International Diabetes Federation

December 2009
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DiabetesVoice

GLOBAL PERSPECTIVES ON DIABETES

Retrospective on the 20th World Diabetes Congress

Foot care in the developing world

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Reference: 1. Venekamp WJ, Kerr L, Dowsett SA, et al. Functionality and acceptability of a new electronic insulin injection pen with a memory feature. *Curr Med Res Opin.* 2006;22(2):315-325.

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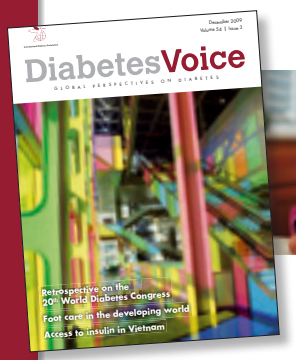

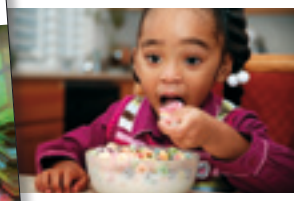

International Diabetes Federation

IDF | Promoting diabetes care, prevention and a cure worlwide

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Editor-in-Chief
Helmut R Henrichs, Germany

Managing Editor
Catherine Regniers

Editor
Tim Nolan
tim@idf.org

Layout and printing
Luc Vandensteene
Ex Nihilo, Belgium
www.exnihilo.be

Advisory group
Pablo Aschner, Colombia
Ruth Colagiuri, Australia
Patricia Fokumlah, Cameroon
Attila József, Hungary
Viswanathan Mohan, India

All correspondence and advertising enquiries should be addressed to the Managing Editor:

International Diabetes Federation
Chaussée de la Hulpe 166
1170 Brussels
Belgium
Phone: +32-2-5431627
Fax: +32-2-5385114
olivier@idf.org

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unite for diabetes

Making a difference to global diabetes

Jean Claude Mbanya is IDF president for the period 2009 to 2012. He is professor of endocrinology at the University of Yaounde, Cameroon, and chief of the Endocrinology and Metabolic Diseases Unit at the Hospital Central in Yaounde.

The numbers are alarming. We appear to be on the cusp of losing the battle to contain diabetes. In the coming year, diabetes will kill more than 10,000 people every day – a staggering 4 million lives lost to diabetes in 12 months. The new edition of the IDF Diabetes Atlas – released recently at the World Diabetes Congress in Montreal – gave us the dismal news that 285 million people are currently living with diabetes.

Low- and middle-income countries continue to bear the brunt of the disease. Soon, four out of every five people with diabetes will live in developing countries. And the men and women most affected are of working age – the breadwinners of their families. In two decades, the total number of people with diabetes is likely to swell to nearly 440 million – more people than the population of Mexico, the United States and Canada put together. Throughout the developing world, increasing huge numbers of newly diagnosed people with diabetes find themselves alone on a path that can lead to crippling complications, depression, poor mental health, and early death.

As the sole global representative of all people with diabetes, IDF has a de facto mandate to step up its response in order to protect these vulnerable populations. We need to increase awareness and deliver health education to make sure that diabetes is detected early, and to make sure that those who are newly diagnosed are guided along a course of chronic disease management and informed self-care that empowers them to avoid or delay the potentially devastating consequences of the disease. We need to provide guidance that will help to alleviate the stress of dealing with diabetes, and help people to develop the coping skills they need to make their diabetes journey in absolute safety – and we need to let them know that they are not alone.

We need to make sure that appropriate care is available to all people with diabetes. And we need to make sure that more evidence-based diabetes education is available so that people with diabetes can play an informed and central role in their own care. And IDF needs to do more.

We need to expand our remit to the area of health promotion. With millions more people developing diabetes, and with no guarantee that the total funding available for global health will be expanded sufficiently to meet the growing need, we have to be more active in prevention. This is a huge challenge. Engendering the required behavioural change and creating healthy environments will require unparalleled cross-sector collaboration.

To do this, we need to overcome powerful social, cultural and market forces to make sure that healthy life choices are available and affordable. Moreover, we need to break through the paradox that leaves many of us knowing what the healthy choice should be, but making the less healthy choice regardless. The marketing machine that is driving the epidemic of type 2 diabetes and other non-communicable diseases is committed to a full frontal assault on all our senses. (See Justin Macmullan's warnings about a 'junk-food generation' in this issue.) Compelling images of consumerism are a constant attraction; advertising jingles make up the soundtrack to our lives. Indeed, it often seems that the marketers of calorific excess have all the best tunes and have learned to speak in a seductive voice that promises fun and attainable freedom. 'Unhealthy' is delivered well-packaged, straight to your living room, at a price that you can afford. But there is a huge hidden cost.

Treatment and technology currently exist for people with diabetes to manage their disease successfully and enable them to lead full, productive lives. Yet for millions of people with diabetes, modern treatment and technology is just a dream, and the right to live a full life is denied through ignorance, lack of resources and education, and inadequate health infrastructure. (See the reports from Mexico and Vietnam in this issue.)

With odds like these stacked against us, it will not be easy to defeat diabetes. But this is a battle that we can ill-afford to lose – and one that we will all have to fight. It will be an honour, as well as my duty as IDF president, to serve alongside you in the coming campaign.

Against the worldwide epidemic

Helmut R Henrichs is Professor of internal medicine and diabetologist. He founded the Quakenbrück Diabetes Centre and the German Diabetes Technology study group, and served as president of the German Diabetes Association and German Diabetes Union.

In this issue of Diabetes Voice, authors from four continents focus on a range of important chronic disease-related issues. Two teams of authors – one European, the other Asian – report on initiatives aimed at reducing the burden in developing regions of one of the most feared and expensive of diabetes complications: amputation due to diabetic foot diseases. Diabetes-related nerve damage and reduced blood supply provoke a combination of conditions in the lower extremities – reduced ability to feel pain and retarded wound healing – which can lead to ulceration and ultimately the loss of a foot or leg. In developed countries, diabetes-related foot care accounts for an estimated 15% of total healthcare resources.

Karel Bakker, IDF's leading foot expert and activist, heads the team reporting on a Caribbean collaboration between the Rotary Club of Ledbury, UK, and the Federation's Consultative Section on the Diabetic Foot. The two groups have joined forces to implement programmes aimed at early intervention to prevent foot problems in a number of Caribbean island nations. These are of particular importance for people living with diabetes in the region particularly given the socio-cultural conditions described by the authors.

Like their peers in the Caribbean, people in the Indian sub-continent face numerous difficulties in terms of preventing disabling and life-threatening diabetes complications. The origins of these lie in a range of fields, including: economics (family and individual poverty), low awareness (encompassing not only individual ignorance, but also the refusal of government bodies and health authorities to recognize the gravity of the threat from diabetes complications), society and culture (including a dependency on potentially dangerous non-scientific, often faith-based 'medicine'). The Shankhdhars, a family of foot specialists based in Lucknow, India, describe the innovative offloading device that they developed especially for its low cost and ease of use – making it an important resource in the fight to reduce the debilitating effects (in terms of human suffering and societal costs) of diabetes foot problems.

Paul Chous, an eye specialist from Washington, USA, shines light on another of the most feared complications of diabetes: eye damage. While most cases of blindness – either partial or total – due to diabetes are preventable, huge numbers of people lose vision to diabetes every year. Not only is diabetes a leading cause of blindness, diabetic retinopathy is the most common cause of new cases of blindness in adults in the developed world. This much we know. However, as the author reports, the real impact of diabetes on vision is probably significantly higher than we think given that diabetes underlies a number of eye diseases other than retinopathy. Chous has a deep-seated commitment to diabetes care, over and above his professional interest: he was diagnosed with type 1 diabetes more than 40 years ago. In his article, addressing his peers with diabetes as well as his colleagues working in diabetes care, Chous suggests strategies for minimizing the risk of diabetes-related eye damage that can also help to prevent other diabetes complications.

Contributors from south-east Asia and Latin America highlight the need for a reorganization of healthcare systems – be these low- and middle-income countries – to enable them to tackle the emerging burden of type 2 diabetes in the developing world. An experienced group from Mexico describe their involvement in the Health Longevity Programme, a multi-disciplinary effort to fight chronic non-communicable disease in one of the poorest regions of their country.

David Beran, representing the International Insulin Foundation, and colleagues from the USA and Vietnam present the results of a recent Rapid Assessment Protocol for Insulin Access (RAPIA). This RAPIA, a model that has been used effectively in other regions (for more information, readers can search the Diabetes Voice website for reports on RAPIAs in Nicaragua, Zambia and Mozambique) aimed to assess in a short time the status of diabetes and diabetes care in Vietnam. Through the assessment, a picture emerges of the health system and its performance in responding to the current epidemic of diabetes. As has occurred in other countries, the RAPIA provides stakeholders in diabetes in Vietnam with recommendations for a coherent response to the increasingly well documented diabetes emergency.

world diabetes day
14 November

UNDERSTAND DIABETES
KNOW THE WARNING SIGNS

frequent urination

weight loss

lack of energy

excessive thirst

Diabetes can affect anyone.
If left untreated, it is deadly.

If you show these signs, seek medical attention now.
These signs can be mild or absent in people with type 2 diabetes.

See all the warning signs at www.worlddiabetesday.org

International Diabetes Federation

www.worlddiabetesday.org

World Health Organization

Diabetes goes global at IDF's mega-congress in Montreal

The World Diabetes Congress, organized by the International Diabetes Federation (IDF), is one of the world's largest medical congresses. Held in a different location each time, the World Diabetes Congress enables IDF to be present in its seven Regions – Africa, Europe, Middle East and North Africa, North America and the Caribbean, Southeast Asia, South and Central America, and Western Pacific.

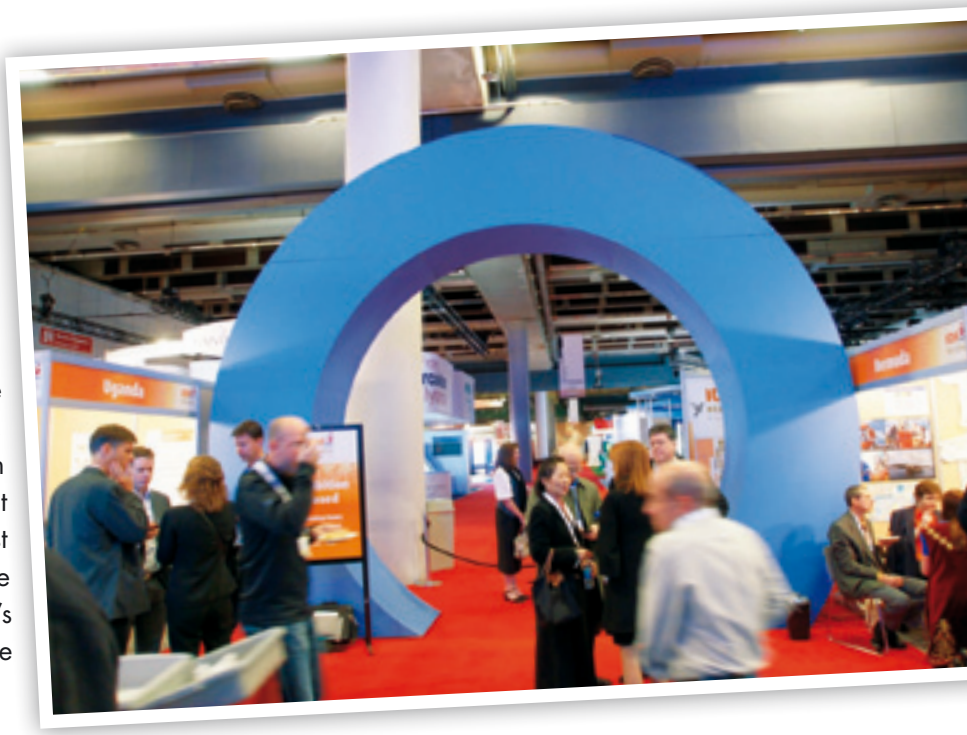
The first ever World Diabetes Congress was held in Leiden, the Netherlands in 1952. During its more than 50-year history, the event has evolved from a meeting of a few hundred to a mega-congress that attracts thousands. The congress is now well established as one of the most significant events of the global health calendar.

This year marked the 20th meeting, which was held in Montreal, Canada, in October. The five-day congress brought thousands of international delegates to the Canadian city to discuss burning issues in diabetes care and examine local, national and regional solutions to a growing global problem.

It attracted 12,000 delegates, more than 300 high-level speakers, and representatives from over 200 diabetes member associations from more than 160 countries and territories. A quarter of all delegates originated from Canada as the annual meetings of the Canadian Diabetes Association and Diabète Québec were integrated into the World Diabetes Congress. This made the North American and Caribbean Region the biggest in terms of attendance (35%), followed by the European Region with 33% and the Western Pacific Region with 11% of all delegates.

> ***"The World Diabetes Congress attracted 12,000 delegates, 300 speakers, and representatives from more than 160 countries and territories."***

'Canada's historical link with scientific excellence in diabetes care was a key contributing factor in our choice of venue for the Federation's 20th World Diabetes Congress,' explained Martin Silink, who finished his three-year term as IDF president at the congress. 'The global diabetes community has come to Canada to recognize the achievement of Frederick Banting and the research team that discovered insulin in 1921. It was a remarkable scientific achievement that brought life to millions.'



Jean Claude Mbanya, incoming IDF president, added a stark reminder of the continued need for global advocacy to make life-sustaining insulin available to all. 'If you are diagnosed with type 1 diabetes here in North America, your chances of survival and living a full life are extremely high. The same diagnosis in many low- and middle-income countries, however, is a potential catastrophe. A child with type 1 diabetes in sub-Saharan Africa will likely live for only a few months. It is unacceptable that a drug discovered almost 90 years ago is still not accessible to everyone who needs it. It is a global shame that someone's child, sibling or parent should be dying because Banting's gift remains out of reach.'

Another factor that influenced the choice of venue was the growing significance of diabetes in North America. The region has one of the highest rates of diabetes prevalence in the world: over 9% of the adult population now living with diabetes. In Canada, 9.3% of adults currently have diabetes and this figure is expected to rise to 11.1% within 20 years. According to the Canadian Diabetes Association and Diabète Québec more than 3 million Canadians will be living with diabetes by 2010. In addition, more than 6 million Canadians have pre-diabetes, placing them at significant risk of developing type 2 diabetes.

