

GLOBAL DIABETES PLAN

2011-2021

INTERNATIONAL DIABETES FEDERATION



**International
Diabetes
Federation**

*“Preventing and treating diabetes is effective and cost effective”
(WHO, 2005)*

Diabetes and its complications are largely preventable. There are proven, affordable interventions available yet diabetes continues to kill and disable millions of people globally every year.

The Global Diabetes Plan calls on the United Nations and its agencies, governments, civil society, the private sector and the global diabetes community to turn the tide of diabetes now.

The purpose of the Global Diabetes Plan is to:

1. Reframe the debate on diabetes to further raise political awareness of its causes and consequences and the urgent need for action at the global and country level to prevent and treat diabetes
2. Set out a generic, globally consistent plan to support and guide the efforts of governments, international donors and IDF member associations to combat diabetes
3. Propose proven interventions, processes and partnership for reducing the personal and societal burden of diabetes
4. Support and build on existing policies and initiatives such as the WHO 2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Non-communicable Diseases.
5. Strengthen the global movement to combat the diabetes epidemic and to improve the health and lives of people with diabetes.

FOREWORD

Diabetes is one of the major health and development challenges of the 21st century

Diabetes is at crisis levels. We cannot afford to delay action any longer; the human misery and suffering caused by diabetes is unacceptable and unsustainable.

Every year, over four million people die from diabetes, and tens of millions more suffer disabling and life-threatening complications such as heart attack, stroke, kidney failure, blindness and amputation. Diabetes is also implicated in and has negative consequences for certain infectious diseases, other non-communicable diseases (NCDs) and for mental health.

Diabetes is not only a health crisis, it is a global societal catastrophe. Governments worldwide are struggling to meet the cost of diabetes care. Costs to employers and national economies are escalating and every day low-income families are being driven into poverty by loss of earnings due to diabetes and the life-long costs of healthcare.

Already, 366 million people have diabetes and another 280 million are at identifiably high risk of developing diabetes. If nothing is done, by 2030 this number is expected to rise to 552 million with diabetes and an additional 398 million people at high risk. Three out of four people with diabetes now live in low- and middle-income countries. Over the next 20 years, Africa, Middle East and South-East Asia regions will shoulder the greatest increase in diabetes prevalence. Even in rich countries, disadvantaged groups such as indigenous people and ethnic minorities, recent migrants and slum dwellers suffer higher rates of diabetes and its complications. No country, rich or poor, is immune to the epidemic.

Recognising the challenge and impact on human development, the International Diabetes Federation (IDF) brought together world experts to develop the first ever Global Diabetes Plan to galvanise and inform action on diabetes over the next decade. The Plan sets out the evidence, cost effective solutions and tools in a coherent framework for action and represents the consensus of the global diabetes community.

The Global Diabetes Plan was launched in 2011, a milestone year when world leaders met at UN headquarters in New York to agree actions on diabetes and other non-communicable diseases. I am proud that IDF was among the first to call for a UN High-Level Summit on NCDs – but that meeting was just the start. We will continue to work with our partners to turn political promises into global action for people who have diabetes now and to reduce the rate of the future development of diabetes and its insidious complications.

We have the evidence. Now, with the Global Diabetes Plan in our hands, we are one step closer to stopping avoidable deaths and reducing the suffering caused by diabetes.



Professor Jean Claude Mbanya
President of the International Diabetes Federation

GLOBAL DIABETES PLAN AT A GLANCE

Why diabetes matters:

Globally, 4.6 million deaths annually are attributable to diabetes and in some countries children and young people die for lack of insulin without ever being diagnosed. Diabetes ranks in the top 10 causes of disability worldwide and undermines productivity and human development. If no action is taken, the number of people with diabetes is predicted to rise to from over 366 million in 2011 to 552 million by 2030, or one adult in ten. No country and no sector of any society is immune. The challenge is to reduce the human and financial costs through early diagnosis and effective management and to prevent new cases of diabetes developing in so far as this is possible.

The opportunity:

Global and national political and business leaders are increasingly aware of the magnitude and consequences of the diabetes epidemic. The decision to hold the 2011 UN High-Level Summit on Non-communicable Diseases (NCDs) placed diabetes and the other major NCDs onto the global health agenda. There is growing awareness that investing in diabetes prevention and care brings substantial returns in other disease areas and in productivity and human development. We know what to do and we have evidence that intervening is effective and cost effective.

The objectives:

Improve health outcomes of people with diabetes

Early diagnosis, cost effective treatment and self-management education can prevent or significantly delay devastating diabetes-related complications and save lives.

Prevent the development of type 2 diabetes

Lifestyle interventions and socially responsible policies and market interventions within and beyond the health sector can promote healthy nutrition and physical activity and prevent diabetes.

Stop discrimination against people with diabetes

People with diabetes can play an important role in their own health outcomes and combating diabetes more generally. Supportive legal and policy frameworks, awareness campaigns and patient-centred services uphold the rights of people with diabetes and prevent discrimination.

The key strategy: implement National Diabetes Programmes

Comprehensive policy and delivery approaches enhance the organisation, quality and reach of diabetes prevention and care. It is feasible and desirable for all countries to have a national diabetes programme and successful models are already in place in some countries.

Delivering results:

Strengthen institutional frameworks

Strengthen UN and country-level leadership across multiple sectors to ensure coherent, innovative and effective global and national responses to diabetes, and achieve the best possible return on investment

Integrate and optimise human resources and health services

Re-orient, equip and build capacity of health systems to respond effectively to the challenge of diabetes through training and workforce development, particularly at primary care level

Review and streamline supply systems

Optimise the provision of essential diabetes medicines and technologies through reliable and transparent procurement and distribution systems

Generate and use research evidence strategically

Develop a prioritised research agenda, build research capacity and apply evidence to policy and practice

Monitor, evaluate and communicate outcomes

Use health information systems and robust monitoring and evaluation to assess progress

Allocate appropriate and sustainable domestic and international resources

Achieve innovative, sustained and predictable resourcing for diabetes, including Official Development Assistance (ODA) for low-and middle-income countries.

