of a one-year telephone-based peer support programme (PEARL: Peer Support, Empowerment and Remote Communication Linked by Information Technology), 632 Chinese people with type 2 diabetes were managed by JADE, with half of them randomised to receive peer support. The latter was provided by trained peer supporters, who were first introduced by nurses to their assigned peers in a 1:10 ratio, to ensure linkage to clinical care. After one year, irrespective of randomisation, the rate of attainment of ABC targets increased by 25–40 per cent with 10–20 per cent of patients started on insulin, RAS inhibitors and statins. There was substantial improvement in negative emotions and self-care with reduced non-adherence confirming the utility of JADE. Patients who received additional peer support had reduced hospitalisation, especially amongst those with emotional distress, highlighting the importance of ongoing support to maximise the impact of integrated care.

Challenges
The JADE concept is based on sound epidemiological principles of using clinical population cohorts to understand aetiology and the effect of interventions. This is an improvement over the use of convenient administrative databases (e.g. pharmacy records), random laboratory measurements or disease registries, which often lack important demographic data, care processes and risk-factor control, resulting in confounders and biased conclusions.

Encouraging system administrators and clinicians to implement JADE in their practices can be initially challenging, as they are often already overwhelmed by other tasks. Using facts and figures to explain the benefits of using a registry and providing personalised information to improve patient care is key in recruiting health professionals to participate in the programme and use the e-portal. In this light, JADE also helps the diabetes team to build capacity, since many non-medical staff (such as nurses and health care assistants) can learn from the guidelines, protocols and practice tips embedded in the e-portal to help them engage the patients while doctors focus on decision-making.

Once JADE is established, maintaining the system to ensure quality care and accurate data collection is an ongoing challenge. Use of dedicated space and trained staff to assist doctors to design workflow for comprehensive assessments, data collection and data entry can substantially improve the efficiency and running cost of this multicomponent programme. Due to the silent nature of these risk-factors and complications, patients are often unaware of the importance of periodic assessment as the first step towards quality care. In low-resource areas or settings where preventive care is not subsidised, willingness to pay for routine laboratory tests or clinical assessment is a major barrier, which requires changes in policy and financing.
The process of systematic collection of data achieved by JADE alone can already have positive health outcomes while additional components of JADE such as providing 1) personalised reports of comprehensive assessment with or without explanation by doctors, nurses or health-care workers (in groups or on an individual basis); 2) regular follow up reports to provide feedback on control of risk factors with decision support; 3) peer support for ongoing emotional support and 4) team-based care to reinforce prompt treatment and personalise drug treatment can bring further improvements. These incremental benefits are in accord with a meta-analysis on the effects of different quality improvement initiatives targeted at patients, systems and care providers, all of which have been incorporated and implemented through JADE.

The future
In Hong Kong, the Hospital Authority has fully adopted integrated diabetes care as a health-care policy. This includes establishing a diabetes registry through regular comprehensive assessment, patient empowerment and peer support implemented through community and hospital-based diabetes centres coordinated by nurses under medical supervision. In the private sector, there are university-affiliated diabetes centres and social enterprises that provide JADE-augmented, comprehensive assessment and empowerment programmes, coordinated by nurses and health-care assistants, using JADE to complement medical care in the community.

In Asia, supported by various educational grants, there are ongoing large-scale multicentre randomised studies where each site is provided with a nurse-equivalent salary to recruit 300–600 patients to compare JADE-augmented versus usual care on control of cardiometabolic risk factors and clinical outcomes in different health-care settings, to confirm the feasibility and value of JADE and its various components.

Finally, work is under way to improve the user-friendliness of the e-portal using mobile technology and to develop a business model through private-public partnership, to scale up the operation and to make the programme sustainable and affordable.