> ***"The Congress provided the opportunity to discuss a broad range of diabetes issues, including education, diabetes care, advocacy and awareness."***

Participants included physicians, scientists, nurses, educators and other healthcare professionals, as well as people with diabetes, representatives from IDF member associations and members of the press. The congress provided the opportunity to discuss a broad range of diabetes issues – from latest scientific advances to cutting-edge information on education, diabetes care, advocacy and awareness.

The congress programme featured state-of-the-art topics divided into six programme streams: association development, clinical research, education, foundation science, healthcare and epidemiology, living with diabetes. Each stream included lectures held in a variety of formats allowing for constructive interaction:

- Symposia addressed the latest results in diabetes research, current issues in therapy and education, and findings on the economic and personal impact of diabetes.
- Meet-the-expert sessions provided the opportunity for participants to interact with experts on a specific topic.
- Debates saw opposing teams defending and refuting proposals related to controversial topics.
- Lectures were educational and addressed specific topics.

- Workshops included practical demonstrations, problem-solving or hands-on training sessions.
- Poster sessions allowed authors of approximately 2000 abstracts to present their findings.

A 12,000 m^2 area provided member associations, companies, government health institutions and not-for-profit organizations with a first-rate exhibition environment – which was well attended throughout. In a very difficult financial climate, and despite competing diabetes events, 75 exhibitors took the opportunity to showcase their services and products, and benefited from a diverse international audience. Innovative stands, professional staff and state-of-the-art technical features provided the delegates with information rather than gadgets.

Congress objectives

As well as sharing the latest scientific knowledge and advances on practical aspects relating to diabetes care, education and advocacy, the 20th World Diabetes Congress aimed to influence policy-makers and local health authorities to create a national diabetes plan and make diabetes a health priority.

IDF strives to help attract resources with a number of objectives in mind:

- to assist those working to improve the lives of people with diabetes
- to help the Federation's 200 member associations to develop strategies to implement the UN Resolution on diabetes
- to achieve IDF's mission to raise global awareness of diabetes, promote appropriate diabetes care and prevention, and encourage activities towards finding a cure.

> ***"The Diabetes Café was a bustling international 'market place' of meetings and conversations."***

In order to facilitate exchange and interaction on a truly global level, IDF provided financial support to enable its member associations to participate in the Global Village. Located in a prominent area on the exhibition floor, this lively and innovative social space attracted a large number of delegates throughout the congress. Grouped around the Diabetes Café, more than 160 member associations presented their work in a colourful and creative way. More

attention than ever was given to the sessions of the Living with Diabetes and Association Development streams in the Diabetes Café, making it a bustling 'market place' to meet and converse with colleagues from all around the world.

Philip Home, chair of the IDF Congress Programme Committee, reported that 'feedback from participants at the World Diabetes Congress has been enthusiastically positive. In particular, the sessions covering lifestyle issues, such as the prevention of diabetes, the updates on new therapeutic trials, and a number of IDF initiatives – especially new clinical guidelines – proved very popular. But most of all, people remarked on what a lively networking meeting this has been.' Delegates left the congress energized by the experience and ready to take important newly acquired learning back to their country for the benefit of people living with diabetes and those at risk.

The World Diabetes Congress highlighted the need for increased political action to affect change. This was emphasized by the figures that were made public at the launch of the IDF Diabetes Atlas 4th edition. An estimated 285 million people are now living with diabetes, with that figure expected to reach nearly 440 million by 2030 if the current trend is not addressed. The stark news added to the shared frustration within the diabetes community that not enough is being done to address the threat of diabetes. However, this only serves to strengthen our collective resolve to present a united front in order to meet the diabetes challenge.

Linda Siminerio, chair of the IDF Congress Organizing Committee, was pleased to report the success of the Congress: 'The International Diabetes Federation's 20th World Diabetes Congress has been an energizing and successful experience for the global diabetes community. More than 12,000 attendees from more than 160 countries, including doctors, nurses, health ministers, people with diabetes and many others, came here to exchange the latest thinking and practices. We have all taken away something that will feed into our own care settings and help us improve diabetes care in our respective countries.'

> ***"The World Diabetes Congress highlighted the need for increased political action to affect change."***

The global diabetes community will re-convene in two years time at the 21st World Diabetes Congress in Dubai in December 2011. IDF chose to take the congress to UAE because of the alarming growth of diabetes in the Gulf region specifically. Our aim is to bring international perspectives on diabetes policy, practice and scientific research to the region but also to raise the profile of diabetes locally.

IDF elects new leadership to address global diabetes epidemic

The International Diabetes Federation welcomed Jean Claude Mbanya of Cameroon as its new President at the close of the 20th World Diabetes Congress in October. He will lead the Federation for the next three years. Michael Hirst of the UK was voted President-Elect at the IDF General Council – made up of more than 200 IDF Member Associations from over 160 countries. Hirst will take over from Mbanya in 2012.

Jean Claude Mbanya is professor of Endocrinology at the University of Yaounde, Cameroon and chief of the Endocrinology and Metabolic Diseases Unit at the Hospital Central in Yaounde. He was instrumental in the IDF-led Unite for Diabetes campaign, which led to the passage of the UN Resolution on diabetes in December 2006.

'The challenge ahead is to put diabetes care within the reach of all people living with diabetes. It is my hope that my time as President of the Federation will see an increase in spending on global health, with a major shift in funding for diabetes and non-communicable diseases. We have to act together to ensure that accidents of geography and history do not determine who should live or die,' said Professor Mbanya.

Michael Hirst, former UK member of parliament and ex-Chair of the Scottish Conservative and Unionist Party, has served as a Vice-president of IDF since 2006. He became interested in diabetes over 20 years ago when his youngest child was diagnosed with type 1 diabetes.

'I will serve my apprenticeship under an inspiring leader,' said Hirst, 'and expect to learn a great deal over the next three years. There is a huge job to be done for people with diabetes and it will require a united global effort to improve their lives. It will be a challenge, but one that I shall relish.'

You can find the list of the newly elected Executive Board of IDF from our website at www.idf.org/idf-executive-board-2009-2012.

Dear reader,
We wish to inform you that a new editorial team will take over the management and editorship of Diabetes Voice as of January 2010. Professor Stephanie Amiel, from the UK, will act as Editor-in-Chief; Olivier Jacqmain from the IDF Executive Office in Brussels will act as Managing Editor. Changes in editorship are traditionally a time for reflecting on future directions. In order to allow the necessary time for the new team to take the best decisions for the magazine, IDF has decided to postpone the first edition of Diabetes Voice until June 2010. In the meantime, you will still be able to access recent and past issues at our website: www.diabetesvoice.org.

We would like to take this opportunity to express our sincere thanks to the outgoing team, Editor-in-Chief, Helmut R Henrichs, and Managing Editor, Catherine Regniers, for their excellent work and dedication to the magazine.

Latest diabetes figures paint grim global picture

The 4th edition of the IDF Diabetes Atlas was successfully launched at the 20th World Diabetes Congress in Montreal, Canada, in October, and the newly-released estimates on diabetes prevalence received worldwide media coverage.

The IDF Diabetes Atlas is a unique resource on diabetes for a wide range of audiences, including policy-makers, development agencies, civil society and the health community. It covers a spectrum of topical issues from epidemiology to health policy. The key aim of the IDF Diabetes Atlas is to promote and support initiatives to develop and implement national policies for the prevention, care and treatment of diabetes, as called for by UN Resolution 61/225 on diabetes.

The latest figures from the IDF Diabetes Atlas show that almost 7% of the world's adult population are currently affected by diabetes. The estimates for the year 2010 indicate that some 285 million people worldwide have diabetes and that the rising prevalence shows no sign of slowing down unless immediate preventive action is taken. Projections show that if the current rate of growth is left unchecked, it is likely that the number of people with diabetes will escalate to more than 435 million in 2030.

More importantly, the figures show that people in low- and middle-income countries are bearing the brunt of the epidemic, and that the disease is affecting far more people of working age than previously believed. Diabetes has become a development issue. It threatens the well-being of populations and economic prosperity of entire nations.

Diabetes and its complications, such as heart and kidney diseases, and amputations, are already exerting a heavy toll on societies through premature deaths, disabilities, and losses in earnings and productivity. The new estimates predict that almost 4 million people will die from diabetes-related causes in 2010.

However, the estimates also show great disparities in spending on diabetes care between countries. Diabetes is expected to cost the world economy 376 billion USD in 2010 – 11.6% of total world healthcare expenditure. By 2030, this number is projected to exceed 490 billion USD. More than 80% of diabetes spending is in the world's richest countries and not in the poorer countries, where over 70% of people with diabetes now live.

This edition of the IDF Diabetes Atlas provides estimates on the prevalence of diabetes and impaired glucose tolerance for 216 countries and territories for the years 2010 and 2030. It also provides data for diabetes-related mortality and healthcare expenditures, and addresses current issues, such as the need for investments in diabetes prevention and management initiatives, and the challenges of containing the diabetes epidemic. In addition, the IDF Diabetes Atlas includes reports on critical issues such as trends in diabetes incidence in young people, the management of type 2 diabetes, diabetes and depression, and the global monitoring of the quality of diabetes care.

The 4th edition is available as a publication which summarizes the main issues in each of the topics addressed, an interactive CD-ROM and online at www.diabetesatlas.org. Content on the electronic media includes background papers, downloadable data tables, ready-to-use graphics and PowerPoint slides for presentations.

New IDF guidelines to improve the treatment of diabetes worldwide

IDF recently launched three diabetes guidelines on self-monitoring of blood glucose, pregnancy and oral health. The recommendations are the work of the IDF Task Force on Clinical Guidelines, which is focused on meeting the critical global need to provide up-to-date evidence-based information and training for healthcare professionals. IDF believes that healthcare professionals must be equipped with the latest improvements and standards in diabetes care to tackle the spiralling epidemic of type 2 diabetes.

The Global Guideline on Pregnancy and Diabetes aims to set a global standard for the care of gestational diabetes and women with diabetes who become pregnant. Gestational diabetes is common and, like obesity and type 2 diabetes, is increasing in frequency throughout the world. The risk of developing diabetes after gestational diabetes is very high.

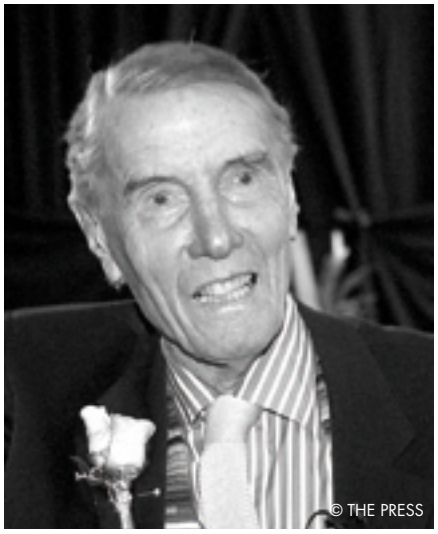
The Guideline on Oral Health for People With Diabetes recommends a focus on clinical care for people with diabetes, integrating not only diabetes but oral health professionals. The Guideline on Self-Monitoring of Blood Glucose in Non-Insulin Treated Type 2 Diabetes provides recommendations for people with diabetes and their healthcare professionals. The guidelines join a list of IDF clinical guidelines addressing cores needs in diabetes, and are all available at www.idf.org/clinical-practice-guidelines.

Myopia may protect against diabetes eye damage

Myopia might have a protective effect against diabetic retinopathy, especially sight-threatening diabetic retinopathy, according to research presented recently in the USA (Lim LS, et al. American Academy of Ophthalmology Joint Annual Meeting With the Pan-American Association of Ophthalmology 2009: Abstract PO265).

According to the researchers, the more myopic the eye, the lower the risk of any severity of diabetic retinopathy. In their population-based study, myopia of -0.5 diopters or worse was associated with a significant 37% reduced risk of diabetic retinopathy overall and 53% lower risk of moderate retinopathy compared with farsightedness. The results were not entirely unexpected; they confirm the suspicions of many ophthalmologists. As the eye gets longer, the retina becomes stretched and can atrophy. While this would cause vision problems under other circumstances, atrophy lowers the metabolic needs of the retina – coinciding with the reduced blood flow to the retina in people with diabetes.

For more on diabetes eye damage, see the article by Paul Chous in this issue.



Diabetes 'man of vision' dies tragically in fire

Professor Sir Don Beaven, a leading authority on diabetes and co-patron of Diabetes New Zealand, died tragically in November following a house fire. Don was foundation professor of the Christchurch School of Medicine. Aged 85, he was ever a tireless champion fighting diabetes, an energetic advocate of healthy living, and a courteous bon vivant, promoting the wine and olive industries.

Diabetes New Zealand chief executive Sarah Thomson said the tragic end to a great life should not be in vain. 'He is irreplaceable; his contribution was incalculable, such was his knowledge, energy, compassion, and vision. We must honour his life by continuing to work against the scourge of diabetes. He demanded action on the part of all concerned with the fight against diabetes and we must do the same. Our condolences go to his wife Lady Beaven, and to his two daughters Lisa and Sarah.'

People in developing countries pay more for diabetes care and have poorer health results

The latest figures from IDF reveal that 70% of people with diabetes now live in low- and middle-income countries and that the economic impact of diabetes is much greater in poor countries. Yet 90% of all diabetes-related medical expenditure is made in the USA, Canada, the countries of Western Europe, and other wealthy nations. This is the conclusion of the most comprehensive investigation of the economic impact of diabetes ever to be conducted in low- and middle-income countries.

The new IDF data comes from researchers in five African countries who interviewed 2300 men and women with type 2 diabetes and an additional 2300 of their neighbours who did not have diabetes. The findings show that people with diabetes on the continent have many more medical problems than people of comparable age and sex; are much less able to function physically and work; are more frequent and more intensive users of medical care and drain precious economic resources from their family and society. People with diabetes have roughly three times the rates of heart disease, stroke, kidney disease and heart failure than their otherwise similar neighbours. People with diabetes also have more tuberculosis, HIV/AIDS and malaria.

One out of 6 of the people interviewed said that they could not work at all because of their health; 1 out of 3 said they could not work as much as they wanted, and 3% said that they had to work more than they wanted to cover their medical expenses. One out of 5 reported that they were not able to buy much needed food because of medical expenses; more than a half said they could not buy all the medicines they needed.

Perhaps the most surprising findings were that 15% of the family members had quit work to care for a family member with diabetes, 20% had to cut back on work and 15% had to work more to contribute to the cost of medicines and care for a family member with diabetes. These are preliminary results and the data continue to be analysed. Final results will be published at a later time.