Adopt a whole of society approach

Engage governments, the private sector and civil society (including healthcare workers, academia and people with diabetes) in working together to turn the tide on diabetes.

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WHAT IS DIABETES?

Diabetes is one of the four priority non-communicable diseases (NCDs) identified by the WHO along with cardiovascular disease (CVD), which includes heart attack and stroke, cancer, and chronic respiratory disease.

Diabetes is common, chronic, and costly. It is characterised by hyperglycaemia (high levels of glucose in the blood), which results from lack of insulin (type 1 diabetes), or insufficient insulin and insulin resistance (type 2 diabetes). It has a genetic component and some people are simply more susceptible to developing diabetes than others.

Type 1 diabetes is thought to be triggered by certain viral infections and sometimes by environmental toxins. Type 2 diabetes can be triggered by a variety of interrelated factors some of which are non-modifiable such as increasing age, ethnicity and a family history of diabetes. In addition, diabetes can first appear during pregnancy. This is known as gestational diabetes mellitus (GDM). Diabetes is attributable to a variety of genetic, epigenetic, environmental and biological factors, many of which are outside the control of people who get it.

BOX 1: MAIN TYPES OF DIABETES

TYPE 1 DIABETES is an autoimmune disease which destroys the insulin producing cells of the pancreas. It accounts for 3-5% of all diabetes globally. It most commonly develops in children and young adults but can occur at any age. People with type 1 diabetes are always dependent on insulin injections for survival. Tens of thousands of children and young adults die each year for lack of life-saving insulin. There is as yet no proven widely available therapy to prevent or cure Type 1 diabetes.

TYPE 2 DIABETES is due to a combination of insulin resistance and insulin deficiency. It accounts for 95% or more of all diabetes globally. It most commonly occurs in middle-aged and older people but increasingly affects overweight children, adolescents and young adults. It is particularly affecting people in the productive years of the life cycle. People with type 2 diabetes are usually treated with tablets but many also require insulin injections. Type 2 diabetes is a major cause of heart disease and other complications. It can be prevented or significantly delayed by simple and cost effective interventions.

GESTATIONAL DIABETES (GDM) is glucose intolerance with onset or first recognition during pregnancy. GDM affects at least 1 in 25 pregnancies globally. Undiagnosed or inadequately treated GDM can lead to larger than normal babies and higher rates of maternal and infant deaths and foetal abnormalities. Women with GDM and the offspring of GDM pregnancies are at increased risk of developing type 2 diabetes later in life.

Modifiable risks for developing type 2 diabetes vary across populations and include obesity, over- or poor- nutrition (including under-nutrition in the womb and early life), and physical inactivity. Many of these risks are shared with other NCDs making type 2 diabetes an important and logical entry point for NCD prevention and control. Much of the treatment of diabetes can be undertaken in tandem with other chronic diseases, thus creating economies of scale and optimizing health resources.

If undiagnosed, untreated or poorly controlled, diabetes can cause devastating, irreversible complications such as visual impairment and blindness, kidney failure, heart attack, stroke, lower limb amputation, and erectile dysfunction. While these complications are predominantly due to persistent hyperglycemia, other factors such as high blood pressure, lipid disturbances and obesity are important contributors.

Diabetes also carries a burden of short-term complications such as excessively high or excessively low blood glucose (hypoglycaemia), which can result in coma if untreated. These short term complications are always acute, sometimes life threatening and require urgent medical attention. They usually occur as a result of delayed diagnosis, inadequate or inappropriate treatment, intercurrent or concurrent illnesses or infections such as TB, pneumonia and diarrhoeal disorders, lack of access to health services and self care education.

People with diabetes need access to appropriate medicines and a wide range of healthcare services in the course of their disease. Early and appropriate treatments and access to effective services, particularly primary care, to achieve good blood glucose control is essential to avoid costly end stage complications.

**No matter what the cause or the trigger,
no one chooses to get diabetes.**

WHY DIABETES MATTERS

Diabetes is at crisis levels and escalating. Every seven seconds someone somewhere dies from diabetes, accounting for four million deaths globally each year. In 2011 366 million people had diabetes, with another 280 million at high risk of developing it. If nothing is done, the number of people with diabetes will rise to 552 million in 20 years, with a further 398 million people at high risk.

Diabetes is a major contributor to heart disease and stroke and is among the top ten causes of disability worldwide. Undiagnosed or poorly controlled diabetes can lead to lower limb amputation, blindness and kidney disease. Diabetes also exacerbates major infectious diseases such as TB, HIV/AIDS and malaria. People with diabetes are three times more likely to develop TB when infected and approximately 15% of TB globally is thought to be due to diabetes. Diabetes and malaria frequently occur together in countries where malaria is endemic. These diseases are harder to treat together and there is a higher chance of death for people with both. HIV/AIDS can increase the risk of diabetes as some anti-retroviral treatments (ART) can cause diabetes.

The cost of diabetes is unsustainable

Diabetes results in high healthcare costs, loss of labour productivity and decreased rates of economic growth. Globally, healthcare expenditure for diabetes totalled USD 465 billion in 2011, equivalent to 11% of total health spending. Without an investment in making effective treatments for preventing diabetes complications widely available, this is predicted to rise to USD 595 billion by 2030. The World Economic Forum has consistently identified NCDs (including diabetes) as a global risk for business and communities. The losses in national income from largely preventable deaths from diabetes, heart disease and stroke are enormous; between 2005-2015, those losses are estimated to reach USD 558 billion in China, USD 303 billion in Russia, and USD 237 billion in India.

Diabetes impacts on poverty and undermines human development

Early death is only one component of lost income and many people with diabetes suffer potentially avoidable disabling complications which prevent them from working. This represents a substantial loss to the economy and in countries where there is no social protection, can push families into poverty and rob children of opportunities for healthy nutrition, education and future employment. So, while no country is immune to diabetes, the most immediate challenge lies in low- and middle income countries where three out of four people with diabetes now live and where the onset of diabetes has shifted down a generation, increasingly affecting people in their most productive years. In India and China for example, diabetes strikes a decade earlier than in Europe and the USA. Even in rich countries, disadvantaged minorities such as indigenous people and ethnic minorities, recent migrants and slum dwellers suffer higher rates of diabetes and its complications. The challenge is to reduce social disparities between and within countries that restrict opportunities for good health and access to healthcare.