Sources
1. JADE: www.adf.org.hk/en/program/jadevision
3. JADE portal demonstration video: www.youtube.com/ watch?v=xuQ29x2AqF

Acknowledgements
This case study was written by Katy Cooper, C3 Collaborating for Health, and Professor Juliana Chan, the Chinese University of Hong Kong and Asia Diabetes Foundation, Hong Kong Special Administrative Region (SAR), China. The help of Assistant Professor Rosanne Yeung, University of Alberta, Canada and Associate Professor Alice Kong, the Chinese University of Hong Kong, Hong Kong SAR, China, in compiling it is gratefully acknowledged.
Microclinics

Amman, Jordan

Microclinics uses the power of local social networks to manage and prevent diabetes by recruiting small groups of friends or co-workers, who are trained in health education and support one another in achieving significant, sustainable improvements in health. This case study focuses on microclinics established among low-income residents of Amman, Jordan.

Why?
Official diabetes prevalence in Jordan is around 12 per cent, but many more people will be undiagnosed and unaware that they have the condition, and more again have prediabetes. A third of adults are obese – the country has one of the highest rates of obesity in the world – which is a major driver of type 2 diabetes. The disease is thought to cost the country about $2 billion annually. However, despite the human and financial toll of the disease, there has been no national diabetes education programme to help local people to prevent or manage the condition.

What?
Microclinics are small, self-selected groups of people – family, friends or co-workers – who undergo a structured health-education programme and then share access to technology and social support. Microclinics are an effective, sustainable and low-cost way to fill gaps in the prevention and treatment of serious diseases in local communities – and have been proven to improve diabetes management in highly diverse settings.

Where?
This case study focuses on the microclinics in Amman, Jordan, which have been fully evaluated. The programme has been scaled up, initially to regions around Amman and now nationally. Microclinics have also been launched in countries including the United States (in Kentucky), Kenya, Palestine and Qatar. To date, over 4,000 microclinics have been established on four continents.

Who?
The beneficiaries of the microclinics are people with diabetes (or at high risk of diabetes), who are empowered to take better control of their health. The health-education programme used by the microclinics has been developed by Microclinic International, with nurses being trained in programme delivery at the Queen Rania’s Health Awareness Society in Amman. The nurses then recruit local people with diabetes to form microclinics, and provide the tools and knowledge for them to control their diabetes. Microclinic International’s national training programme in diabetes care and management in Jordan reached 300 doctors and nurses, and nearly 6,000 people with diabetes have received in-depth diabetes education in microclinics, with a further 18,000 estimated to have benefited from it via social networks (peer-to-peer sharing).

The scaling-up of the microclinic programme is supported by organisations including the Robert Wood Johnson Foundation, the International Diabetes Federation, the World Diabetes Foundation and the UN Relief and Works Agency. Evaluation partners are researchers from leading universities. Microclinic International – the not-for-profit organisation that developed the concept – is headquartered in San Francisco.

When?
The first microclinic was established in 2005 by Daniel Zoughbie, in response to the lack of diabetes care available to his grandmother, who died from diabetes-related complications in Palestine. The first microclinic in Amman was established in 2007, and in 2012 was scaled up to regions around Amman. It is now (2015) being scaled up to 50 health centres nationally, with the support of Queen Rania’s Royal Health Awareness Society. Over 900 United Nations Relief and Works Agency health-care workers are also being trained to provide microclinics to refugees in Jordan (and in Gaza, the West Bank, Syria and Lebanon).
The first study was of 720 people, who
The second study was of 315 people who
The third study was a randomised controlled
fully assessed
in Amman, there
32
Anatomy of a microclinic programme
Khieri ‘Aqqad, Na’our, West Amman

How?
Microclinics are a great example of the principle
that good health programmes do not have
to be complicated! They are founded on
the idea that healthy behaviour – as well as
unhealthy behaviour – can be spread among
social networks. Each microclinic is made up
of between two and eight people, who are all
members of the same social group, such as
a family or co-workers. Together, members
of each microclinic undertake a structured
health-education programme, led by nurses at
local health centres, to help them understand
diabetes prevention and care.