The bird of hope

Throughout history, birds have played an important role in the cultural symbolism that has marked societies around the world. In Asia, the Manchurian crane is known as a symbol of luck and fidelity; in western cultures, the white dove symbolizes peace; in different cultures, the eagle represents power or self-awareness. In this excerpt from his new book, Diabetes … Nou en?, Wim Wientjens explains how the hummingbird, revered by the Aztecs for its energy and spirit of work, became the symbol of the International Diabetes Federation – and a symbol of hope for millions of people with diabetes around the world.

Birds, with their grace and their mystifying ability to fly, have always been a source of inspiration for mankind; and their rare beauty can evoke the strongest human feelings. Unsurprisingly, these wondrous creatures have for centuries been chosen as the symbol for groups and organizations – even for nations. The hummingbird turned out to be the perfect emblem for people with diabetes.

With its long, slender beak, the hummingbird feeds on nectar, a sweet, high-sugar fluid, from flowers – in ancient Greek mythology the drink of the gods in Olympus. Every day, the hummingbird consumes more than three times its own bodyweight in nectar. This extraordinary intake is necessary to fuel the movement of the hummingbird's wings, which can beat up to 100 times per second. This perfect metabolic equilibrium enables hummingbirds to fly with absolute precision: they can hover and remain dead still in the air, and even fly backwards – something I once witnessed in Brazil – quite beautiful! And by flying backwards, do they not reflect the secret wish of many people with diabetes: to go back to a time without diabetes?

In 1978, the organization representing people with diabetes in the Netherlands, the Dutch Diabetes Association (DVN), began raising funds throughout Holland to support diabetes research, and established a special research group, the Dutch Diabetes Foundation (DFN). The DVN chose the hummingbird as the brand image for this area of activity. The bird was seen as symbolizing the hopes of people with diabetes for research-derived solutions to their disease and its complications.

The DVN later offered to share the hummingbird logo with the International Diabetes Federation. At the beginning of the 1980s, the Federation, although not involved in research, adopted the hummingbird as the symbol for its global organization, which unites millions of people with diabetes and their care providers worldwide. So the flight of that bird of hope that long ago in the Netherlands was chosen to represent diabetes continues around the world today.

Diet and physical activity cut diabetes risk

Healthy eating and physical activity can significantly reduce a person's likelihood of developing type 2 diabetes – even if they face a high risk of the disease (*Lancet* 2009 [Epub ahead of print]). Researchers in the USA analysed data on more than 3200 overweight and obese adults, all of whom had elevated blood sugar levels that placed them at risk of type 2 diabetes. Some of the participants made lifestyle changes over a 3-year period, including exercise, reduced calorie and fat consumption, and regular updates with health experts.

The researchers found that these changes were associated with a 58% reduction in diabetes risk, while participants who made no lifestyle changes but took two daily doses of metformin reduced their risk of diabetes by just 31%. After a 10-year follow-up period, the researchers found that lifestyle changes reduced the rate of diabetes by 34%, while metformin treatment only reduced people's risk by 18%.

Promoting foot care education in developing countries: the Caribbean Diabetic Foot Care Programme

Karel Bakker, Kristien van Acker, Stephan Morbach, Andrew Perry

There are 285 million people living with diabetes worldwide, the number of affected people is predicted to reach 438 million by 2030. Because of the rapid increase in diabetes prevalence, the number of diabetes complications is rising equally quickly. Amputation is one of the most feared of these complications. People with diabetes are at risk for nerve damage and problems with the supply of blood to their feet. Nerve damage results in a reduced ability to feel pain and, as a consequence, injuries often go unnoticed. Moreover, poor blood supply can slow down the process of wound healing. These factors can lead to ulceration. Infected foot ulcers can ultimately result in amputation. In this article, an international team of authors reports on an ambitious new initiative aimed at reducing the burden of diabetic foot problems in the Caribbean.

Diabetes and diabetic foot problems have a significant impact in the Caribbean. Countries throughout the region have a high prevalence of diabetes (up to 20%) and some of the world's highest rates of diabetes-related lower-extremity amputations. These amputations are life-threatening and may involve life-long dependence upon the help of others, as well as an inability to work and much misery.

Amputations and foot problems in general are among the most costly complications of diabetes. In developed countries, treating diabetic foot problems accounts for an estimated 15% of total healthcare resources. In developing countries, it has been estimated that diabetic foot problems may consume as much as 40% of available healthcare resources for diabetes. This means that programmes aimed

Step by Step practical training courses – with specially developed educational materials and medical equipment – are offered to teams of healthcare providers.

at early intervention and prevention are of paramount importance for people living with diabetes in the Caribbean.

> ***"Diabetic foot problems may consume as much as 40% of available healthcare resources for diabetes."***

Walking barefoot is common in the Caribbean. This, combined with the use of inappropriate footwear, contributes to injuries that lead to foot infections, and often result in amputations. The situation is exacerbated by late referral to hospitals, poor reimbursement systems, low awareness of the impact of diabetes on feet, and limited access to foot care. In Caribbean countries, podiatry services are mostly unavailable; many people with diabetes report that they treat their own cuts and blisters.

The Rotary/IDF Caribbean Diabetic Foot Care Programme

In 2008, the International Diabetes Federation approved funding to support a collaboration between the Rotary Club of Ledbury, UK, and the Federation's Consultative Section on the Diabetic Foot. Led by the Rotary Club of Ledbury, funding has been raised from Rotary Clubs, Districts and Rotary International. The project team secured additional funds through a grant from the World Diabetes Foundation.

Rotary Club of Ledbury

The Rotary Club of Ledbury was chartered in 1955 and is an active dual gender club with 36 members in a rural market town. Their main area of international activity is the Caribbean Diabetic Foot Care Programme – due in part to their twinning with the Tobago Rotary Club. Members of the Ledbury Club have been inspired by first-hand experience of the devastating impact of diabetes in the Caribbean. Since 2001, a number of them have visited Tobago, Trinidad and some other islands, where they attended Foot Care Clinics and visited other islands in order to build up contacts. The achievements of the programme resulted in the Rotary Club of Ledbury receiving the 'Ordinary Rotarians Doing Extraordinary Things' Award in 2008.

Other Caribbean islands and Rotary Clubs in the UK and the Caribbean began to show an interest in the training programme. Projects have started on the islands of Montserrat and Nevis with financial support from Rotary International and a Canadian Rotary Club. The success of programmes implemented in Montserrat, Nevis, and Trinidad and Tobago, brought the Rotary Club of Ledbury to the attention of the global diabetes community. This led to the launch of a joint project with IDF to extend foot care programmes throughout the Caribbean.

> ***"The Rotary Club of Ledbury and IDF are engaged in a joint project to expand foot care programmes throughout the Caribbean."***

Step by Step

The programme is based on the IDF Step by Step model, which aims to improve diabetes foot care in the developing world by providing education for people with diabetes and healthcare providers in the prevention and treatment of diabetic foot problems. The Step by Step model has already been effective in improving diabetes foot care in a number of developing countries, including India, Tanzania and Pakistan.

The model consists of practical training courses for teams of healthcare providers (pairs of doctors and nurses or other paramedics), who are provided with specially developed educational materials and medical equipment. A session in which participants learn how to provide training for other healthcare professionals is built into the project. Participants are encouraged to sustain and extend the achievements of the programme by communicating their newly acquired knowledge and skills to colleagues in their region. The courses are held over a two-year period, during which the participants collect data on all people in their care with foot problems.

In the summer of 2008, a survey to identify sites for the Caribbean courses was undertaken by a Ledbury Rotarian, and IDF. The local healthcare authorities and local Rotarians were approached to gauge their interest in setting up and supporting a Step by Step foot care programme. Five islands were selected for the first phase: Barbados, St Lucia, St Maarten, St Kitts, and the British Virgin Islands.

> ***"Caribbean healthcare authorities and local diabetes associations confirmed their support."***

Visits to these islands were carried out in December 2008 and January 2009. International medical experts and Rotary representatives met with relevant local and national stakeholders in order to ensure the sustainability of the programme. Healthcare authorities and local diabetes associations on the islands confirmed their support.

For geographical and cost-related reasons, it was decided to combine the training courses for Barbados and St Lucia, and those for St Maarten and the British Virgin Islands. The programme started with the first group of islands in July 2009 and moved to the second group in September 2009. Unfortunately, due to a lack of funding, St Kitts

was dropped from the programme – hopefully merely a temporary measure.

Funding

The Rotary Club of Ledbury has successfully applied for matching grant approval for Montserrat, the British Virgin Islands and St Maarten. Unfortunately, all applications for matching grants were put on hold by Rotary International due the current economic crisis. The application for Barbados and St Lucia was cancelled. However, thanks to funding from IDF and the World Diabetes Foundation, the first part of the programmes was carried out – albeit at a more modest level.

The basic courses

The Step by Step project, led by international experts in the field and local faculty members, initiated basic courses in Barbados and St Lucia in July 2009 and in St Maarten, and in the British Virgin Islands in September 2009.

Despite some initial problems, all four courses were successful. These consisted of two or three days of lectures, practical sessions, treatment of people with diabetes, and teaching of educational techniques. In St Lucia, there were 35 participants – including 8 doctors; in Barbados, there were 33 – including 9 doctors. In St Maarten and the British Virgin Islands, the numbers were 25 and 24 – including 8 and 4 doctors – respectively. Good media coverage was achieved through television and press reports. This is a very important aspect of the programme in terms of its effective implementation.

At the official launch ceremony of the basic course in Castries, St Lucia, IDF's North America and Caribbean Region representatives were present together with representatives of the healthcare authorities. On all four islands, the evaluations by participants and local faculty were very positive.

> *"It is expected that the success of the programme will result in a knock-on effect throughout the Caribbean."*

All participants are expected to attend the second, 'advanced' courses in 2010. The same members of the international faculty will return not only in order to teach but also to see the results. It is, therefore, essential that data on the people with diabetes seen with foot problems be collected. In the British Virgin Islands, data-collection software will be used for this purpose. Elsewhere, it will be carried out by hand.

Expectations

The expected outcomes for the project include: sustainable improvements in foot care in the target countries; increased awareness of diabetes and its complications; improved links between civil society and diabetes healthcare professionals; and increased government involvement. Key objectives include a reduction in the number of amputations and improvements in the quality of life of many people living with diabetes in the Caribbean.

It is expected that the success of the programme will result in a knock-on effect throughout the Caribbean, which will open up access to further sources of funding. If more funding is forthcoming, the programme will be expanded to St Kitts and Antigua, and hopefully to other islands in the region.

Karel Bakker, Kristien van Acker, Stephan Morbach, Andrew Perry

Karel Bakker is chair of the IDF Consultative Section and the International Working Group on the Diabetic Foot.

Kristien van Acker is a consultant at the Tropical Institute Antwerp and a diabetologist at the Centre de Santé des Fagnes, Chimay, Belgium.

Stephan Morbach is head of the department of Diabetes and Angiology, Marienkrankenhaus, Germany.

Andrew Perry is a member of the Rotary Club of Ledbury, UK.

Further reading

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Access to insulin and barriers to care: results of the RAPIA in Vietnam

David Beran, Nguyen Thy Khue, Hoang Kim Uoc, Le Quang Toan, Larry Deeb

Access to diabetes care in many countries is problematic due to a variety of factors. These can range from the cost of medication to the distance that people with diabetes need to travel to access a trained healthcare provider. Without adequate access to medication and care, people with diabetes face complications and early death. The authors report on an evaluation of the provision of care and supplies for people with diabetes in Vietnam.

According to current estimates, 2.5% of the population aged over 20 years in Vietnam have type 2 diabetes, with an expected increase to 3.5% by 2025.[1] There are an estimated 430 prevalent cases of type 1 diabetes in Vietnam.[1] For both type 1 diabetes and type 2 diabetes, an important aspect of treatment is access to insulin.

In order to ensure adequate access to diabetes supplies and trained diabetes healthcare providers, a clear analysis of the constraints to insulin access and diabetes care is needed. The view of the International Insulin Federation (IIF) is that increasing the supply of insulin through donations or other means, however generous, offers only temporary relief, and that the root of the problems relating to the supply of insulin and provision of diabetes care need to be identified and tackled. This led the IIF to develop the Rapid Assessment Protocol for Insulin Access (RAPIA).[2]

Method of assessment

The RAPIA is not a statistical assessment of the health system; its aim is to assess in a short time the situation with regards to diabetes care in a given country. The objective is to get a picture of the health system in order to provide the different stakeholders that are involved in diabetes in a country with recommendations for action. This protocol was carried out in Hanoi, Ho Chi Minh City, Thai Nguyen Province and Dong Nai Province.

Insulin supply in Vietnam

The Ministry of Health has developed lists of medications that are available at the different levels of the health system. This list is also used for the health insurance providers to reimburse people for the cost of these medicines. The list for diabetes includes mixed, rapid-acting and long-acting insulins. Mixed and rapid-acting insulins should be present at

Central, Provincial Central, General and District Hospitals; and long-acting only at Central, Provincial Central and General Hospitals.

Insulin and oral medicines for diabetes are subject to a 5% import duty and 5% value added tax.[3] There is no centralized purchasing of medicines in Vietnam. The selection of medicines is decided at a facility level by a Medicines Board and is based on recommendations by doctors in collaboration with pharmacists. Following these, the tender is advertised. Figure 1 details the equivalent price of insulin per 100 IU vial at different levels of the health system.

Insulin was readily available in the private sector; 49% of private pharmacies visited sold insulin. It should be noted that some pharmacies outside paediatric hospitals did not sell insulin due to low demand. Taking these facilities out of the total sample, close to 60% had insulin available.

Affordability of insulin – a major impediment to proper adherence

More than a third of the people interviewed during the RAPIA did not have to pay anything for insulin due to their belonging to an insurance scheme that covered 100% or a portion of these costs, or were children who had access to insulin donated by Insulin for Life (IFL) and Caring and Living as Neighbours (CLAN). IFL and CLAN provided free insulin to children at both the National Hospital of Paediatrics in Hanoi and Children's Hospital № 1 in Ho Chi Minh City.