Diabetes disproportionately affects women

Diabetes can be triggered by events in the womb with the children of mothers who are under- or over-nourished during pregnancy at greater risk of diabetes in later life. Diabetes in pregnancy also increases the risk of morbidity and mortality for both the mother and infant. As caregivers, women and girls face additional burdens and may lose educational, economic and social opportunities when caring for family members with diabetes.

There is clear and compelling evidence from many countries that diabetes and its complications can be prevented or significantly delayed through **relatively simple and cost effective interventions.**

THE OPPORTUNITY

The world is awakening to the diabetes epidemic and the urgent need for action to mitigate it. Political leaders increasingly recognise the devastation to individuals and their families, as well as the huge and escalating costs to health systems and national economies. The 2011 UN High-Level Summit on NCDs built global determination to stem the tide of diabetes and related NCDs and now we have the opportunity to translate political will into action.

We have the evidence and the tools to prevent and manage diabetes

Evidence from clinical trials conducted in both developed and developing countries demonstrates that a large proportion of type 2 diabetes can be prevented or significantly delayed by reducing the major modifiable risk factors – physical inactivity and inappropriate or over-nutrition.

Likewise, several landmark studies have demonstrated that, through a comprehensive package of treatment and support, the complications of both type 1 and type 2 diabetes can also be prevented or significantly delayed enabling people with diabetes to live longer and healthier lives.

Relevant guidelines and training programs are widely available, the essential medicines to treat diabetes are all off patent and there are established tools for measuring and monitoring the prevalence of diabetes and its complications.

These interventions are affordable and cost effective for all resource settings and present an unparalleled opportunity to save millions of lives, alleviate human misery and stop the future costs and impoverishment that diabetes imposes on people, families, communities and countries.

Preventing diabetes also helps prevent other NCDs and certain infectious diseases

Diabetes shares common risk factors with other NCDs. Physical inactivity, inappropriate nutrition and obesity contribute to diabetes and cardiovascular disease (primarily heart attack and stroke), cancer, and chronic respiratory diseases. Investing in diabetes prevention brings returns in these and many other health areas including TB, HIV/AIDS and malaria for which diabetes and shared social determinants increase susceptibility and mortality.

Diabetes and human development

Diabetes is not just a disease, it is a development issue. Strengthening the global response to diabetes provides an opportunity for strengthening achievement of key development indicators, including poverty eradication, gender equality, reducing maternal and child mortality and infectious diseases. Accelerating progress on diabetes will automatically stimulate progress towards the achievement of the Millennium Development Goals (MDGs) and future internationally agreed development goals.

Diabetes and the environment

Diabetes does not cause climate change and climate change does not cause diabetes but many of the same vectors that are damaging the environment are linked to diabetes risks such as physical inactivity and over-nutrition. There are economies of scale in simultaneously reducing modifiable diabetes risks and aspects of climate change and environmental degradation. They include promoting active travel and reducing car dependency; local food production and consumption; sustainable housing and urban planning that foster physical activity, local employment and community inclusion and reduce dependence on non-renewable energy.

The challenge is great but so are the rewards. In deciding to hold a UN High-Level Summit on NCDs, decision makers have put diabetes and other NCDs at the top of the international health agenda. There is an unprecedented opportunity to turn the tide of this debilitating disease and save lives and limbs. **We have the evidence, the knowledge and the tools.**

THE OBJECTIVES

We know what to do. Governments, with the support of the UN system and international aid agencies, business, philanthropic organisations, civil society, health professionals and researchers and the general public can reverse the current trajectory of diabetes. The Global Diabetes Plan centres on three key objectives which require urgent action to support an effective global response to the diabetes epidemic. Action in these areas is supported by evidence, expert opinion and consensus of the global diabetes community. Every country, even the least resourced, can do something to:

1. Improve health outcomes for people with diabetes

Improving the health outcomes of people who already have diabetes is not only a humanitarian necessity; it is an economic and human development imperative. It is feasible, affordable, supported by strong research evidence of effectiveness and cost effectiveness and is within the reach of all countries.

2. Prevent the development of type 2 diabetes

Preventing future cases of diabetes is vital if countries - particularly low- and middle-income countries - are to avoid or reduce the catastrophic costs and impact of the growing burden of diabetes. Prevention and control of diabetes are not alternative or phased options; they are equally important. Investing in both simultaneously is feasible and brings tangible economic returns across a range of areas and health conditions.

3. Stop discrimination against people with diabetes

Stopping discrimination against people with diabetes and engaging them in the management of their own diabetes and in diabetes prevention and care more generally, can be a powerful tool in the fight against diabetes. It is not only the right thing to do from a social justice perspective - it is effective.

The Key Strategy

Implement National Diabetes Programmes or action plans OR implement NCDs programmes or action plans of which diabetes is a discrete component

Well designed and actively implemented national diabetes plans or NCD plans of which diabetes is a discrete component are an effective way of organising, structuring the policy and practice response and engaging policy makers, funders, service providers, and civil society organisations in collective action to combat the diabetes epidemic.

1. IMPROVE HEALTH OUTCOMES OF PEOPLE WITH DIABETES

Diabetes causes immeasurable personal suffering and costs to society and slows human and economic development. Complications are not inevitable. We know what to do – the time to act is now.

There is overwhelming evidence from many countries demonstrating that diabetes-related complications can be prevented or significantly delayed and effectively treated to prevent their progression. Clinical management guidelines outlining the recommended standards of care are available globally and the essential medicines for treating hyperglycaemia and associated lipid and blood pressure abnormalities are all off-patent and are safe, effective and affordable.