The education begins with an understanding
of the impact of ‘four Ms’ on diabetes: meals,
movement, monitoring and medication.
Microclinic participants are then encouraged
to think about how they influence, and are
influenced by, others’ behaviour – in other
words, the ways in which health behaviour can
be ‘contagious’. This builds an appreciation
for the responsibility that each individual has
for his or her own and others’ health – turning
everyone into health ambassadors in their family
or community, whether on primary prevention
(such as children’s food) or secondary
prevention (correct medication and care for
diabetes). This engagement is a core aspect
of the microclinics, and is missing from more
traditional diabetes education programmes.
The group then provides mutual support
to lead a healthier lifestyle every day – and
microclinic members share access to social
support, education and the cost of glucose-
monitoring systems.
The programme is based on careful observation
of habits and culture in the region. People talk
about their medication, they eat together, they
take care of each others’ children – characteristics
that mean that health messages and behaviour
change can more easily be transmitted.
In Jordan, the microclinic programme has also run
a health-awareness campaign on national media,
thought to have reached millions of people. The
aim of Microclinic International in Amman – and
Jordan more widely – is to reach ‘saturation’
of the population; everyone will know about
diabetes prevention and management.

Impact
Evaluation has been embedded within the
programme from its inception, and has allowed
its impact to be fully assessed. In Amman, there
have been three studies to date on the impact of
the programme on health.

The first study was of 720 people, who
completed the initial four-month microclinic
programme. By the end of the four months,
average weight loss was 1.4kg and average
reduction in HbA1c was 0.5 per cent. The
way in which the impact ‘clustered’ within
microclinics was also assessed – showing
that change happened within the group
as a whole.

The second study was of 315 people who
completed the microclinic programme
in 2010. After two years, the 70 per cent
of participants who came for follow-up
had maintained an average weight loss of
1.6kg (equivalent to a reduction in BMI of
0.43kg/m²) and a very significant 1 per cent
reduction in HbA1c – showing the sustained
benefits of the microclinic programme.

The third study was a randomised controlled
trial of over 900 people that began in 2011,
comparing a) the microclinic programme
with weekly sessions led by health educators,
b) the microclinic programme without
the weekly sessions and c) controls
with standard care. Over 12 weeks, those in the
supported microclinics with support had lost
the most body weight (an average of 1.1kg,
compared with 0.64kg in the unsupported
microclinics). At 28 weeks, the supported
group had seen a significant drop in HbA1c,
compared to the unsupported group and
control – and the impact has recently been
found to have continued over 21 months. This
suggests that the microclinics are particularly
effective when there is ongoing support
available from a local health professional.

The microclinics are also having an impact on
policy. In Jordan, the microclinics programme
has been adopted wholesale, becoming the
National Diabetes Programme. Further afield, the
UN is rolling out microclinics as part of its health
strategy for 5 million refugees in the region.

A clear indication of the success of the
programme is the awards that Microclinic
International has received, such as the Velji Award
for CUGH (Consortium of Universities for Global
Health) Global Health Project of the Year 2014.
**Challenges**

In the early days of the programme, there was significant scepticism among health-care professionals and the people at whom the microclinics are aimed that behaviour change is possible – there is often a sense of fatalism about diabetes, that it runs in the family and it is inevitable. However, once health-care professionals were persuaded to try the programme, it rapidly became obvious that change is possible, and that good health can be contagious.

**The future**

The microclinics are being rolled out nationally in Jordan – working with the Ministry of Health and Queen Rania to make microclinics the heart of a new National Diabetes Programme. The model is also spreading across the Middle East (with microclinics in Egypt and Qatar) and the ‘Team Up 4 Health’ programme that began in Appalachia, Kentucky, is expanding to cover half the state, with plans to spread to a second state.