> *"The cost of insulin was a major barrier to proper care in Vietnam, especially for children with type 1 diabetes."*

In looking at the impact of donations on the overall cost of diabetes care, in-depth interviews were carried out with eight children with type 1 diabetes from Children's Hospital № 1 in Ho Chi Minh City. Of these, two had been diagnosed after the introduction of free insulin from IFL and CLAN, and therefore had never had to pay for insulin. The others previously had to pay an average of 11.60 USD per 10 ml vial of 100 IU insulin. At the time of the interviews, all the children except one accessed the free insulin. Total average costs per month for these children before the introduction of free insulin were 55 USD; with the introduction of free insulin, it was 44.6 USD. Figure 2 details the breakdown of these overall costs and the impact of the introduction of free insulin.

The cost of insulin was a major barrier to proper care in Vietnam, especially for children with type 1 diabetes. Overall costs per year per child even with access to free insulin are equivalent to 535.20 USD or 64% of nominal per capita GDP.

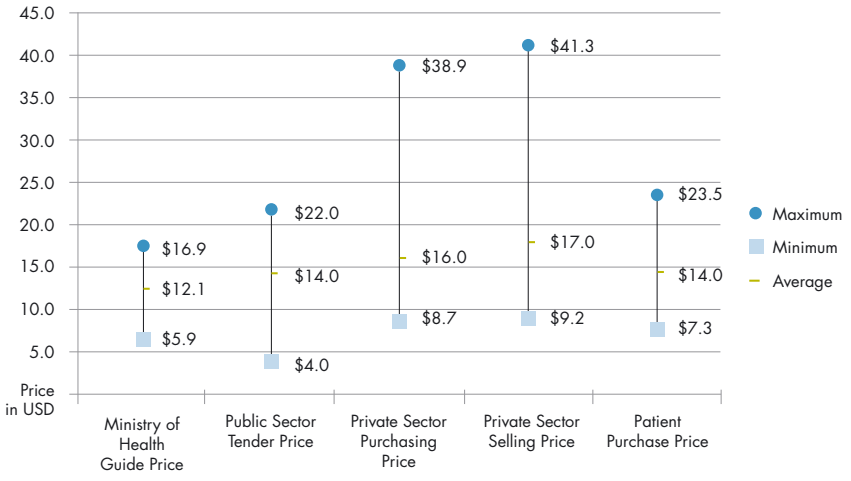
Other barriers to care

Care was mainly focused in hospitals in large urban areas and is reflected in high transportation costs (see Figure 2). Doctors at these facilities were overburdened and therefore unable to spend enough time to educate their patients about diabetes. These factors, combined with the high cost of insulin and medicines, led to extremely poor adherence to treatment and high levels of complications.

Conclusion

Insulin is vital for the survival of people with type 1 diabetes and key to ensuring proper management of some people with type 2 diabetes. The main challenge with regards to access to

Figure 1: Minimum, maximum and average equivalent prices in US dollars per vial of 100 IU insulin at different levels of the health system



insulin in Vietnam is cost. Addressing this issue is important both for the individual person with diabetes and the health system as a whole.

However, insulin alone does not guarantee diabetes care. Ensuring proper diabetes care in Vietnam will entail addressing the 11 following elements:[4]

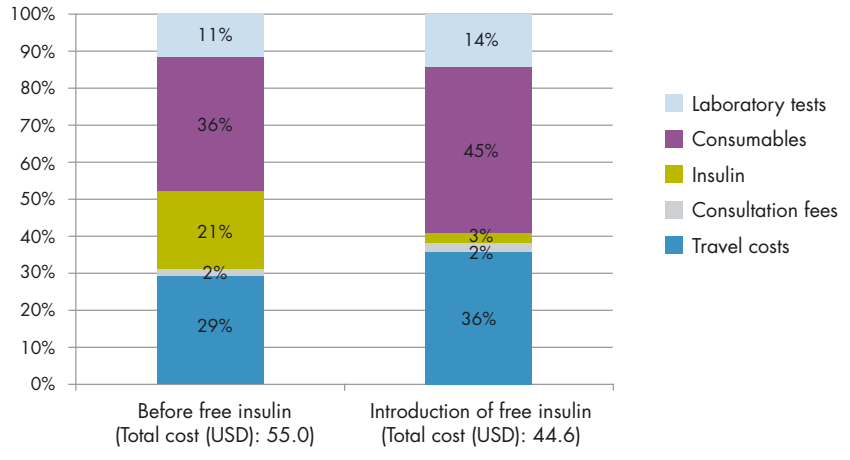
- organization of the health system
- data collection
- prevention
- diagnostic tools and infrastructure
- drug procurement and supply
- accessibility and affordability of medicines and care
- healthcare workers
- adherence issues
- diabetes education and empowerment
- community involvement and diabetes associations
- supportive national policies.

One of these 11 elements is adherence to treatment, which was found to be one of the main challenges in Vietnam. The two main factors that contributed to this were the high cost of medicines and low levels of knowledge among people with diabetes. Poor adherence is the start of a vicious cycle of increased illness and complications, increased financial burden on the individual and the health system, and premature mortality.

> ***"Adherence to treatment was found to be a major challenge in Vietnam."***

Some measures are being taken in Vietnam to address this problem and the growing burden of diabetes. However, a shift in the organization of the health system around diabetes and other non-communicable diseases is needed.

Figure 2: Costs of diabetes care for children with type 1 diabetes before and after the introduction of free insulin



David Beran, Nguyen Thy Khue, Hoang Kim Uoc, Le Quang Toan, Larry Deeb

David Beran is a project coordinator at the International Insulin Foundation, and a senior research fellow at the Centre for International Health and Development, University College London, UK.

Nguyen Thy Khue is a professor at the University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam.

Hoang Kim Uoc and Le Quang Toan are based at the National Hospital of Endocrinology, Hanoi, Vietnam.

Larry Deeb is chair of the IDF Task Force on Insulin, Test Strips, and Other Diabetes Supplies.

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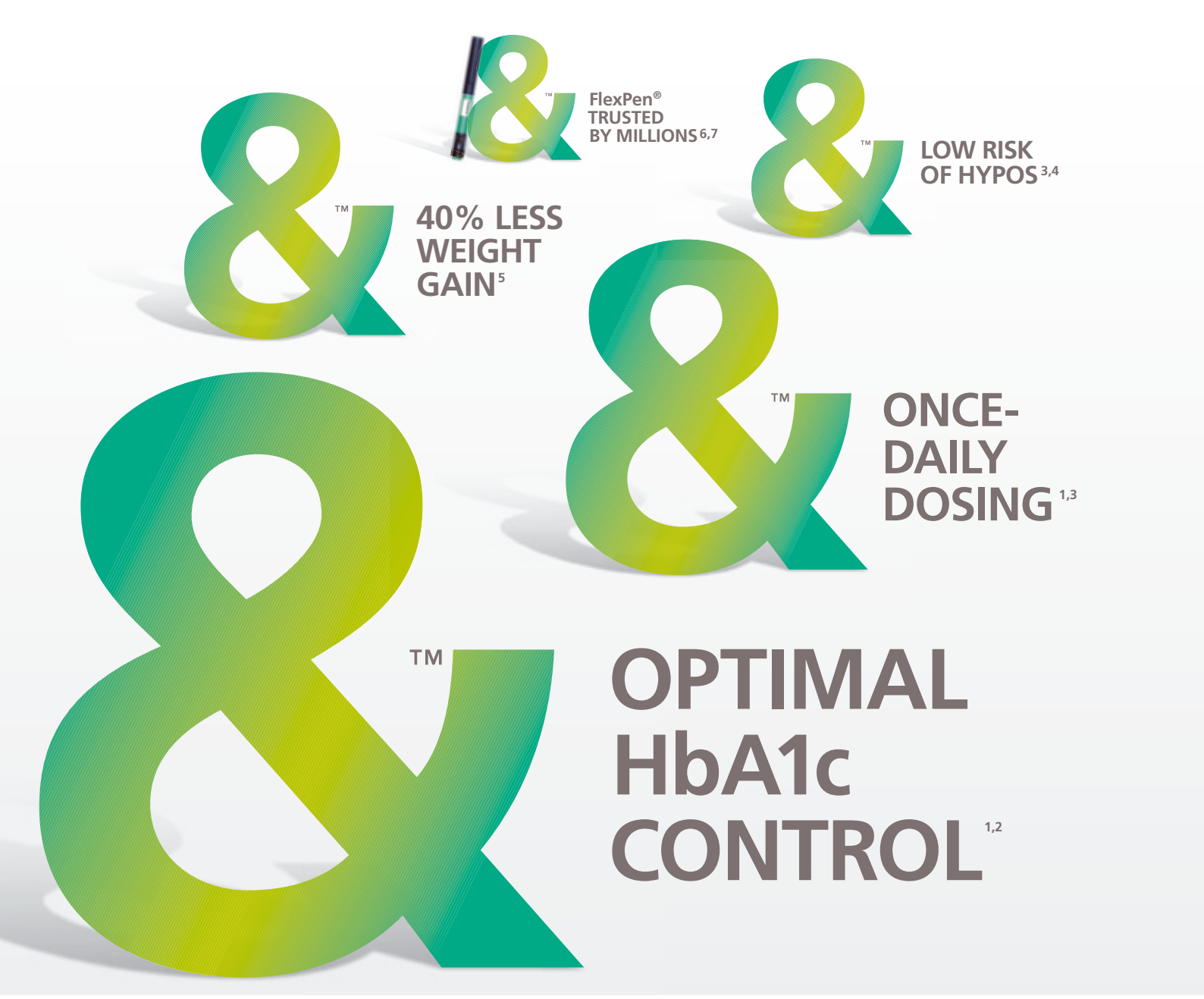

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A multidisciplinary effort to improve the quality of chronic disease care

Joel Rodríguez-Saldaña, Héctor Gallardo-Rincón, Roberto Tapia-Conyer

Although chronic diseases are leading causes of death and disability, they are neglected elements of the global health agenda. Of all deaths worldwide in 2005, 60% were caused by chronic diseases – principally cardiovascular diseases and diabetes (32%), cancer (13%), and chronic respiratory diseases (7%). Because the increase in chronic diseases is underappreciated, and their economic impact underestimated, many countries take little interest in their prevention, and leave the responsibility for management to individuals. The authors report on a multidisciplinary initiative to tackle the growing burden of chronic disease in Latin America.

If nothing is done to reduce the impact of chronic diseases, between 2006 and 2015, an estimated 84 billion USD will be lost due to heart disease, stroke and diabetes – in 23 selected low- and middle-income countries alone. In response, the Challenges in Chronic Non-communicable Diseases (CNCD) panel elicited 1,854 ideas to tackle non-communicable diseases. These were distilled into 109, and the panel then selected, ranked and commented on its top 30 ideas.[1]

Six key goals were identified: raise public awareness; enhance economic, legal and environmental policies; modify risk factors; engage business and communities; mitigate the impacts of poverty and urbanization on health status; redirect health systems. The resulting project represents an effort to reduce the risk from chronic diseases, including type 2 diabetes, and improve the quality of chronic disease care.

Diabetes in Mexico

Since 2000, diabetes has become the main cause of overall mortality in Mexico – 70,512 deaths, representing 13.71% of nationwide mortality. The number of new cases of diabetes across

the country increased from 54,637 in 1984 to 396,641 in 2007 – more than a seven-fold increase in that period. In 1993, the National Survey of Chronic Illness reported an 8.2% prevalence of diabetes among people aged between 20 and 69 years, with a third of those affected previously unaware of their condition. Recently, the Mexican National Health Survey 2000 reported an adjusted prevalence of type 2 diabetes of 8.18%.

> ***"Limitations on efforts to improve the quality of diabetes care in Mexico are very common."***

Despite the epidemiological evidence, deficiencies in and limitations on efforts to improve the quality of diabetes care in Mexico are very common. These include: a lack of health insurance coverage and extreme difficulty accessing care; non-compliance with treatment guidelines among physicians at every level – general and specialists; the rejection by the healthcare system of a multidisciplinary approach to the management of diabetes; the persistence of an acute disease model to treat chronic diseases; and a growing lack of resources. As a result, the quality of diabetes care nationally is very poor.

The Healthy Longevity Project

The Diabetes Center in Pachuca has 19 years of experience in the development of a now widely implemented model for outpatient diabetes care. Between 2001 and 2007, our institution successfully established a statewide diabetes care programme in one of the poorest states in Mexico. More recently, we developed and implemented the National Diabetes Program at ISSSTE, a social security institution delivering healthcare to 11 million affiliates.

In 2008, in response to the shortcomings in care described above, we developed the Healthy Longevity Project with support from the Carso Health Institute. The institute is a not-for-profit organization that aims to mobilize private resources to finance health projects. With a focus on Latin America, the institute has identified priorities and designed initiatives to select, train, and monitor partners to implement health projects, and evaluate their results.[2]

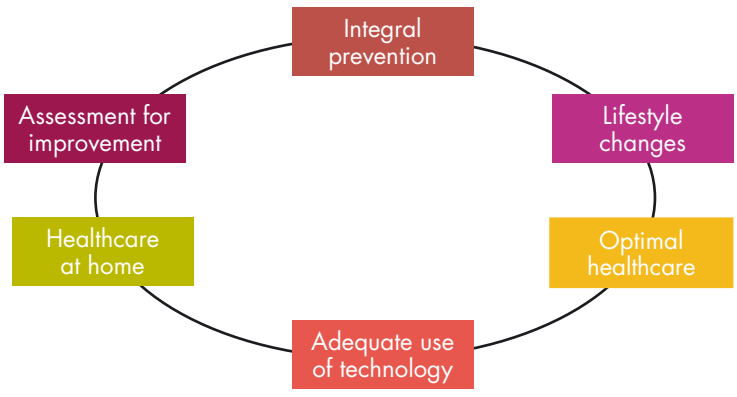
In 2009, the Diabetes Center in Pachuca became the first institution to implement the Healthy Longevity Project. Its main objective was to evaluate the effectiveness of a comprehensive model of cardiovascular prevention in 1000 people with diabetes, hypertension, obesity and dyslipidemia, who underwent medical, nutritional and educational support, HbA_{1c} and blood glucose monitoring, and medications free of charge for one year.

> ***"The main expected outcome from the programme at 1 year was to achieve a reduction of 1% in HbA_{1c}."***

The programme was conceived as a cycle with six components:

- comprehensive prevention
- lifestyle changes
- assessment for improvement, based on recently published risk prediction charts by the World Health Organization and the International Society of Hypertension
- healthcare at home
- the use of adequate technological resources (HbA_{1c} measurements, self-monitoring of blood glucose)

Elements of the Healthy Longevity Model



- optimal primary care – patient-centred, evidence-based, and with an outcome approach. (This component is the subject of this report.)