Improving the health and related quality of life outcomes of people with diabetes, reducing the social and personal costs and the negative impact on sustainable human and economic development is potentially within the reach and capability of all countries to achieve. The core components of effective diabetes care are:

- treatment and clinical monitoring to achieve glycaemic and metabolic control
- self-management education and support
- prevention and management of complications

There are internationally recognised clinical processes and practices that have been shown to be effective in controlling diabetes and preventing or delaying its complications (Figure 1). Good quality basic diabetes care can remove or decrease the need for costly acute services. To achieve effective diabetes care it is vital to:

Provide essential medicines, technologies and services to all people with diabetes

Essential medicines for treating hyperglycaemia and the blood pressure and lipid disorders that characterise diabetes and lead to its complications are available in low cost generic forms that are affordable to all countries. These medications not only help prevent complications, such as heart attack and stroke, occurring in the first instance but are equally or even more effective in preventing subsequent complications.

These medications include insulin (essential for people with type 1 diabetes) and sometimes required for people with type 2 diabetes, oral blood glucose lowering agents, statins and blood pressure lowering agents. Reliable advice on their use is documented in widely available IDF guidelines for the clinical management of diabetes, and WHO formularies. The cost effectiveness of medicines for diabetes can be optimised by:

- reforming procurement and distribution systems to reduce loss, waste and inefficiency
- implementing nationally standardised treatment protocols and pathways to ensure appropriate use

Essential technologies include diagnostic and monitoring equipment, reagents and supplies. These are relatively simple and inexpensive, or potentially inexpensive in the future – especially if there was a coordinated global campaign to drive down the costs. Investing in using them to diagnose, treat and monitor diabetes in its early stages and on a continuing basis, can substantially reduce dependence on expensive ‘high’ tech procedures and services by averting or delaying irreversible complications.

Essential services for diabetes are ideally based on a multi-disciplinary approach which well-trained primary care health workers can generally deliver (supported by an appropriate level of specialist services). This requires the capacity to:

- diagnose diabetes
- provide initial assessment and treatment
- undertake ongoing clinical monitoring and management for optimal glycaemic and metabolic control
- screen for, detect and treat complications of diabetes
- offer timely and appropriate self-management education to people with diabetes and their carers

Find and treat diabetes early

Type 2 diabetes often develops over several years and may remain asymptomatic until complications occur. This means that important opportunities for treatment and control to avoid debilitating complications are often missed. Diagnosing and treating type 2 diabetes early is an important strategy for preventing or delaying costly and debilitating complications. However, in low resource settings, it may be advisable to adopt a step-wise or phased approach and ensure that the required medications and services to treat diabetes are available before undertaking active case finding.

Opportunistic identification of risk factors for undiagnosed type 2 diabetes is feasible and cost effective. Risk scores and ‘tick tests’ listing risk factors for undiagnosed diabetes have been developed in many countries based on epidemiological surveys of the local populations and are widely available. Risk scores can be applied in any setting. In addition, there are generic readily identifiable single risk factors which can be used to identify people at high risk of having undiagnosed diabetes: For example:

- obesity
- a history of gestational diabetes
- having a first degree relative with diabetes

People identified as being likely to have undiagnosed diabetes should have definitive diagnostic testing, preferably at a recognised medical service. On the basis of the results of the diagnostic testing:

- people diagnosed with diabetes should be enrolled in a treatment programme immediately
- people identified as not yet having diabetes but who have risk factors for it should be provided with counselling about nutrition, weight control, and appropriate physical activity and advised to have periodic future screening for diabetes

Screening the whole population for undiagnosed diabetes is not considered feasible or cost effective and is therefore not recommended at this time. It should also be noted that due to its relatively rapid onset and acute presentation, neither opportunistic identification or population screening is recommended for type 1 diabetes.

Find and treat complications early

There are well recognised cycles and processes of care backed by evidence of effectiveness in reducing and detecting complication early. In addition to ongoing clinical monitoring, an annual cycle of physical, clinical and biochemical assessments is recommended for all people with type 1 or type 2 diabetes in order to detect and treat diabetes complications early. This includes:

- **Clinical assessment:**
weight, bmi, waist circumference
blood pressure, signs of poor circulation and nerve damage
foot and eye examination

- **Biochemical assessment:**
HbA1c, lipids, renal function, albuminuria
- **Educational and behavioural assessment:**
Self-management knowledge, skills, capabilities and behaviours

Make self-management education available to all people with diabetes

The successful management of diabetes depends not just on medicines and medical treatments. It also relies on a combination of medicines, medical monitoring and treatments, an appropriately constituted and balanced diet, physical activity, and self-management education about the nature of diabetes and how to manage it.

People with diabetes need to make multiple daily decisions about balancing food, physical activity and medicines. For many people with diabetes this may include self-injecting insulin and self-monitoring of blood glucose levels.

These care requirements can change substantially during the different stages of the individual's life cycle and diabetes disease process. Thus successful self-management not only requires initial diabetes education at the time of diagnosis but an ongoing cycle of assessment and educational intervention.

Special attention needs to be directed to education for the carers of people with diabetes, particularly those who cannot understand or undertake the requirements for self-management such as young children, the very elderly, and people with physical or mental disabilities that make self-management impossible.