In an indication of the transferability of the programme to even the most challenging areas, the UN Relief and Works Agency, supported by the WDF, has adopted the model and will be using it in refugee communities in Jordan, Syria and Palestine. 1,000 UN health workers will be trained in the microclinic model, with the potential to reach 5 million refugees.

There will also be continuing evaluation of the programme, including further assessment of the data from the RCT that began in 2011.

**Sources**

1. Microclinic International: microclinics.org/
2. Microclinic International on Facebook: www.facebook.com/microclinics
3. Microclinic International on Twitter: twitter.com/microclinics

**Acknowledgement:**

This case study was written by Katy Cooper, C3 Collaborating for Health, and the help of Daniel Zoughbie in compiling it is gratefully acknowledged.
Shape Up Somerville

Somerville, Massachusetts

Shape Up Somerville is a city-wide campaign to ‘build and sustain a healthier, more equitable community’. It began as a three-year research study to improve levels of overweight and obesity among schoolchildren but has been expanded to encompass the wider population as a whole, taking a whole-community (‘collective impact’) approach. This case study summarises its impact in the 15 years since it was launched.

Why?
Obesity – among adults and children – has increased significantly in the United States in recent decades. The percentage of 6–11-year-olds who are obese increased from 7 per cent in 1980 to nearly 18 per cent in 2012, and the increase among 12–19-year-olds was even more striking: from 5 per cent to nearly 21 per cent. By 2012, more than one third of children and adolescents were overweight or obese. Overweight and obesity are particularly prevalent among lower socioeconomic groups – often a side-effect of health inequity.

What?
Shape Up Somerville (SUS) is a suite of initiatives to reduce obesity, initially aimed at children and then expanded to the whole community, and with a particular focus on lower socioeconomic groups. SUS has been a ‘laboratory’ for a holistic approach to obesity prevention, and has served as a magnet for funding of novel initiatives. It remains an exemplar for other cities across the United States and further afield.

Where?
Somerville, Massachusetts, is a city of 75,000 people, with an increasingly ethnically and socioeconomically diverse demography. Between 2003/4 and 2010/11, the proportion of school children who were white decreased from 46 per cent to 38 per cent, with a corresponding increase in the Hispanic population from 30 per cent to 38 per cent, and the proportion of low-income students rose from 61 per cent to 68 per cent.

Who?
In 2002, almost half of 1st- to 3rd-grade schoolchildren were either overweight (20 per cent) or obese (24.4 per cent). The original SUS programme aimed to make comprehensive environmental change to before, during and after-school activities, and to home and community environments, to target this age group. With additional funding, SUS was able to expand these efforts to community-based systems change – an effective tool to reach this age group, while also positively affecting residents, visitors and people who work in the city. To achieve social change, SUS established strong partnerships with civic and community stakeholders, through an approach known as ‘collective impact’.

The programme is run by a director and coordinator – with core funding originally coming from the Centers for Disease Control (CDC) and the Robert Wood Johnson Foundation, this team is now funded by taxpayers and is housed in the city’s Department of Health and Human Services. They are supported by a 40-strong steering committee, representative of all residents: city departments (schools, housing infrastructure etc.), community-based groups (such as early years organisations and community health providers) and some private-sector organisations (such as Whole Foods). Involvement of this wide range of stakeholders has been key to the programme’s success.

SUS has attracted a wide range of funders. The original study from which the programme grew was funded by the CDC – and since then funders include the Robert Wood Johnson Foundation, the Massachusetts Department of Public Health, the US Department of Agriculture, and the Massachusetts Department of Agricultural Resources.
The mayor, Joseph Curtatone, has supported SUS since coming to office in 2004 – and SUS is now embedded as a conduit between community and city.

When?
Shape Up Somerville is a journey that began almost 15 years ago and is continuing today. In 2002, a three-year intervention study (Shape Up Somerville: Eat Smart, Play Hard) was begun in the community to prevent obesity in high-risk children in first to third grade (ages 6–8). However, after the end of this period, it gradually widened its circle to cover the whole community today.