A thorough review of the components of successful diabetes care programmes worldwide and the experience of our institution in the design of a model for outpatient diabetes care over 20 years were applied in the development and implementation of the programme. With respect to diabetes, the main expected outcome from the programme at 1 year was to achieve a reduction of 1% in HbA_{1c} compared to the level at the first visit.

Achievements and results

More than 1000 people agreed to receive the services of this programme over 1 year, including 303 with type 2 diabetes, 305 with hypertension, 271 with obesity, and 125 with dyslipidemia. After three follow-up visits, the average HbA_{1c} level in people with diabetes was as follows: 7.7% (baseline); 7.5% (first follow-up visit at 3 months); 7.0% (second follow-up visit at 6 months); 5.3% (third follow-up visit at 9 months). Improvements in blood pressure, weight loss, and body mass index were also demonstrated in people with diabetes and in the respective groups of people with these health problems. Acceptance of the project was very high; the adherence rate was greater than 90%, and satisfaction of those receiving these services was documented.

Conclusions

Cardiovascular disease is the leading cause of death in most countries of Latin America and the Caribbean; WHO forecasts indicate that the number of deaths in the region attributed to cardiovascular disease will increase by more than 60% unless preventive measures are implemented.[3] In Mexico, surveillance systems and effective programmes for cardiovascular and other chronic diseases, including diabetes, are inadequate or do not exist. Although a health reform has been underway for the last 9 years,[4] Mexico urgently needs a substantial overhaul of its model for managing the care of people with diabetes.

> ***"A shift away from elements of the traditional healthcare model is feasible alongside the implementation of our innovative strategy."***

In addition to an increasingly high prevalence (14% according to unpublished data from the 2006 National Survey of Nutrition and Health), people continue to have poorly controlled blood glucose, hypertension and other outcomes of care within the traditional, episodic, and authoritative Mexican healthcare model. As a result, people experience high levels of morbidity and mortality, with complications continuing to rise.

Limitations on improvements in the quality of diabetes care in Mexico include:

- a lack of coverage/access
- educational deficiencies among doctors in the treatment of diabetes, and clinical inertia
- the persistence of a vertical, authoritarian acute disease model
- a lack of resources
- general deficiencies in healthcare.

We have shown that all of the above can be changed. Our previous experiences and the results of the Healthy Longevity Project documented that a shift away from elements of the traditional healthcare model is feasible alongside the implementation of our innovative strategy. As a result, our institution is currently involved in the dissemination of the model and its implementation in other regions of Mexico.

Joel Rodríguez-Saldaña, Héctor Gallardo-Rincón, Roberto Tapia-Conyer

Joel Rodriguez-Saldana is general director of the Diabetes Center of Pachuca, Resultados Médicos, Desarrollo e Investigación SC, Pachuca, Mexico.

Hector Gallardo-Rincon is general director of the Carso Health Institute, Mexico City, Mexico.

Roberto Tapia-Conyer is general director of Solutions at the Carso Health Institute, Mexico City, Mexico.

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[1] *Diabetes Atlas, Third Edition,* International Diabetes Federation, 2007, [2] *Ethisphere® Magazine*, April 2009

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Offloading the diabetic foot in the developing world

Kshitij Shankhdhar, Lakshmi Kant Shankhdhar, Uma Shankhdhar, Smita Shankhdhar

Diabetic foot complications are the most common cause of hospital admissions among people with diabetes. Worldwide, more than 1 million amputations are performed each year as a consequence of diabetes, which means that a lower limb is lost to diabetes somewhere in the world every 30 seconds. If a person with diabetes has a lesion on the sole of a foot, offloading bodyweight is of vital importance; all therapeutic efforts are bound to fail if he or she continues to walk on an ulcer. In 2000, the authors of this report designed a system of offloading that was developed specifically for people living in developing countries. The Samadhan System is based on the principles of simplicity and ease of application. Requiring no special training, it is affordable and effective.

Among people with diabetes in India, a lack of awareness of the risks from foot complications, compounded by poverty and low literacy, leads to high-risk behaviours like barefoot walking and the use of inappropriate footwear. Moreover, in India, as in many developing countries, foot care is not recognized; there are few professional opportunities for foot care specialists. Most healthcare providers obtain experience through personal efforts – joining an overseas unit as an observer or by attending sessions at diabetic foot care conferences, for instance.

Non-scientific approaches and numerous local faith-related practices tend to divert public and professional attention

The simple device is made with a piece of foam, some adhesive, and a piece of an elastocrepe bandage.

away from the steps that are necessary and available to prevent and treat diabetic foot problems. This ultimately increases the risk for amputation.

> ***"Non-scientific approaches and faith-related practices increase the risk for amputation."***

As practising diabetologists with 10 years of experience in this environment, having concluded that improvisation is the key to success, we have developed several novel techniques and approaches for diabetes care in general and diabetic foot care in particular. These are all simple, affordable and effective, and require no special training.

The role of offloading

If a person with diabetes has a lesion on the sole of a foot, he or she needs to use offloading methods or devices to shift body weight away from the site of ulcer. This is of vital importance: all therapeutic efforts are bound to fail if a person continues to walk on an ulcer. Methods to offload the foot include bed rest, the use of a wheelchair, crutch-assisted walking, total-contact casts, felted-foam half-shoes, therapeutic shoes, custom splints, and removable cast walkers. However, either due to economic constraints or because they are not available, these methods are not commonly used in the developing world. Moreover, offloading methods like total-contact casts need technical expertise for application.

The Samadhan System

A solution to the problem was to develop an offloading device based on the principles of simplicity, ease of application, affordability and effectiveness, and which requires no training. The Samadhan System of offloading was developed in 2000. The Hindi word 'samadhan' means 'solution'. The system incorporates both a removable (Samadhan-R) and a non-removable offloading device (Samadhan-IR).[1] It was presented at the Diabetes in Asia Conference in 2001, in Chennai, India. Since then, it has been showcased at a number of international conferences. It was presented at two workshops on the diabetic foot organized by the International Diabetes Federation – one in 2005 in Nairobi, Kenya, and another in 2009 in the Seychelles.

> ***"The Samadhan System of offloading is based on the principles of simplicity, ease of application, affordability and effectiveness."***

Clinical trials were conducted in India at our centre, the Lucknow Diabetic Foot Care Clinic and Research Centre. Our aim was to compare the impact on healing of the Samadhan System of offloading versus the common footwear (sandals) that is frequently used for offloading in the Indian subcontinent. More than 70% of people with diabetes in the Samadhan-R group achieved complete healing, compared to only 10% in the common footwear group. In another prospective clinical trial, we compared the Samadhan IR versus common footwear. More than 85% of people in the Samadhan-IR

group achieved complete healing, compared with 10% in the common footwear group.

> *"The Samadhan System could be developed in countries where the costs of diabetes care are rising dramatically."*

Advantages

The Samadhan System can be adopted by anyone with an understanding of the basics of offloading. All that is required to manufacture the Samadhan device is a piece of foam, some adhesive, and a piece of an elastocrepe bandage. These items are available even in the remotest corners of the world, so this system of offloading is a good option in countries where foot care is not an established field. It could also be developed in countries, where the costs of diabetes care are rising dramatically.

Clinicians can make different sizes of Samadhan devices and keep them ready for people with different body weights. Decisions regarding the fitting of the device – such as where it offers maximum offloading for the lesion – are taken clinically. Usually, in forefoot lesions, the device is placed near to the lesion; in hindfoot lesions, the device is placed distal to the lesions. After application, a person with diabetes can wear buckled sandals and walk with relative normality.

Time spent on the application and removal of the device is minimal, and the risk of injury during these processes is removed entirely. Furthermore, use of the device ensures a reduced risk of secondary injuries. It can be cleaned, chemically sterilized and reused. The Samadhan-R allows clinicians to observe the progress of a wound and apply dressings. As and when required, it can be made non-removable (Samadhan-IR) by cutting the border of the elastocrepe bandage on the dorsum of the foot and sealing it with drops of sealing wax. The wax solidifies in a few seconds and the device becomes irremovable until the seal is broken. The seal can be embossed if necessary; embossing with a unique logo will ensure that the seal has not been broken and replaced at home.

The system is very economical: the cost of offloading is around 1 USD per person. The ease of its use and its affordability have made this device a very interesting option, particularly in the developing world.

> *"In developing countries, the focus should be on basic research for simple and affordable approaches."*

Limitations

We have been using the Samadhan System of offloading for more than 8 years. Having tried it on more than 1000 people with diabetes, we have not come across any complications, such as falls or the formation of new ulcers, due to altered gait. However, we have noted problems related to people with diabetes removing the Samadhan-R. This can be resolved using the non-removable Samadhan-IR device.

Conclusion

Improvisation is the key to success in the developing world. While working in a developing country like India, one has to keep in mind that any treatment modality should be simple, cheap and effective. Given that less than 10% of the 1 billion people living in India has medical insurance, it would be difficult for a method that is effective but not economical to make a major difference in foot care. In these circumstances, one needs to be realistic and work with the resources that are available. The focus should be on basic research for simple and affordable approaches. The strength of this device lies in its simplicity because it is only with simpler things that we can reach and serve the masses.

Kshitij Shankhdhar, Lakshmi Kant Shankhdhar, Uma Shankhdhar, Smita Shankhdhar

Kshitij Shankhdhar is a diabetologist and diabetic foot care expert at Lucknow Diabetic Foot Care Clinic and Research Centre, LK Diabetes Centre, Indiranagar, Lucknow, India.

Lakshmi Kant Shankhdhar is an endocrinologist and takes care of the Thyroid and Obesity Unit at LK Diabetes Centre.

Uma Shankhdhar is a medical nutrition therapist and managing director of LK Diabetes Centre.

Smita Shankhdhar is a diabetes educator and is in charge of the Diabetes Prevention Unit at LK Diabetes Centre.

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Diabetes and eye disease: what people with diabetes and healthcare professionals need to know

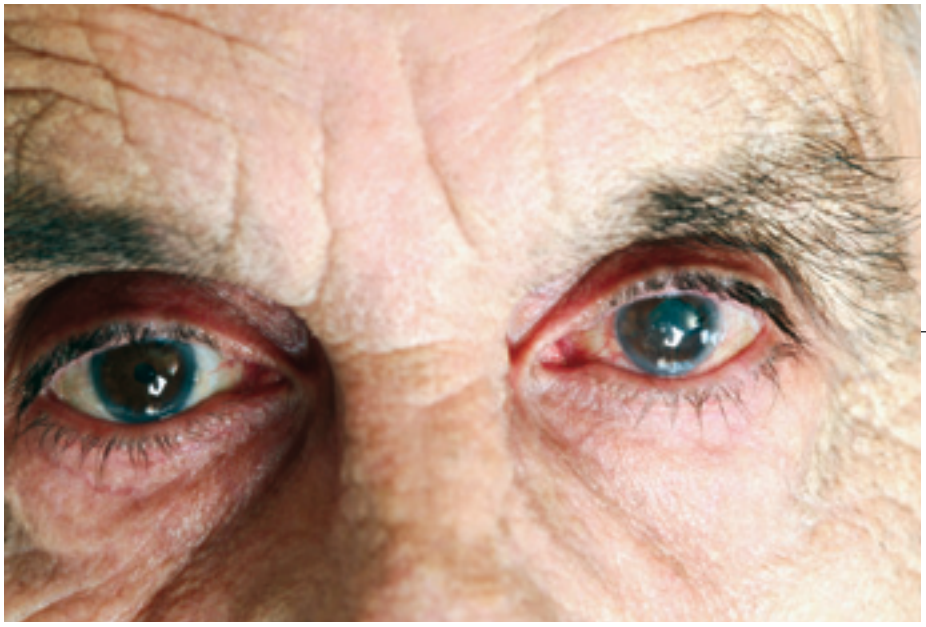
Paul Chous

The good news is that most cases of severe vision loss due to diabetes are preventable; the bad news is that tens of thousands of people lose vision to diabetes each year despite all we know about prevention and treatment. Indeed, diabetes is a leading cause of vision loss around the world. Compared with the general population, people with diabetes have a 25-fold increased risk of blindness. Diabetic retinopathy – damage to the light-sensitive membrane lining the inside back wall of the eyes – is the most common cause of new blindness in working-aged adults living in industrialized nations. In this report, Paul Chous recommends strategies for minimizing the risk of diabetes-related eye damage – which can also help to prevent other diabetes complications.

The true visual impact of diabetes is probably significantly higher than current estimates as diabetes causes a variety of eye diseases other than retinopathy, several of which can cause severe visual impairment (see Box). Moreover, the statistics ignore vision loss that is less severe than 'legal blindness' (widely defined as vision worse than 20/200 with the use of prescription lenses, or severe loss of peripheral vision to within 20° of central vision) – vision loss that, nonetheless, substantially affects the quality of life of many thousands more people living with diabetes.

Below are some recommendations for minimizing the risk of diabetic eye disease. Importantly, most of these strategies will go a long way towards preventing all diabetes complications – not all that surprising since eye problems caused by diabetes so often go hand in hand with nerve, kidney and cardiovascular disease.

Keep blood glucose levels as close to normal as possible. Hyperglycaemia damages the smallest, most fragile blood vessels throughout the body, and the eyes have many small



Often, by the time people develop the symptoms of diabetic eye disease, irreversible eye damage has already occurred.

blood vessels. The Diabetes Complications and Control Trial (DCCT) and UK Prospective Diabetes Study (UKPDS) both showed that each 10% reduction in average blood glucose levels – as reflected by glycosylated haemoglobin (HbA_{1c}) – lowers the risk of developing diabetic retinopathy by roughly 60%, and lowers by 43% the risk of pre-existing diabetic retinopathy getting worse.

> ***"HbA_{1c} of around 6.0% greatly reduces the risk of developing serious eye complications from diabetes."***

This means, for example, that if your HbA_{1c} levels are typically 7.0% (equivalent to an average blood sugar of 9.4 mmol/l or 170 mg/dl) and you bring your HbA_{1c} down to 6.3% (equivalent to an average blood glucose of 8.2 mmol/l or 145 mg/dl), you have dramatically reduced your chances of developing any retinopathy; or, if you already have some degree of retinopathy, you have substantially lowered the chances of it getting worse. If you can keep your HbA_{1c} results around or below 6.0%, you will greatly lower the odds of developing serious eye complications from diabetes.