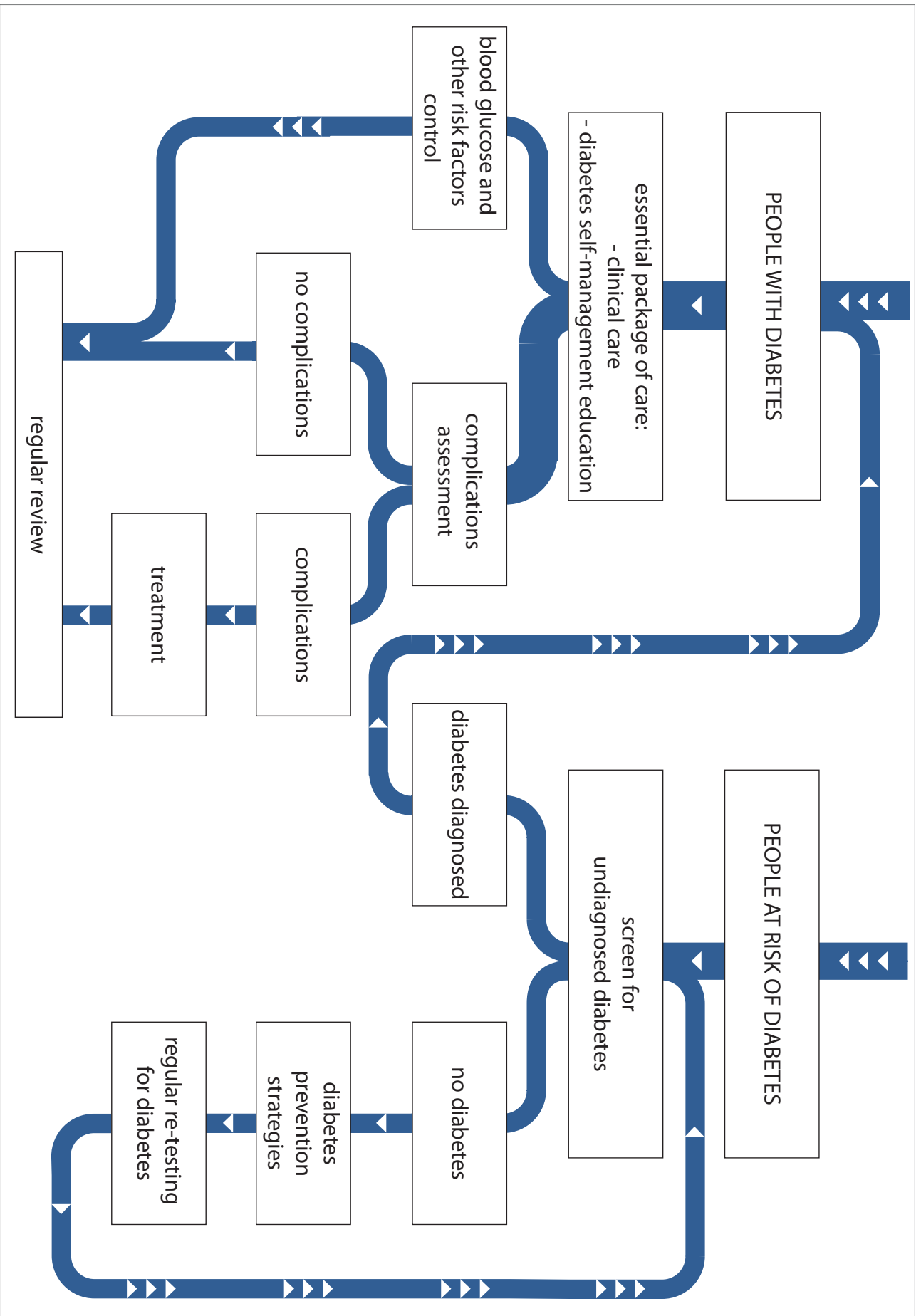
Self-management education for people with diabetes is not an option; it is an imperative.

PRIORITY ACTIONS

Four core elements of successful diabetes management have been selected as priorities. All are feasible, backed by international evidence of effectiveness and represent a potentially high return on investment. They are:

- provide essential medicines, supplies, technologies and services for people with diabetes to optimise their glycaemic and metabolic control and avoid acute and long term diabetes complications
- establish and maintain a regular (annual) cycle of clinical assessment to detect and treat early complications and correct significant deviations from good diabetes control
- offer self-management education to all people with diabetes and/or their carers, at diagnosis and relevant points along the continuum of their life cycle and changes to their health status
- implement nationally standardised protocols for finding individuals with undiagnosed type 2 diabetes or with an identifiably high risk of developing diabetes in the future

Figure 1: Summary of diabetes management



2. PREVENT THE DEVELOPMENT OF TYPE 2 DIABETES

Type 2 diabetes can largely be prevented. We can and must prevent the preventable. The human and financial cost of not intervening will be far greater than the cost of intervening.

The key modifiable risk factors for type 2 diabetes are physical inactivity, inappropriate nutrition and obesity. Healthy nutrition and physical activity are not just a matter of personal choice. Social and technological changes over the past few decades have created physical, work, community and leisure environments that are sedentary and based on high energy-low nutrient diets. Countless people face almost insurmountable environmental, social and financial barriers to healthy lifestyle choices on a daily basis.

Even among many poorer countries, 'obesogenic' and 'diabetogenic' environments are becoming the norm. WHO states that 80% of type 2 diabetes can be prevented by simple cost effective interventions. Major policy changes are needed to sustain healthy weight and physical activity levels. For example, well designed towns and cities underpinned by efficient public transport and food systems that encourage physical activity and healthy eating can help reduce risk factors for type 2 diabetes and many other health risks. Interventions in certain settings have been shown to improve nutrition and increase physical activity. Nonetheless, the Global Diabetes Plan places a high priority on interventions to transform the social, economic and physical environments that are driving the epidemic of obesity and type 2 diabetes.

Health in all policies

Government policies in one sector often have unintended effects in others. Most governments in economically developed countries now evaluate the environmental impact of new policies. This approach also needs to be applied to health with particular attention to policies governing urban design and housing, workplace design and work practices, food production, storage, distribution, advertising, pricing and trade. Fiscal, economic and education policies, especially those that impact negatively on people from socio-economically disadvantaged groups within the population are also highly relevant.

WHO promotes a health impact assessment approach to evaluating the impact of social, environmental and economic policies on health and the Global Diabetes Plan calls on all governments to implement a 'health in all policies' approach. This means assessing the health impact of all new policies on risk factors for diabetes and other NCDs when making infrastructure investments and designing and enacting new policies and ensuring that all policies promote rather than harm health.

Make healthy nutrition available for all

Good nutrition is a core building block for promoting health and preventing disease. Both under- and over-nutrition increase the risk of type 2 diabetes and diabetes itself is exacerbated by poor nutrition. Children born to under-nourished mothers are at increased risk of diabetes, as are children and adults who are over-nourished (but possibly still poorly nourished). Over- and under-nutrition can exist side by side, with both being more evident among people who are socio-economically disadvantaged. Reducing social disparities and social determinants of diabetes and associated NCDs is central to preventing the development of diabetes and its complications.