How?
The original Shape Up Somerville grant aimed to encourage children’s healthy eating and physical activity across the whole day. Interventions included improvements to school food (both breakfast and lunch), walk-to-school activities, outreach and education for parents and the community through materials and events, and additions to the curriculum and professional development. From 2004–8 there was also a grant for a Physical Education Program to improve equipment, teacher training, and in-and after-school activities.

Other projects funded by Robert Wood Johnson Foundation included Active Living by Design (2003–8) to improve the infrastructure of Somerville for active living for all residents, and Healthy Kids Healthy Communities (2007–12), which focused support particularly on children at highest risk for obesity.

Schools have taken to heart the importance of healthy, culturally appropriate food – many now exceed the guidelines and are pursuing grants to implement further initiatives, often with the involvement of the children themselves.

SUS today has three main aims: access to healthy food, health equity and active living. New initiatives include:

++ The Somerville Mobile Farmers’ Market, which has been running for five years, is particularly important in targeting food access. This project, delivered in partnership with Groundwork Somerville, is funded by the Massachusetts Department of Agricultural Resources, Project Bread, Herb Chambers and Whole Foods. The market van visits eight carefully selected sites weekly from July to October – for example, a community school during pick-up time. The markets reach 100–150 customers each week, and anyone using a food assistance programme receives a 50 per cent discount. In 2015 the programme was expanded, with a new van, promotional materials, and bikes/carts for four cycle markets.

++ There is a new goal of worksite wellness, beginning with city employees and including the Mayor’s Fitness Challenge every spring (which awards points for a wide variety of physical activity and healthy behaviours).

++ Much has been done to make the city more bike friendly. Second-graders receive pedestrian training and fifth-graders a cycle-safety lesson. There are more cycle lanes, and a bike-hire scheme has been introduced. In 2014, 7.8 per cent of Somerville residents commuted by bicycle – a near-fourfold increase since 1990 (2 per cent), and among the highest proportions in the country.

++ A healthy restaurant programme has been running since 2004. A nutritionist visits each of the 50 participating restaurants to look at what is on the menu and how the chefs prepare food, and the restaurant can then either produce a separate Shape Up menu or use the SUS logo by particular dishes on the main menu.

++ The Community Health Network Area is funding emerging leaders training in health advocacy and leadership for low-income, low-English literacy populations.

Accessing healthy food is very hard for people in low-income communities. The grocery stores are far, and fresh food is expensive. Most people do not have a car and do not have enough money to buy fresh fruits and vegetables. I visited one farmers market last year and there were many vendors representing different cultures, and they had a mixture of diverse and American produce. But communications between the vendors and the shoppers was very poor. The immigrant people were not able to afford the vegetables and seemed very uncomfortable. Many of the vegetables were unfamiliar, but none of the vendors could explain how to cook them in any language but English. The Mobile Market is convenient for people. People can get educated about fresh and cultural food from the Mobile Market and decrease their diseases like diabetes, high blood pressure, and obesity.18

KJ, originally from Bangladesh, Somerville Mobile Farmers Market manager and resident at one of the public-housing developments visited by the Mobile Market

Impact
Data on SUS is collected through school surveys and parent surveys. Three formal studies of children’s weight have been carried out.

++ The first survey, of first- to third-grade children in 2003–4 found that the BMI percentile for Somerville children fell by approximately one point compared with comparison communities – the equivalent (for an average height, overweight eight-year-old) of prevention of 1.1lb in a boy and 1.3lb in a girl.

++ In a survey in 2006–7, for children who had taken part in the Physical Education Program that was part of SUS at the time, boys who were overweight in 2006 gained about 1lb less than if they had continued on their original weight trajectory, and obese boys about 3lb less. The results were statistically significant among white children and boys.

++ A study from 2010–11 saw a decrease in obesity from 30 per cent to 28 per cent, with 17 per cent of students moving out of the obese category into a healthier weight category. This translates to an estimate that children who were overweight in 2010 gained about 1lb less than would have been expected had they continued on the same weight trajectory, and children who were obese gained about 3lb less.