Of course, the clear benefits of tight blood glucose control have to be balanced against the risks of severe hypoglycaemia. The best outcomes are achieved in close consultation with members of your diabetes care team, with careful attention to diet (especially portion control), exercise, medication, and regular measurement of blood glucose levels. The DCCT revealed that a high intake of fatty acids (especially saturated fats) and cigarette smoking each increase the risk of retinopathy, whereas increased dietary fibre lowers retinopathy risk. Another study showed that high blood levels of lutein and lycopene (found in dark leafy greens and tomatoes, respectively) also lower significantly the likelihood of developing retinopathy.[1] Insulin use appears to increase the risk of retinopathy in the short term, but this is trumped by the long-term benefits of improved glucose control.

> ***"Elevated blood pressure increases blood flow into the eye, accelerating diabetic retinopathy."***

Keep blood pressure well controlled through diet, regular physical activity and medication.

The UKPDS showed that controlling hypertension in people with type 2 diabetes lowers the risk of retinopathy and reduces the progression of retinopathy to a greater extent than does tight blood glucose control. A 10/5 mm reduction in blood pressure (for example, from 150/90 to 140/85) reduced the risk of severe vision loss by nearly 50% (in addition, this same blood pressure reduction lowered the risk of stroke by 44% and premature death by 32%).[2] Elevated blood pressure increases blood flow into the eye, accelerating diabetic retinopathy. It also increases the turbulence of blood flow to the retina and optic nerve, a factor which

increases the risk of abnormal blood clotting (as happens in ischaemic optic neuropathy and retinal vascular occlusion).

New evidence suggests that two commonly used blood pressure medications, enalapril and losartan. Each significantly lower the risk of diabetes worsening, independently of their ability to lower blood pressure.[3] These drugs should be considered as first-line treatment for people with hypertension and retinopathy. Most experts recommend that people with diabetes keep their blood pressure below 130/80. Sleep apnoea also increases blood pressure and the risk of several serious eye diseases, including diabetic retinopathy, glaucoma, and anterior ischaemic optic neuropathy.[4] All people with diabetes and increased neck size or a propensity for snoring should be screened for this common condition.

Improve blood lipid profile through diet, regular physical activity and medication.

Diabetic retinopathy is often more severe in people with abnormal blood lipid levels (especially elevated LDL cholesterol and triglycerides); the risk of ischaemic optic neuropathy, retinal vascular occlusion and cataract is also higher in these people. Reduced consumption of saturated fats and trans or hydrogenated fats, increased consumption of 'good' fats (omega-9 and omega-3 fats – found in macadamia nut oil, flax seed, cold water fish and fish oil) and increased consumption of dietary fibre appear to improve blood lipids, as does regular physical activity – like walking 30 to 60 minutes each day.

> ***"It is critical for people with diabetes to have their eyes examined on a regular basis."***

Ensure yearly dilated eye examinations by an optometrist or ophthalmologist with knowledge of and experience with diabetes.

It is estimated that up to 50% of people with diabetes living in developed countries fail to have annual dilated exams. This is tragic because most cases of severe vision loss from diabetes are preventable with early diagnosis and timely treatment. For example, laser therapy for severe, vision-threatening cases of diabetic retinopathy has been shown to reduce the risk of severe vision loss by up to 75%,[5,6] and vision loss from glaucoma can be largely prevented with medication, laser treatment and/or surgery.

Unfortunately, by the time people develop the symptoms of diabetic eye disease, irreversible eye damage very often has already occurred, and the prognosis for successful treatment is poor. This is why it is so critical for people with

Eye diseases associated with diabetes

Diabetic retinopathy – occurs when the tiny capillaries within the light-sensitive retina become damaged and balloon outward (these are called microaneurysms). Over time, these fragile blood vessels may begin to leak blood and fluid. This early stage of retinal damage does not typically affect vision, and is known as non-proliferative retinopathy. As the condition progresses, fluid swelling may compromise vision (diabetic macular oedema) and abnormal, new blood vessels may grow, bleed and produce fibro-vascular scar tissue that detaches the retina (proliferative retinopathy), leading, without prompt treatment, to blindness.

Cataract – clouding of the eye's internal lens resulting in loss of vision. This is much more common and occurs at an earlier age in people with diabetes than in people without diabetes.

Glaucoma – damage to the optic nerve associated with increased internal eye pressure, leading to permanent loss of vision with few or no symptoms until late in the disease.

Anterior ischaemic optic neuropathy – sudden loss of blood supply to the optic nerve resulting in severe vision loss (analogous to a stroke of the optic nerve).

Keratopathy – chronic damage to the cornea, causing irritation, redness, dry eye, reflex watering of the eyes and, sometimes, impaired vision.

Eye muscle palsy – loss of blood supply to the nerves responsible for controlling the coordinated movements of both eyes, resulting in double vision.

Retinal vascular occlusion – sudden blockage of the arteries or veins serving the retina, sometimes resulting in severe vision loss.

diabetes to have their eyes examined on a regular basis. Remember that good vision does not mean there is no diabetic eye disease. Many people with diabetic retinopathy and glaucoma, two potentially blinding eye diseases, have 20/20 or better vision and absolutely no symptoms at the time they are diagnosed. If you have diabetes and wait for symptoms of eye disease, it may very well be too late. Conversely, analysis by the US Centers for Disease Control shows that the majority of people with diabetes and impaired vision, both those with and without eye disease, could achieve near-normal vision by having their eyeglass or contact lens prescription meticulously corrected by a skilled eye doctor.[7]

> ***"Knowledge is power, and people with diabetes need a healthcare team with plenty of both."***

Seek out healthcare professionals who are knowledgeable, communicate effectively and serve as advocates.

Knowledge is power, and people with diabetes need a healthcare team with plenty of both. Members of a diabetes team should explain their findings and recommendations in understandable language, and should encourage people to ask questions and actively participate in the management of their diabetes. People with diabetes must also strive to become knowledgeable about their condition. This will empower them to make educated healthcare decisions, to ask better questions, and get better care.

Diagnoses and treatments given by one specialist often affect the treatments and recommendations offered by others. The members of the healthcare team should therefore communicate well and often with each other. People with diabetes should insist that their eye doctor send timely reports to other doctors and health advisors, and ask them to send reports to the eye doctor.

Prevent and protect

Perhaps the most effective way to prevent diabetes complications, including blindness, is to prevent diabetes in the first place. The groundbreaking Diabetes Prevention Program has shown that simply walking 30 minutes each day, 5 days per week, reduces the diagnosis of type 2 diabetes in at-risk people by nearly 60%.[8] But for those of us who have already been diagnosed, the risk of severe eye complications can be reduced by as much as 95% if we can work together to educate, motivate and support ourselves, our healthcare providers and our policy-makers to take every action possible in turning the tide against diabetes.

Paul Chous

Paul Chous is a specialist in diabetes eye care and a diabetes educator. He is the author of Diabetic eye disease: Lessons from a diabetic eye doctor (Fairwood Press, 2003). Dr Chous has had type 1 diabetes since 1968.

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Can NGOs and INGOs be public health policy entrepreneurs?

Roger Magnusson

At the global level, a defining feature of what is now called 'global health governance' is the extension of the role of policy actor beyond national governments and international agencies to include public/private partnerships, private foundations, international NGOs, as well as the private sector. In this report, Roger Magnusson asks whether non-government organizations can engage in, and implement, public health policy; or is their role restricted to raising awareness in the community, lobbying governments, and engaging with the media and other stakeholders within their areas of expertise?

There are important opportunities for not-for-profit organizations to create new public health policies that have a significant impact on the ground. Inge Kaul, director of the Office of Development Studies at the United Nations Development Program (UNDP) writes that: 'Public' today no longer refers only to the state. Rather, it means bringing the public, with all its different elements, together for a joint exploration of concerns, a determination of common preferences, and a fair bargain for all – a task that apparently cannot be simply delegated to elected representatives or national and international bureaucracies.[1]

There may be a tendency, for some, to think that NGOs exist primarily to enhance the levels of service provided by a state which is reluctant to fully support the health and social sectors. On this view, the non-government sector is a gap-filler, filling the void left by the 'hollowing out of the welfare state'. Similarly, some may see the role of international NGOs (INGOs) as being largely limited to lobbying national governments and other funders in international forums, and to raise the profile of 'their disease' for strategic advantage. I would argue that the roles of NGOs and INGOs can and should be broader than this. Furthermore, it is a misleading simplification to see the

Improvements in population health do not depend only on individual efforts or government policies.

growth of new forms of governance simply as a reflection of government ideology and resistance to welfarism.

Challenges to effective government regulation in public health

At the national level, there are several reasons why governments find it difficult to introduce effective public policies – especially for the prevention of chronic, non-communicable diseases like diabetes – and why the opportunities that exist for both the not-for-profit sector and the private sector are important to the future health of the entire population. In the health sector, the majority of a country's health budget is directed towards clinical and medical services. (In developed countries with national health systems, a substantial share may also go towards subsidizing pharmaceuticals.) Health spending, in other words, largely supports the 'sick care' system. The medicalization of health policy and the priority given to reactive sick care has many critics. But it is also a fact of life that is likely to continue in future, leaving limited budgetary space and political interest for the important business of prevention.

Another factor is the conceptual, political, and logistical difficulty of effectively regulating all those factors that shape health outcomes and can be characterized as determinants of health and disease. Those who work for NGOs and public health organizations understand that the health of the community is the product of the dynamic relationship between our genetic endowment, our behaviours and lifestyles, and our environment. In the area of chronic diseases (which account for the largest share of mortality in all regions of the world except sub-Saharan Africa), lifestyle choices and family factors are important, and tend to assume greatest significance in the public mind. But epidemiological research confirms that health is multicausal: the product of the interaction of socio-economic, environmental, behavioural and biological factors, partially modified by medical interventions.[2] Effective prevention policies need to engage with these determinants.

One rather limited approach to public health policy seeks to focus on established behavioural risk factors, including diet, physical activity and smoking, and to target those individuals and

groups at highest risk. However, in so far as policies encouraging healthier lifestyles are perceived to be coercive, or discriminatory, they run the risk of offending civil liberties. People want to be treated fairly, and no one wants a 'nanny state'. For this reason, policies that are directed towards changing the conscious behaviour of individuals tend to do so by providing information and advice, and warning about risks.

This is not to say that governments will never seek to directly regulate private behaviour. For example, laws restricting smoking in enclosed public spaces clearly do limit the freedom of individuals, and are backed up by penalties. As public perceptions of what is reasonable have changed over time – and as the majority begin to enjoy the benefits of fresh air – some governments and local councils in countries including Australia and the USA have gone even further, prohibiting smoking in cars transporting children, and on beaches, local sporting fields, and in bus shelters. In general, however, there are limits to the extent that governments can legislate lifestyle: successful laws need to be backed up by a broad consensus about what is reasonable.[3]

In order to address the underlying causes of unhealthy behaviour, public health policy efforts can also 'move upstream', seeking to address the economic, environmental and social determinants of ill-health, as advocated by population health approaches. At least in the area of food, beverages, alcohol and tobacco, however, public policy risks interfering with the market economy. Although governments have the capacity to regulate business and various sectors of the economy, the prevailing consensus in many societies is to avoid actions that could undermine free markets and competitive processes in the belief that 'a free market economy is indispensable to a vibrant and prosperous society.'[4]

> ***"There are limits to the extent that governments can legislate lifestyle: successful laws need to be backed up by a broad consensus about what is reasonable."***

For all these reasons, public health policy is contested territory for governments, especially as it relates to chronic disease. It is particularly difficult for governments to introduce effective and comprehensive policies around prevention. Smoking, diet, alcohol intake and physical activity are matters of personal choice in most societies. Harmful patterns of consumption also directly benefit powerful manufacturers, retailers and industry associations that do not hesitate to use their money and influence to resist public policies and forms of regulation that could impact on revenues.

Public health policy entrepreneurs

Unlike governments, NGOs and private sector organizations lack both a democratic mandate and coercive legal powers. On the other hand, they have certain comparative advantages in the area of health governance. These advantages may include specialist knowledge and expertise, the capacity to access government while remaining independent of party politics, the ability to use the media effectively, a clear strategic focus, and a high degree of public goodwill. All of these features build public trust, and can provide the basis for entrepreneurialism in the public sphere.

The public policies created by health NGOs cannot be implemented through legislation. Their legitimacy and implementation will rest on different foundations, including market mechanisms.

In Australia, for example, the Heart Foundation's Tick Program illustrates the capacity of one health NGO to use its status as a trusted source of

health information to provide a quality assurance function, with the capacity to improve diet at the population level. The tick symbol on food and beverage packaging functions as an intervention in the food industry, delivering both commercial advantages for food manufacturers offering Tick Program-approved products, and public health benefits, by tapping into consumers' interest in health and their desire to choose the healthier option. By encouraging the development of a healthier food supply through consumer demand, the Tick Program delivers population health benefits at no cost to the government. In August 2006, the Heart Foundation extended the tick to everyday meals eaten outside the home.

In the USA, nearly one third of calories in the average diet are made up of food prepared outside the home.[5] For all its controversy, the reach of the Tick Program into restaurants and fast-food outlets illustrates the potential, over time, for NGOs to inform consumers and to influence eating habits in a way that delivers a measurable public health benefit.

New opportunities

While governments are keen to foster the development of healthy public policies, they are less willing, and perhaps less capable, of growing healthy policies in workplaces and local communities. Legislation is a blunt instrument. NGOs and the private sector may have a comparative advantage in building public health policies in this area, provided they are willing to embrace the role of policy entrepreneur.

At the international level, the formation of a Global Non-communicable Disease Network (NCDnet), sponsored by the World Health Organization, could provide additional opportunities for INGOs to coordinate their national and global strategies. By uniting disease-specific NGOs with health stakeholders active in the promotion of tobacco control, healthy diets and physical activity, NCDnet aims to 'raise the priority accorded to non-communicable diseases in development work' and to 'catalyze effective multi-stakeholder action at global and country levels'.[6]

> ***"NGOs and the private sector may have an advantage in building public health policies, provided they are willing to embrace the role of policy entrepreneur."***

In summary, the burden of chronic, non-communicable diseases in countries around the world suggests an important need for innovation in public health policies that engage with the full range of determinants of chronic disease outcomes, and that draw on the potential for policy entrepreneurialism by NGOs and INGOs. Health is a 'co-production of many actors at every level of society'.[7] Improvements in population health do not depend only on individual efforts or government policies – important as these are; they depend on the willingness of respected and capable NGOs to consciously extend the boundaries of their role and to think creatively about how they might become public health policy entrepreneurs.