Through all stages of life a balance is needed between the amount of energy that individuals consume and the amount of energy they require. Achieving this balance will reduce the risk of diabetes and other NCDs in current and subsequent generations. The WHO Global Strategy for Diet and Physical Activity sets out guidance on what needs to be done and The Global Diabetes Plan calls on governments to implement policies and programmes to address under- and over-nutrition including:

- promote healthy nutrition through:
 - maternal and child health nutrition programmes
 - policies and laws which improve access to affordable, good quality food for everyone
 - regulation to reduce the fat, sugar and salt content of processed food and beverages and eliminate trans fats
 - awareness and behaviour change programmes
 - global trade agreements
- promote breast feeding in order to reduce infant under-nutrition and the development of diabetes in later life.

Promote everyday physical activity

Physical activity plays an important role in reducing obesity and reduces the risk of type 2 diabetes. Physical activity needs to be supported and encouraged in routine everyday activities and through recreational sports.

- implement culturally appropriate policies and programmes to reduce sedentary behaviour and to promote physical activity in specific settings, including schools and the workplace

- establish regulatory frameworks that remove barriers to and promote physical activity. this may include urban design (e.g. ensuring safe and pleasant foot-paths/sidewalks and bicycle lanes), transport and the design of buildings (e.g. encouraging the use of stairs)
- establish a physical activity monitoring system to provide statistics on the levels of physical activity in the population.

Determine if a “high-risk” approach to preventing type 2 diabetes is appropriate and if so, implement it

There is conclusive evidence that diabetes can be prevented in people at identifiably high risk through nutrition counselling, increasing physical activity and modest weight reduction. However, implementing this approach in low resources settings where there is insufficient funding available to provide people

who already have diabetes with essential care and medicines may not be feasible or advisable. If a high-risk approach is considered appropriate in a given setting, then it should be integrated with cardiovascular disease (CVD) prevention as many people who are at high risk of diabetes will also be at high risk of CVD.

- determine at a national level if a high-risk approach is appropriate, given the available resources
- if it is appropriate, implement a ‘high risk’ prevention programme
- if implementing a ‘high risk’ prevention programme is not appropriate at the current time, work towards strengthening the health system to deliver effective, low cost lifestyle interventions within five years. These may include a focus on individuals, specific high risk sub-populations or specific settings such as churches, schools, workplaces.

PRIORITY ACTIONS

Three actions have been selected as priorities. All three are feasible and represent a potentially high return on investment. For example, implementing these actions would result in tangible gains, not just for diabetes prevention but for preventing and mitigating obesity, hypertension, heart disease, stroke, certain cancers and many other health conditions. They are:

- implement a ‘health in all policies’ approach. Assess the benefits and risk of new policies and adopt those that favour good health –with particular regard to modifiable risk factors for diabetes and associated NCDs, and the broader social determinants of mental and physical health
- reduce fat, sugar and salt in processed food and beverages and eliminate trans fats by various means, including fiscal and regulatory policies, introduce restrictions to marketing of unhealthy food products, especially to children and young people
- implement culturally appropriate policies and programmes to reduce sedentary behaviours and promote physical activity in specific settings, including schools and the workplace.

Note:

The causes of type 1 diabetes are different from the causes of type 2 diabetes. At the time of developing the Global Diabetes Plan, there were no widely available methods for predicting who will develop type 1 diabetes or for arresting its development. However, scientists from many countries are working on developing a deeper understanding of risks and triggers for type 1 diabetes and how to successfully modify them. Some of this work is yielding promising early results and it is possible that treatments to prevent and/or cure type 1 diabetes may become available during the life of the Plan and if so, should be incorporated into the global effort to prevent diabetes

3. STOP DISCRIMINATION AGAINST PEOPLE WITH DIABETES

Access to appropriate, affordable care and information and education about their disease is the right of all people with diabetes, not a privilege. People with diabetes can play a central role in turning the tide of diabetes.

The rights to life and to health are fundamental human rights enshrined in the Universal Declaration of Human Rights (UDHR, 1948). Most governments have ratified at least one international human rights treaty, thereby binding them to respect, protect and fulfil the right to health.

The right to health requires governments and public authorities to put in place policies and action plans which lead to protection against epidemic diseases and provide available and accessible healthcare for all. Children and adults with diabetes are denied both the rights to life and health when their diabetes is undetected or they lack access to affordable technologies and medicines such as insulin, oral blood glucose lowering agents and other necessary medicines.

People with diabetes are not to blame for their disease and should not be discriminated against at school or work, in insurance or social protection, or in the wider community. Certain people are susceptible to diabetes because they have specific genetic and epigenetic traits that other people do not have. Yet millions of people with diabetes face stigma and discrimination. This promotes a culture of secrecy about diabetes that can create a barrier to accessing services, employment and marriage opportunities, and may prevent people with diabetes from playing an active role in society. The burden is greater for people in certain population sub-groups such as children, indigenous peoples, ethnic minorities and women.

Diabetes is a lifelong disease requiring complex daily decisions and demanding self-management and monitoring skills and routines. Successful self-management is a vital component of effective diabetes care. Giving people with diabetes, their families and communities the right and opportunity to play a central role in diabetes care, prevention and research is critical if the current burden of diabetes and its complications is to be reversed.

Promote and protect the rights of people with or at risk of diabetes

Action is required at both international and national levels to:

- enable people with diabetes to claim their rights and meet their responsibilities by creating supportive legal and policy frameworks, particularly in the context of employment, education, and insurance
- adopt the principles within IDF's International Charter of Rights and Responsibilities of People with Diabetes;
- promote the rights of vulnerable groups such as children, women, indigenous people, ethnic minorities and people with disabilities.