The academic partners that produced the studies on the BMI data are no longer involved in SUS – however, BMI data is collected by school nurses (for first, fourth, seventh and tenth graders) and a city-wide five-year well-being progress report will be produced in 2016.

"

"
A recent study of nearly 500 people in Somerville has turned attention to the impact of SUS on parents. Involvement in SUS was found to be linked to a decrease in parental BMI of 0.4 kg/m².

Challenges

The city has taken many strides to make the programme sustainable, including funding the two full-time staff positions. However, SUS still relies on grants and funders to implement most initiatives, which challenges its ability to be fully sustainable. An additional challenge is continuing to collect hard data points, since there is no longer an academic partner involved in a research component.

One future challenge may be that Somerville is becoming – through the efforts of SUS and others – an increasingly desirable place to live, with undesirable consequences for the costs of renting or buying property that could begin to price out lower-income individuals and families. However, Somerville recognises the importance of a diverse community and its 20-year comprehensive plan – SomerVision – sets out to protect and retain all cultures and residents.

The future

Plans for the future are about continuing the existing programmes and ensuring they reach all age groups and cultures. It is important that SUS initiatives are not only culturally relevant, but that these programmes are meeting the needs and expectations of those at higher risk, to ensure maximum participation.

There is a real need to move deeper into deprived communities and tackle issues of health inequity – in 2011, 35.6 per cent of eighth-grade Hispanic children were obese compared with 23.6 per cent of white children. More sustainable ideas for food access and active living are also being considered, and Somerville has launched the SomerVision 20-year plan, which has embedded health equity and health promotion (particularly active travel) in the long-term planning of the city.

Sources

1. Shape Up Somerville website: www.somervillema.gov/departments/health/sus
2. Shape Up Somerville on Facebook: www.facebook.com/shapeupsomerville
3. Shape Up Somerville on Twitter: twitter.com/ShapeUpSville
4. CDC, Childhood Obesity Facts: www.cdc.gov/healthyyouth/obesity/facts.htm
5. City of Somerville, Bicycle Committee: www.somervillema.gov/departments/bicycle-committee

Acknowledgements

This case study was written by Katy Cooper, C3 Collaborating for Health, and the help of Lisa Robinson, MPH, RD, and Erica Satin-Hernandez in compiling it is gratefully acknowledged.
Viasano

Mouscron & Marche-en-Famenne, Belgium

Viasano is an ongoing, community-based programme to tackle obesity and overweight in children. It uses EPODE methodology to embed healthier lifestyles over time – working with the whole community, not just with children themselves, to create a local environment that supports health. This case study summarises its impact in two pilot towns in Belgium, where child obesity and overweight decreased from 2007–10.

Why?

Obesity in childhood is a serious public health challenge. Not only does it impact on quality of life in childhood, but children who are overweight often go on to become overweight adults – with all the implications for health that this entails, including type 2 diabetes. Helping children to take control of their weight will improve their mental and physical wellbeing in the short term. In the future, this will help to prevent the ever-increasing burden of non-communicable diseases that account for the vast majority of premature illness and health-service expenditure in high-income (and, increasingly, low-income) countries.

What?

Viasano – the ‘healthy way’ – uses the EPODE methodology (see box on next page) to tackle childhood obesity through a community-based programme of activities.

Where?

Since its inception in 2006, Viasano has been rolled out in 20 cities across Belgium. The subject of this case study is two pilot towns in the French-speaking region of the country, Mouscron and Marche-en-Famenne, for which there is clear data over several years.

Who?

The case study looks at the effect of Viasano on young children, aged 3–6, in Mouscron and Marche-en-Famenne, Belgium: 1,300 children in 2007 and 1,484 in 2010. Data on body mass index (BMI) was compared with the rest of the country’s French-speaking community, a population of about 78,000 children.