Roger Magnusson

Roger Magnusson is professor of Health Law and Governance in the Faculty of Law, University of Sydney, Australia (R.Magnusson@usyd.edu.au).

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Protecting the junk-food generation – the need for international intervention

Justin Macmullan

An unhealthy diet is a major risk factor for type 2 diabetes, so what can we do to help people eat healthily? An important step is to ensure that children are encouraged to eat healthy food, and are not subjected to marketing that promotes energy-dense food that is high in fat, sugar and salt. Justin Macmullan looks at profit-driven but potentially dangerous marketing practices, and calls for an international code of practice to prevent the children of today from becoming the junk-food generation of tomorrow.

In 2004, the World Health Organization (WHO) launched a strategy to tackle chronic non-communicable diseases, including type 2 diabetes.[1] The WHO strategy identified explicitly the health problems that are caused by an excessive consumption of fat, sugar and salt, along with an insufficient intake of fruit, vegetables, pulses and wholegrain cereals.

The WHO strategy stated, 'Food advertising affects food choices and influences dietary habits. Food and beverage advertisements should not exploit children's inexperience or credulity. Messages that encourage unhealthy dietary practices or physical inactivity should be discouraged, and positive, healthy messages encouraged. Governments should work with consumer groups and the private sector (including advertising) to develop appropriate multi-sectoral approaches to deal with the marketing of food to children and to deal with such issues as sponsorship, promotion and advertising.'[1]

Five years later, the marketing of food to children is still a major concern. Levels of overweight and obesity continue to rise, with some of the largest increases now being recorded in emerging economies. Despite increasing

calls for action from public health experts and consumer groups, many food companies continue to use their enormous marketing budgets to advertise food that is high in fat, sugar and salt to children.

Consumers International has been campaigning for an international code on the marketing of food to children. While parents and carers have a key role in choosing the foods and drinks consumed by children, companies have a responsibility not to undermine efforts to promote healthy eating.

The Consumers International campaign is linked to the World Health Assembly Resolution, which calls on WHO to make recommendations on this issue. Following a lengthy consultation, WHO is due to submit these recommendations to its governing bodies in 2010.

Food marketing

Surveys conducted by Consumers International and our members have covered the marketing of different food groups, marketing in different regions and marketing on the Internet. The surveys revealed the extent of the marketing of unhealthy food to children, as well as the varied and sophisticated techniques that are used by food and soft-drink manufacturers to encourage children to consume their products.

Marketing to children was found on packaging, at points of sale, on websites and in television advertising, and through sponsorship and product placement. The techniques were many and varied, and included the use of cartoon characters, celebrities, games and competitions, and gifts. Individual examples might appear harmless but when taken as a whole, these tactics amount to a barrage of aggressive marketing that is targeted at vulnerable consumers.

> *"These tactics amount to a barrage of aggressive marketing targeted at vulnerable consumers."*

Breakfast cereals

Cartoon characters, games and competitions are used to market many breakfast cereals to children. These appear on packaging and websites and comprise pervasive campaigns that also involve television advertisements designed specifically to appeal to children and broadcast at times when children are known to be watching.

However, many of these breakfast cereals contain excessive levels of sugar and/or salt. Examples include Kellogg's Frosties and Nestlé Nesquik, each of which have been found to contain more sugar than an iced doughnut. Other cereals, such as Kellogg's Rice Krispies and Nestlé Chocopic have been found to have more salt than a packet of salted potato chips.

Despite this, Frosties is regularly marketed with the cartoon character 'Tony the Tiger', as well as games and film tie-ins. Nesquik appears with the Nesquik bunny rabbit, and puzzles and games. This advertising sends out a strong message to parents and children that these products constitute a suitable breakfast for children. However, the daily consumption of these products is likely to contribute to levels of dietary salt and sugar that are higher than WHO recommendations.

Soft drinks

Many soft drinks made by manufacturers, including the Coca-Cola Company and Pepsi Co, were also found to be promoted among children, despite the fact they contain very high levels of sugar. Classic Coca-Cola and Pepsi contain between 10 g and 11 g per 100 ml

> ***"Food companies can use their enormous marketing budgets to advertise food that is high in fat, sugar and salt to children."***

Eating certain breakfast cereals every day is likely to contribute to higher-than-recommended levels of dietary salt and sugar.

– equivalent to almost 9 teaspoons of sugar. Fanta, also manufactured by the Coca-Cola Company, contains even more sugar – between 11.7 g and 15.2 g per 100 ml.

> ***"Coca-Cola and Pepsi Co use very sophisticated websites to target teenage and child audiences."***

Despite this, Coca-Cola and Pepsi Co use very sophisticated websites to target teenage and child audiences with free music downloads, celebrities and games. There are many examples of these tactics: a television advert for Pepsi shown in Russia features a teenager dreaming of becoming a rock star; in Thailand, Coca-Cola uses cartoon characters in television advertising that appeal to children; in another advert for Fanta, a young female cartoon character is shown as a cool and able musician because she drinks Fanta; in Indonesia, a voucher for Fanta shows a young child holding a bottle of the fizzy drink.

Chocolate and potato chips

Many confectionary manufacturers market their products to children. Mars M&Ms is a global brand that is marketed using small cartoon characters on packaging and websites. The web-based promotion features a number of games. Although an M&Ms website restricts access to children under 14, such protective measures are often ineffective.

Ferrero's Kinder chocolate eggs contain a toy and the packaging includes images of children. Television adverts in Georgia portray a mother giving a Kinder egg to her child. Every 100 g of Lays potato chips, manufactured by Pepsi Co, contains 34 g of fat. Yet Lays crisps are promoted in India using Bollywood stars and sports celebrities – all of whom are popular with children and represent potential role models.

Fast food

Fast-food companies, such as McDonald's, Burger King and KFC, all market meals to children. Some of the meal combinations can contribute up to 50% of a young person's daily recommended dietary fat, sugar and salt. Very young children, for whom such meals can contribute an even higher proportion of their recommended intake of fat, sugar and salt, are enticed by cartoon characters and free gifts.

When a child outgrows the companies' children's menus – at the age of 9 or 10 – they choose products from adult menus which may contain even higher levels of fat, sugar and salt.

> ***"Locating fast-food outlets near schools can encourage consumption of potentially harmful processed food."***

Fast-food advertising to children is widespread: billboards, television and radio adverts, cartoons and games on packaging, free gifts, online competitions and clubs, sponsorship deals, product placement in children's films. The KFC 'chicky' club in Malaysia is the country's largest children's club. Teenagers are the target of a range of complex advertising campaigns. Furthermore, locating fast-food outlets near schools can encourage snacking and the regular consumption of potentially harmful processed food.

Responses from the food industry and regulators

In response to calls for regulation from public health experts and consumer advocates, a number of companies have made commitments to limit their marketing to children. In some cases, companies have grouped together to announce regional or national 'pledges'.

However, none of these voluntary commitments cover children over the age of 12 years – despite the fact that teenagers are still very susceptible to the power of marketing and in many cases are still forming their own ideas as to what constitutes a healthy diet and lifestyle. The commitments also vary from one company to another and from one country to another. As a result, many companies and countries are not involved, some forms of marketing are excluded, and, importantly, each company has developed its own nutritional criteria regarding which products are covered.

There are also some examples of government regulation. In the UK, for instance, television advertising of foods that are high in fat, sugar and salt is not permitted around programmes that have 'a particular appeal' to children under 16. In Canada, courts have prosecuted a number of fast-food companies, including Burger King, General Mills and McDonald's. However, these examples are still few and far between.

> ***"An international code would provide support and guidance for national governments as well as providing a clear benchmark against which to judge companies' marketing practices."***

The need for an international code

Consumers International, working with the International Obesity Taskforce, has developed a set of recommendations for an international code on the marketing of food to children. The code targets the marketing of energy-dense, nutrient-poor foods to children aged up to 16 years. Its demands include the prohibition of:

- radio and television adverts promoting unhealthy food between 6 am and 9 pm
- marketing of unhealthy food to children using new media (such as websites, social networking sites, text messaging)
- the promotion of unhealthy food in schools
- the use of free gifts and the participation of celebrities in the promotion of unhealthy foods.

A broad coalition of consumer organizations, public health groups, nutritionists and paediatricians believe that such a code is a necessary part of the global response to an increasingly urgent health issue. Such a code would offer children around the world the chance to grow up free from the kind of aggressive marketing that can affect their choices and ultimately threaten their health.

Justin Macmullan

Justin Macmullan is the head of campaigns at Consumers International. Consumers International is the only independent global campaigning voice for consumers and has more than 220 members in 115 countries.

You can download a copy of the CI/ IOTF recommendations for an international code on the marketing of food to children and view the surveys that CI has conducted on the marketing of food to children at www.junkfoodgeneration.org.

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IDF and Rotary – reaching out to fight diabetes from the grassroots

Larry Deeb, Martin Silink, Massimo Massi Benedetti, Wayne Edwards

IDF is an organization of associations in over 160 countries around the world. As such, it is organized from the ground up. Local associations deliver the programmes of the Federation. While offering counsel and advice as well as access to best practices, IDF seeks to empower the local association. Rotary International is a similar organization. The world's largest and oldest service club, it has over 1.2 million members in more than 33,000 clubs in 160 countries. While the Rotary International headquarters in the USA offers direction, day-to-day activities are carried out by individual clubs and the over 500 Rotary Districts around the globe. The authors report on Rotary activities in the fight against diabetes and the club's matching grants initiative, designed to encourage international collaboration.

Rotary has a long history of cooperation with other organizations in the delivery of programmes. Recognition of need is often best accomplished at the local community level; solutions are best delivered locally by committed community members. Rotary has long capitalized on these facts.

A donor club or district and a recipient club or district recognizes a need. Individual Rotarians as members of clubs raise the funds that are donated to support activities. Individual Rotarians are the ones who deliver the programmes, often in collaboration with community organizations.

Historically, Rotarians have been dedicated to health causes. Clean water, aid with clinics and other health projects are a focus of Rotary and its Foundation. Every Rotarian is urged to donate 100 USD every year. Many donate much more. In the last fiscal year, Rotarians donated more than 100 million USD.

The largest philanthropic activity to date has been the Polio Plus campaign. This campaign has raised more than 600 million USD, and was recently endowed with more than 250 million USD by the Bill and Melinda Gates Foundation. However, even this campaign relies on local Rotarians. An example is the 100 million-plus child immunization campaigns in India. Such a campaign could not be accomplished without the dedicated support of thousands

In Bolivia, more than 100,000 USD was dedicated to providing insulin and testing equipment to needy children.

of individual Rotarians. It also demonstrated the power of committed individuals.

It should be of no surprise, therefore, that Rotary has been involved in the fight against the worldwide epidemic of diabetes. Some members and officers of IDF are long-term Rotarians who have helped introduce diabetes programmes to Rotary.

Beginning in 1999, Rotarians in Florida, USA, expressed an interest in diabetes. After the creation of the Life for a Child Program in 2000, Rotary clubs decided to participate. In 2002 the Rotary District of North Florida, USA, partnered with the Rotary Club of Quillicola, Bolivia. Together, along with the Rotary Foundation's matching-grant programme, more than 100,000 USD was dedicated to providing insulin and testing equipment to needy children in Bolivia. Today, there are eight clinics all over Bolivia and, with the support of the Insulin for Life Program, many needy children with diabetes in Bolivia continue to receive insulin.

Shortly thereafter, at the 2003 World Diabetes Congress in Paris, this Bolivian model was introduced at an IDF press conference on Life for a Child. The first country to benefit was Sri Lanka. Contributions from the Rotary Club of Lane Cove in Sydney were matched by a contribution from LifeScan, and this total was in turn matched by the Eli Lilly Foundation. The Lane Cove Club also provided funds so that the Life for a Child Program could commence support in Nepal.

The managing director of the Rotary Foundation met with the chief executive officers of the American and Canadian Diabetes Associations. Shortly thereafter, a 3-year project for Nigeria was approved. This was among the first multi-year grants from the Rotary Foundation.

Based on this success, Massimo Massi Benedetti convinced the Rotary districts from all over Italy to participate in a major 5-year matching-grant effort. This was coordinated with the Ministry of Health in Cameroon, where five clinics

Some members and officers of IDF are long-term Rotarians who have helped introduce diabetes programmes to Rotary.

were established for children with diabetes. If successful, the Cameroon Minister of Health proposed to make them part of the healthcare establishment. This programme was initiated at the Italian Senate in Rome with the Ambassador for Cameroon in attendance.

Children with diabetes have not been the only focus. Rotarians from Ledbury, UK, have developed a remarkable foot care project in the Caribbean. Starting in Trinidad and Tobago, they demonstrated a 70% reduction in amputations. This was so successful that the Ministry of Health has formally adopted the programme within the healthcare structure. These accomplishments encouraged the interest of others, and clubs in other parts of the UK have cooperated with other islands. IDF began collaborating under the direction of Karel Bakker, and the project has adopted successful IDF models of foot care as their standard of care. (See the report on page 15 of this issue.) A similar programme in the Philippines has also demonstrated a dramatic reduction in amputations.

These two successful Rotary/IDF collaborations – Life for a Child and the Foot Care Programme – are just the beginning of potential collaborations between IDF and Rotary. As Rotarians discovered the interest in diabetes, a logical expansion of the Rotary efforts was the creation of a Rotarian Action Group. Such Action Groups, approved by the Rotary International Board, are charged with making a difference.

Members are joining from around the world. The Action Group was present at the 100th Rotary Convention in Birmingham, UK, in June 2009, where over 1000 individuals received related information packs. The Action Group also offered information at the 2009 World Diabetes Congress in Montreal. There, the audience comprised Rotarians who are active in diabetes as well as individuals who might either become Rotarians or engage Rotarians for service in diabetes in their home country. In addition, we wish to reach out to individuals who know Rotarians. We need to raise diabetes awareness worldwide and further involve Rotary in the diabetes cause.

Rotary and IDF are grassroots organizations. The historical willingness of Rotarians to embrace healthcare causes along with the enormity of the diabetes epidemic makes this a logical place for increased Rotary involvement. We hope to inform Diabetes Voice readers so that you will reach out to Rotarians in your country and your community to involve them with us in this fight against diabetes. We welcome enquiries at our website www.ragdiabetes.org.

Larry Deeb, Martin Silink, Massimo Massi Benedetti, Wayne Edwards

Larry Deeb is a member of the Rotary Club of Tallahassee, Florida, USA. He is past-president of the American Diabetes Association, current chair of the IDF Task Force for Insulin and other Diabetes Supplies, and treasurer of the Rotarian Action Group for Diabetes.