Engage and empower people with diabetes to be at the centre of the diabetes response

People with diabetes must play a central role in developing diabetes and related policies and strategies and determining ways in which services are delivered. Active engagement of people with diabetes can be critical to securing the political and financial commitment of governments. It can also help to enhance self-management, improve individual health and psychological outcomes, break down community-level social stigma and prejudice and ensure that policies are relevant and acceptable to individual and community values. People with diabetes need to be equal partners at all levels and this can be achieved with action to:

- involve people with diabetes, their families and communities in dialogue and decisions about diabetes policy, programme design, implementation and monitoring
- support the creation of strong organizations and networks of people with diabetes
- provide regular and transparent public reporting on diabetes processes and outcomes to provide people with - or affected by diabetes - leverage to drive change.

Challenge social stigma and discrimination in the context of diabetes

Social stigma can be a serious barrier to early diagnosis, effective self-management and appropriate access to professional care and treatments. Increasing diabetes awareness and reducing stigma, myths and misconceptions are important elements in the care and prevention of diabetes. The necessary actions include:

- encourage and support the development and implementation of campaigns to increase diabetes awareness and reduce diabetes-related stigma
- identify and support high-profile champions of change and community leaders who will speak strongly for the needs and rights of people with diabetes
- confront social norms and practices that prevent equality in decision-making and underpin diabetes-related stigma and shame.

PRIORITY ACTIONS

The following four actions are feasible, practical, represent potentially high returns on investment and can be assisted by IDF, its Regional Offices, Task Forces and in country member associations:

- adopt the principles within IDF's International Charter of Rights and Responsibilities of People with Diabetes
- provide regular and transparent reporting on diabetes healthcare and health outcomes to give people with -or affected by - diabetes the tools and information to drive change
- encourage and support the development of information campaigns aimed at increasing diabetes awareness and reducing diabetes-related stigma
- identify and support high profile champions of change and community leaders who will speak strongly for the needs and rights of people with diabetes.

KEY STRATEGY - IMPLEMENT NATIONAL DIABETES PROGRAMMES

National Diabetes Programmes are a tried and tested strategy for mounting an effective and coherent approach to improving the outcomes of diabetes prevention and care. It is feasible and desirable for all countries to have a National Diabetes Programme.

Since 1986, National Diabetes Programmes have been developed and implemented in many countries, under various regional declarations and plans, led mainly through partnerships between WHO and IDF. These Programmes have united and guided efforts from multiple government and non-government agencies to combat diabetes.

Essentially, these programmes are comprehensive plans to improve the organisation, quality and reach of diabetes prevention and care. They can be relatively simple or highly detailed depending on local needs and available resources. They may be developed and implemented as 'stand-alone' strategies or action plans, or embedded as a discrete component within a broader NCD programme or action plan. In either case, the purpose is to integrate and link evidence-based activities that are planned and coordinated nationally and implemented across the national, state or district and local levels. These plans must be documented, transparent and freely available to stakeholder groups. They must have stated goals and objectives, supported by a strategic plan, specified timeframes and milestones, dedicated funding and a means of evaluation. Responsibility for diabetes/NCD programmes needs to be located at the highest level of government, preferably in the Prime Minister's Office. Approval and endorsement of, and leadership by the Ministry of Health are also vital.

A National Diabetes Programme is a systematic and coordinated approach to improving the organisation, accessibility and quality of diabetes prevention and care and is usually manifest as a comprehensive policy, advocacy and action plan covering:

- the main types of diabetes, i.e. type 1 diabetes, type 2 diabetes and gestational diabetes
- the whole continuum of care from primary prevention to treatment and palliative care
- resources, services and systems that support prevention and care

The core elements of a comprehensive national diabetes programme are:

- primary prevention - preventing the development of risk factors
- secondary prevention - preventing the development of diabetes
- tertiary prevention - preventing the development of complications through early diagnosis and effective monitoring, treatment and care of people with diabetes
- the funding and systems that underpin prevention and care:
 - medication, equipment and supplies
 - workforce and services
 - information and communication systems
 - monitoring, surveillance and evaluation systems
 - clinical policy, guidelines and governance

Guiding principles

The core principle underpinning National Diabetes Programmes is social justice. This should be manifest in strategies to promote equal access to opportunities to achieve the best outcomes for all people who need them, regardless of race, religion, socio-economic status or geographical location. In practice, this means:

- access to basic requirements for effective and affordable treatments, diagnostics and technologies for all who need them
- consideration and affirmative action to ensure that access is afforded to vulnerable groups such as young children, the elderly, indigenous minorities, the poor
- policy and practice is based on the available evidence and guided by expert opinion, stakeholder consensus, and a person-centred approach

Who should be involved?

The needs of people with or at risk of diabetes should always be at the centre of the Plan. However, diabetes affects families, communities and economies and requires the widest possible involvement in action to reduce its impact. Engaging or at least taking account of the impact of all sections and levels of society in planning and implementing National Diabetes Programmes is vital to achieving the greatest level of support, penetration and impact. Consequently, it is worth undertaking a national stakeholder mapping exercise to identify key players and groups in a

position to exert a positive influence on the process. In addition to the usual professional and consumer diabetes groups, pharmaceutical companies and WHO, these might include government departments and agencies such as agriculture, treasury, transport, architecture, planning and education. Food industry organisations, employers' associations and employee unions, health insurers, private sector philanthropic organisations and non-diabetes NGOs should also be considered and engaged where possible.

PRIORITY ACTIONS

One key priority action is recommended which has proven value, high potential for return on investment in health gain, and reductions in duplication and ineffective practices. It represents a universally accepted approach for which there are many successful precedents and widely available resource material and models. Countries should:

- review and update existing or develop and implement new National Diabetes Programmes

DELIVERING RESULTS

The most effective action on diabetes requires a coordinated cross sectoral approach, backed by strong leadership from Governments and the United Nations.