The programme is supported nationally by a national coordination team, and then at local level is run by a project manager housed within the offices of the local mayor – the project managers are ambassadors for the local campaigns among their own families and social network. Political will is essential to support community activities and prioritise urban development to make it easier to make healthy food and physical activity choices. A local steering committee – with input from teachers, health professionals, local media, paediatricians, local associations and residents – develop Viasano ideas, which are delivered by local people.

The EPODE approach to public-private partnership is evident, with financial support for social marketing being provided locally by the private sector (in this case, Carrefour Belgium, Ferrero, Orangina-Schweppes and Unilever), whose role is carefully regulated by an ethical charter to exclude any influence on the actions. In-kind support from other local partners (such as grocers providing healthy products for events) is provided, and all other financial resources (including funding the activities) are provided by the cities’ public sector – reducing child obesity is accepted as being a worthwhile investment.
When?
Since 2006, Viasano has spread to 20 urban areas across Belgium. However, this case study focuses on initial results (2007–10) from Mouscron and Marche-en-Famenne, and the many activities that are ongoing.

Viasano – like all EPODE projects – is not a project that could be implemented overnight. It takes time to ensure the local political commitment to the initiative and hire and train a local project manager. It takes time to build the trust that is needed among the local partners, including teachers, parents, public-sector workers and the private sector – and then, crucially, it takes time to involve the local population in the activities. Once the programme is up and running, it takes time to influence the habits of children and their families, and for these small changes in lifestyle to translate to differences in BMI outcomes.

How?
Viasano aims to inspire action locally – motivating everyone to think about health (especially food and physical activity), and encouraging political leaders to prioritise population wellbeing. These actions are many and varied – in Mouscron and Marche-en-Famenne between 2007 and 2010 there were 127 activities targeting the environment and wider community and a further 116 Viasano actions were targeted specifically at children and their families. This level of activity is continuing.

Recent actions include:
+ a campaign to improve the healthiness of school lunchboxes – training local project managers, so that they are able to encourage children, families and retailers to provide (and eat!) more healthily at lunchtime;
+ workshops on many aspects of food – including for nursery workers on the importance of eating fruit and vegetables, food for sporty teenagers, and a workshop on healthy eating with little money (aimed at underprivileged adults);
+ renovation of green space in an area of social housing;
+ free swimming over the course of a week (taken up by 400 families);
+ in September 2014, ‘A Week to Eat Better and Move More’ – including local restaurants providing healthy food, takeaway fruit at school canteens, a cycle ride around the areas, with free water and fruits offered along the route by a local caterer, sporting activities for children, talks on physical activity, and Zumba classes.

Getting the message out is a key part of Viasano – and a wide range of written materials has been produced to support local campaigns on issues including the ‘Week to Eat Better and Move More’, information sent to city employees (such as a mailing about increasing water consumption), and tools such as card games and folders.

“[At the] neighbourhood party in Tuquet, there are several activities to promote physical activity – a bouncy castle, several health information stands, and neighbourhood associations, the youth centre, the family counselling organisation, and the health centre. We wanted to reach the parents because we usually reach the children during workshops in school – and now we actually have the opportunity to connect with the parents ... Two neighbourhood schools are also very involved and have organised an exhibition on nutrition and physical activity.”

Sophie Baelen, dietician, Maison de la Santé, Mouscron
Impact

The impact of Viasano is measured, first, by the number of initiatives locally and the number of people that they reached, and then – over time – by any changes in BMI.

+ There were over 240 events in the two towns between 2007 and 2010. If each event at a school is estimated at reaching 20–30 people, and events aimed at the general public reached about 500 people, it is suggested that 30,000 people were reached between 2007 and 2010. There were over 70 actions in Mouscron in 2014.