Martin Silink is a member of the Rotary Club of Lane Cove Australia. He is immediate past-president of IDF and secretary of the Rotarian Action Group for Diabetes.

Massimo Massi Benedetti is a past district governor and a member of the Rotary Club of Foligno, Italy. He is a past vice-president of IDF and current vice-president of the Rotarian Action Group for Diabetes.

Wayne Edwards is a past district governor and member of the Rotary Club of Tallahassee, Florida, USA. He is president of the Rotarian Action Group for Diabetes.

DIAMAP – mapping the future of diabetes research

Sarah Hills on behalf of the DIAMAP Project Team

It may be a surprise to hear that at present there is no overall plan or framework to coordinate or fund research into diabetes across Europe – despite the urgent attention called to the disease from many organizations both patient-led and professional. Although investigators within different research fields and individual research groups have a good idea of where their research is heading, and although national diabetes associations may have drawn up research strategies in order to use national funds wisely, there is no Europe-wide strategy. This is quite strange, given the attention that is drawn to many issues at the European level, and also the many current successful research collaborations across the continent. This gap in strategic planning has been appreciated by the European Commission, who were creative by taking the challenge back to the diabetes research community to develop a strategy, or 'roadmap', for diabetes research in Europe over approximately the next 10 years.

The resulting roadmap project, DIAMAP, was funded in 2007 through the European Commission's Seventh Framework Research Programme (FP7). It is being coordinated by the Alliance for European Diabetes Research (EURADIA), which has the advantage of being a part of the larger European 'diabetes family' of organizations, thus providing an additional resource of expertise and experience. To our knowledge, such a project has not been carried out previously at the European level in any other comparable research area. What also makes this project unique is that the strategy will identify practical opportunities that can make the most of European research expertise and facilities.

The mission

The mission of DIAMAP is to undertake a wide survey of the current European diabetes research landscape, from

which expert opinion can identify gaps and highlight strengths, to guide a roadmap strategy for diabetes research in Europe.

EURADIA would also like to bring diabetes research closer to the people who live with the condition and to the public in general. We shall therefore hold a public consultation period via the DIAMAP website (www.diamap.eu) when the first draft is complete.

European diabetes research

In comparison with the USA, Europe is not in a particularly good position regarding investment in research. As mentioned by Philippe Halban, coordinator of DIAMAP and Chairman of EURADIA: 'The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) oversees effectively the national diabetes research effort without compromising creativity. Political lobbying in Congress in Washington and public advocacy throughout the country have resulted in increased funding for NIDDK with special appropriations amounting to some 1 billion USD for diabetes research in America and indeed beyond, including Europe. NIDDK knows how much is spent on diabetes research, in which specific area and by which investigators. There is no agency in Europe with such detailed understanding of diabetes research in any single country let alone the entire continent.'[1]

Of course, Europe is much more complicated both geographically and politically than the USA; it is made up of individual nations, each with their own vastly differing research budgets, and many differences in research facilities. Health research challenges are also not necessarily the same for each country.

Europe does, however, have the advantage of a strong historical background in diabetes research, and was found to be home to scientists of an equal standing to their counterparts in the USA when a comparison was made of scientific citations for diabetes research.[2]

DIAMAP process

The objective, when the project was designed, was to focus upon the practical steps needed to achieve certain research goals, with appropriate milestones and identification of the barriers needed to achieve this plan. This practical way of thinking has allowed a very flexible strategy to be developed that, at each step, can encompass a wide range of different types of research, and is at all times open to different pathways towards the overarching research goals.

There are two sections of the DIAMAP project:

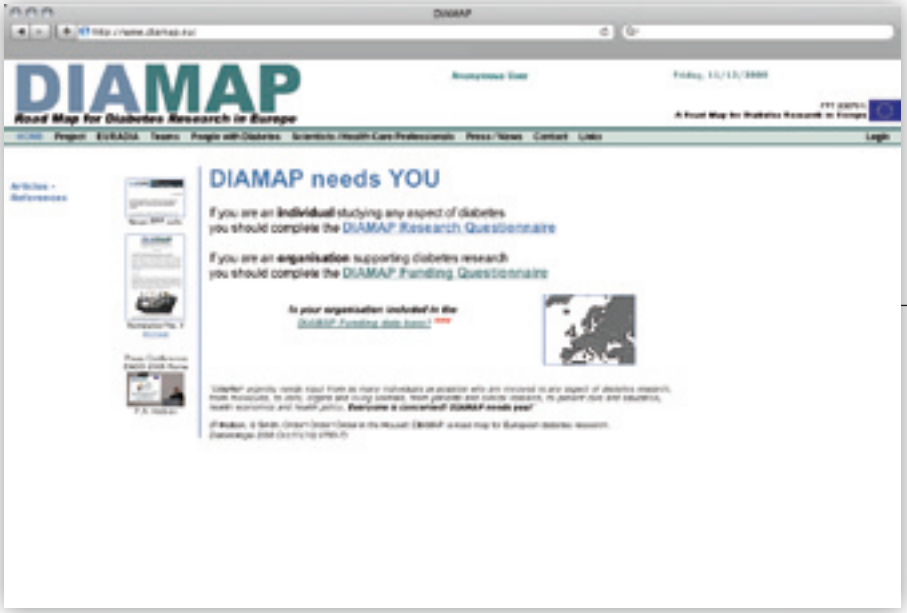
- expert group analysis of the current status of research and strategic roadmapping for the future
- a survey of current research into diabetes and its complications being undertaken across Europe and into government and non-government organizations that provide related financial support.

Diabetes experts looking into the future

DIAMAP began with a small central steering committee designed to cover academic (basic and clinical science) and industry research, and to encourage the participation of people with the condition. This committee suggested a list of seven leaders in their respective areas, selected to encompass all fields of diabetes research. It goes without saying that a group of seven people can never cover all aspects of research, and the DIAMAP project cannot ever hope to do so. However, it is felt that the major issues are being addressed, while leaving opportunities for further areas to be explored.

Each of the seven leads a smaller focussed sub-group, which comprises

> ***"In Europe, health research challenges are also not necessarily the same for each country."***



Further information on the DIAMAP project can be found on www.diamap.eu.

four or five investigators representing specific research fields. We took care to ensure that individual countries were not overly represented or dominant within the groups, but that these reflected the diversity that exists across the European Union.

Initial activities

Group work began in June 2008 with telephone conferences to explain the process and ensure that all members of each group received the same information. Guidelines, with examples from previous roadmaps, were developed that have served as a reference throughout the process.

DIAMAP is lucky to have been guided by an expert in such road-mapping exercises. We began by organizing discussions within each group to look at scientific achievements in research over approximately the past 10 years in the group's own field. These achievements still resonate within current research, thus providing a springboard to articulate future overarching research goals that could be resolved approximately within the next 10 years. Such goals are specific to diabetes and look at the larger diabetes picture in such a way that the research track towards the goal remains flexible and open to new ideas.

> ***"In the future, patient-led advocacy groups could be of great assistance."***

The overarching research goals form the end-point for research tracks that have been developed with interim research milestones (smaller than the final goal). These are set at approximately two-year intervals. Again, each milestone takes a broad overview of research while remaining specific to diabetes. Within each of these milestones will be the possibility for funding organizations to develop several specific requests for research funding applications. As the research maps are in graphic format, they are easy to follow, and are accompanied by narrative text justifying and explaining each step – how science in the area will progress and what will be the benefit to the person with the condition.

Throughout each of these research maps, roadblocks are identified that hinder or prevent the research from being carried out or reaching the next stage of development. This is the opportunity for the researchers to identify the practical issues that they cannot deal with alone – and which require external help. For example, a lack of access to biobanks of material, or differing national ethics committee conditions. Each of the six focussed sub-groups has the opportunity to mention and expand on these roadblocks. The Horizontal Issues group, which encompasses representation from the wider diabetes community, then examines the roadblocks and discusses ways of approaching such challenges, or optimizing the existing environment. It may be the case that in the future, patient-led advocacy groups could be of great assistance in this area.

Surveys of research and funding

A second major part of the DIAMAP project concerns finding out what

research is currently being undertaken in diabetes in the 27 countries of the European Union. Of course, within the research community there is a general awareness of who is doing what and where. However, DIAMAP has used all the tools at its disposal – access to the EASD network and other research communities – to approach independent investigators (those with their own research funding) asking them to inform us about their research facilities and areas of expertise and interest, as well as the source of their major research funding.

It seems that there will be approximately 1500 entries in this database, part of which will eventually be freely accessible to the diabetes community, and could form the point of contact for research collaborations. It is intended that this database remains open to new entries when the project is completed. The information contained in the database will be used as part of the DIAMAP report and can be compared with opportunities highlighted in the diabetes roadmaps.

DIAMAP is also surveying the organizations that provide financial support for research. One person in the DIAMAP team is dedicated to contacting such bodies, both by telephone and email. In this way, DIAMAP will be in possession of a unique set of information that will be reported upon. These organizations are government ministries of health, science, education or industry. They are also national diabetes associations or foundations supporting research in general with specific pathways for diabetes. As can be imagined, there is a huge difference in the way such organizations operate at the national level, and this will be mentioned in the report.

> ***"The pharmaceutical industry is being contacted to gain a better picture of the large role it plays in the support of research."***

The intention of DIAMAP is not to focus upon the negative, but to indicate ways to enhance and support research by maximizing existing infrastructure, and if necessary to suggest new approaches. The pharmaceutical industry is also being contacted to gain a better picture of the large role it plays in the support of research.

The organizations that have provided information (but not the information itself, as this is confidential) can be seen on the DIAMAP website (www.diamap.eu). We would like to thank those people in all the institutions that have helped us for the time they have spent answering our questions.

Finally, according to Halban: 'We believe that this project will ultimately help European diabetes research to thrive, building on past achievements and current strengths to work towards goals that will have real impact for people living with diabetes.'[1]

Sarah Hills on behalf of the DIAMAP Project Team

Sarah Hills is executive director of EURADIA and project manager for DIAMAP.

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For further information, please contact Sarah Hills (sarah.hills@euradia.org) or Regina.Sautter (regina.sautter@diamap.eu).

Further information on the DIAMAP project can be found on www.diamap.eu and more information on EURADIA on www.euradia.org.

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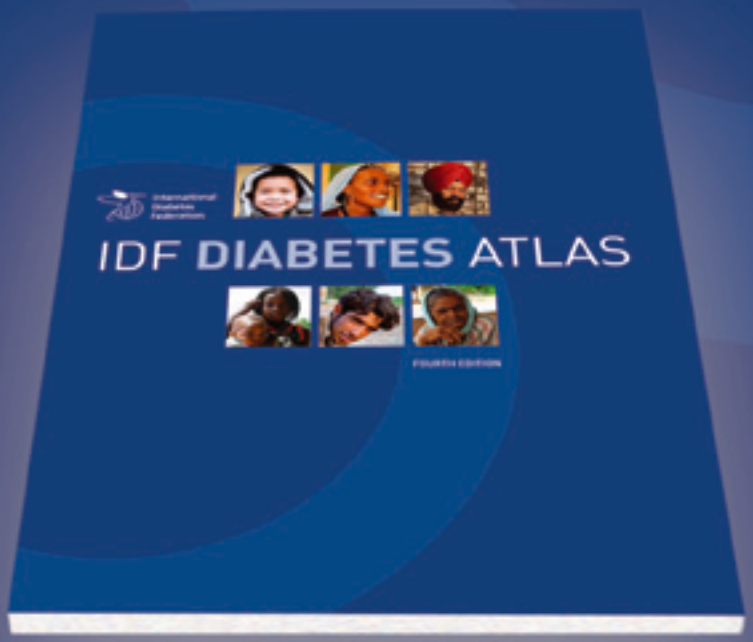

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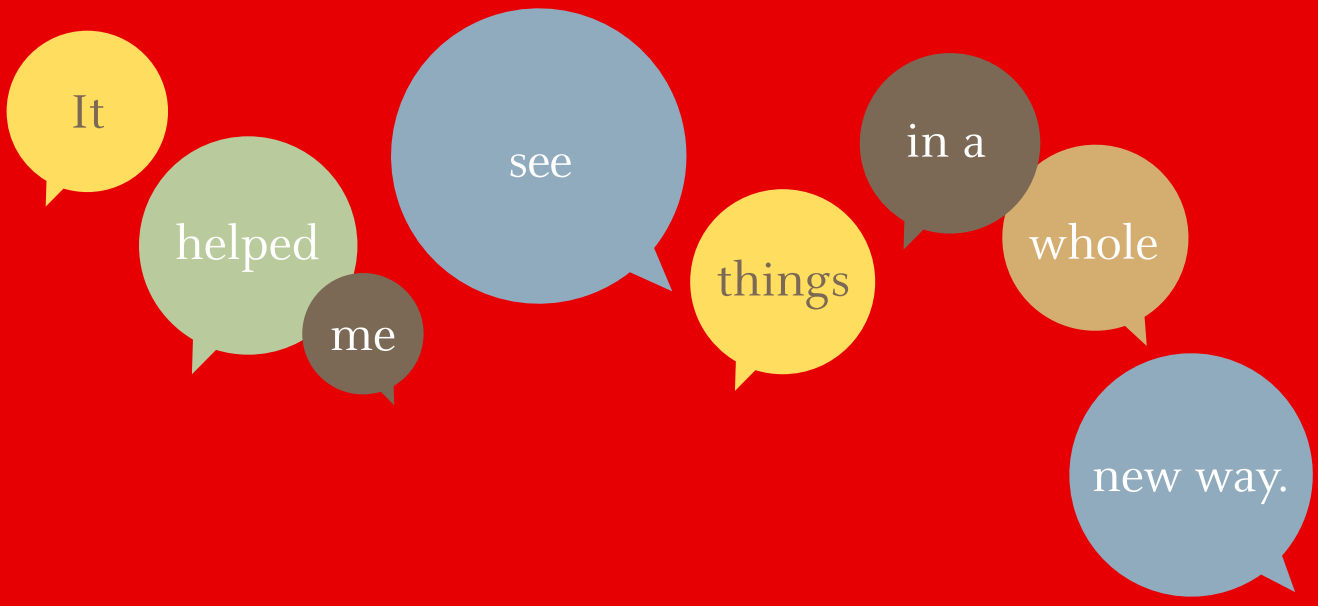

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