+ Even over the relatively short time period of the study – just three years – there was a decrease in average BMI in the Viasano children compared with the wider French-speaking community. Height and weight data was taken from the school health community surveillance registry, allowing body mass index (BMI) to be calculated and compared with data from the rest of the French-speaking community in Belgium.

Across the two communities:

+ In 2007, 13.6 per cent of the children were obese or overweight; by 2010 this had fallen to 11.2 per cent – a relative decrease of 18 per cent.

+ In 2007, 4.1 per cent had obesity; by 2010 this fell to 3.8 per cent – a relative decrease of 7 per cent.

In contrast, rates remained stable in the comparison population – at about 9.5 per cent for obesity and overweight combined, and 6.4 per cent for obesity.

Challenges

The main challenge for Viasano is to make the programme sustainable – changes to habits and health do not happen overnight, so the initiative must be long term, embedded deep within the local community. An indication of the sustainability that has been achieved is that, when there has been a change in political leadership at mayoral level, the project has continued: it is recognised as delivering real value to the local community.

The future

Several aspects of Viasano are currently being developed:

+ Investigating how to eat a balanced diet for little money: This includes a benchmarking process, and will include developing tools for local project managers to use to create campaigns locally – it will be aimed at the whole population, not just at those on lower incomes.

+ Age-specific programmes: funding from the OPEN initiative (Obesity Prevention through the EPODE European Network) will see actions developed that are specifically aimed at adolescents, with careful evaluation of its impact, and (subject to funding) a project targeting very young children at nursery school will be developed.

+ Engaging low-income communities: Mouscron is a pilot for the EPHE (EPODE for the Promotion of Health Equity) initiative, which aims to reduce socioeconomic inequities linked to health-related behaviour of families in seven European countries over three years.

“I think that around here there is no family that didn’t come down to [the local health event].”

Xavier Lepoivre, social instructor, Maison de la Santé, Mouscron

In addition, it is hoped that the Viasano programme will extend to more cities in Belgium, and that an update on the impact of the programme on BMI in Mouscron and Marche-en-Famenne will be possible (health-system reform locally has meant that the raw data required is currently not available).

There are also other factors that would benefit from further evaluation in the future – for example, BMI is currently the only evaluated impact of EPODE programmes, so an assessment of the psychological benefits on children or impact on the BMI or health of the local population more widely could be of benefit, subject to funding.
Sources
1. EPODE European Network: epode-european-network.com/
2. Viasano website: www.viasano.be/
4. EPHE: www.ephestory.eu/
5. EPHE in Mouscron: www.ephestory.eu/project-belgium.php
6. OPEN: www.ephestory.eu/project-belgium.php

Acknowledgements:
This case study was written by Katy Cooper, C3 Collaborating for Health, and the help of Mireille Rollot in compiling it is gratefully acknowledged.
The new Sustainable Development Goals recognise the importance of tackling non-communicable diseases as well as the challenges to sustainability that are posed by city living. These case studies bring together these two priorities neatly, and present examples of how urban areas large and small can take action on diabetes.

Sir George Alleyne, director emeritus, Pan American Health Organization

Urban citizens are at the battlefront of our interlinked wars against declining healthy diets and environmental impact. As shown in several of these case studies, our best weapon is educating urban children on how to eat in a way that is good for them and good for the planet.

Peggy Liu, chairperson, Joint US-China Collaboration on Clean Energy (JUCCCE)

These case studies demonstrate the incredible potential of tackling the new epidemics of chronic disease in urban environments. Whether action is city-wide or neighbourhood-focused, stakeholders at all levels can come together to create the healthy environments needed to support healthy behaviour. With the majority of the world’s population living in cities, taking actions like these on the broad determinants of health for urban populations will be critical to achieving the Sustainable Development Goals.

Dr Jo Ivey Boufford, president, New York Academy of Medicine (which serves as the secretariat for the International Society for Urban Health)

This timely report showcases innovations in a variety of urban contexts, and offers inspiration for others to act.

Professor Anthony Capon, director, UN University, International Institute for Global Health