Strengthen institutional frameworks

Individual countries need to locate responsibility for diabetes and related NCDs at the highest level of government, such as the Prime Minister's Office, cabinet, or finance department. Ideally, all countries would have one coordinating authority, one plan and one monitoring system. This approach may be supported by the creation of an overarching statutory body or agency empowered to act across government portfolios. Alternatively, it may mean supporting Ministries of Health or their NCD Directorates to:

- coordinate within the ministry of health across disease areas, both NCDs and communicable diseases
- coordinate across issues, functions and policy areas within and between other ministries e.g. treasury, agriculture, transport, energy, environment, planning, employment
- take primary responsibility for the design and implementation of a health in all policies approach
- develop national policies for the prevention, treatment and care of diabetes in line with internationally recognised standards and the sustainable development of their healthcare systems, as recommended in UN Resolution 61/225 on Diabetes
- develop a national list of essential medicines and technologies as a basis for effective procurement and supply of medicines by public and private sectors
- prioritise and harmonise the input of donor and international aid and development agencies
- translate the diabetes evidence into policy and practice
- re-orient and fund health systems towards a preventative, continuing care model
- work in partnership with private sector organisations, where appropriate, to reduce poverty and inequality and mitigate social and environmental determinants of diabetes.

Integrate and optimise human resources and health services

Effective diabetes care can be delivered by a range of health professionals and workers. It does not require a separate system but can be integrated within services for other NCDs and diseases such as HIV/AIDS and TB. WHO emphasises the importance of building strong primary care systems to improve the accessibility and outcomes of healthcare. Effective diabetes care is greatly enhanced by good primary care but also requires an interdisciplinary approach from a range

of specialist healthcare workers and hospital services. These can be effectively utilised to strengthen primary care through mentoring, training, technical support and the provision of clinical leadership and policy and protocols.

The UN and its agencies need to work intensively with national governments to re-orient health systems from the traditional focus on acute, curative care to a more proactive and preventive continuing care model. This will involve training and equipping the in-country workforce to prevent and manage diabetes. It will require a strong emphasis self-management education to enhance the knowledge, skills and confidence of individuals to self-manage their diabetes effectively. Further, people with diabetes suffer up to three times higher rates of depression and anxiety compared with people without diabetes. Consequently, building the capacity of the workforce to deal effectively with diabetes needs to include training in basic counselling principles and skills.

Review and streamline procurement and distribution systems

There is irrefutable evidence that affordable, appropriate and adequate access to essential medicines, diagnostic technologies and supplies for diabetes reduces complications and improves health outcomes. Such access requires a reliable and transparent system of procurement and distribution of essential diabetes medicines and technologies to all relevant health facilities. There are considerable savings to be made by stopping the loss and leakage of medicines that come as a result of corruption and poor planning. Strengthening health systems to forecast, prioritise, plan and monitor the procurement and use of essential medicines and supplies is critical. Essential medicines for treating diabetes are relatively inexpensive. With technical support from UN agencies and international donors, it is within the potential of all countries to deliver these to all who need them. WHO, in partnership with the international diabetes community, can develop a generic 'package' of 10-12 low-cost essential diabetes medicines. This could save millions of lives in developing countries.

Generate and use research evidence strategically

Generating evidence to underpin efforts to combat diabetes and related NCDs requires the engagement of a wide range of research methods and disciplines

including but not limited to laboratory and clinical medicine, public health, education, sociology, psychology, agriculture, architecture and planning and economics. Not all countries have the capacity to undertake comprehensive research but generating and applying local evidence into policy and practice can be a powerful tool for achieving the best value for healthcare expenditure. The effectiveness of research funds can be optimised by:

- developing a prioritised national research agenda that identifies knowledge and evidence gaps that currently hamper the prevention and control of diabetes
- building research capacity and supporting research focused on the identified priorities.

Processes and mechanisms need to be identified and agreed nationally to facilitate the feedback and uptake of relevant research findings into policy and practice. Further, efforts to evaluate methods and mechanisms for improving diabetes prevention, and for better and easier delivery of medicines and technologies, particularly in remote, resource-poor communities, should be pursued as a grand-scale global research challenge, as should finding a cure for both type 1 and type 2 diabetes.

Monitor, evaluate and communicate outcomes

Significant investment and specific budgets for robust monitoring and evaluation systems are urgently needed to assess the impact of interventions and underpin effective allocation of funds. Local capacity to collect, interpret and use data accurately and transparently across a range of sectors must be strengthened. At country level, data collection and reporting should be conducted by a central agency that is either part of, or designated by the government.

Regular reports (annual, or every two or five years) on relevant indicators of healthcare and outcomes should be made publicly available and used as a basis for continuing improvements to care delivery. Information from monitoring and research is ineffective if it is not communicated. Systems are required to ensure that people with diabetes, healthcare workers and governments have adequate and accurate information on which to base improvements to diabetes prevention and care, as well as to monitor progress on political commitments.

At the local level, healthcare workers must be able to record and retrieve essential information to guide treatment and care decisions. Systems with the capacity to share information between specialist and primary care and people with diabetes can greatly reduce duplication of services and increase appropriate use of services. Health systems and services and private healthcare organisations must be able to provide essential process and outcomes data to the government agencies responsible for monitoring the health of the population, and for evaluating national diabetes programmes needs to be developed to ensure quality and consistency.

Allocate appropriate and sustainable domestic and international resources

Innovative, sustained and predictable financing is urgently required to implement the Global Diabetes Plan and accelerate progress towards achieving internationally agreed development goals. Current resources allocated to diabetes and the other NCDs are starkly inadequate. Despite the evidence of the massive impact in low- and middle-income countries, less than 3% of the US \$22 billion health-related Official Development Assistance is allocated to NCDs. Diabetes and related NCDs need to be integrated into national and international health and development policies and plans, poverty reduction strategies, development assistance frameworks and country cooperation agendas. International donor countries should align aid to recipient country priorities, as agreed in the set of principles outlined in the Paris Declaration on Aid Effectiveness (2005). Most importantly, recipient countries need to prioritise requests for aid in line with the burden of disease in their countries. Scaled-up investment in health systems is also critical. Strong health systems require sustained investment over time. Mobilising domestic resources is an important strategy for assured and predictable funding and there are examples of some low- and middle-income countries for using tobacco and alcohol taxes to fund hospital infrastructure and NCD prevention programmes.

Adopt a whole of society approach

Diabetes is largely generated by the way we live, work, consume and do business. It is not created in the health system and cannot be solved by the health system alone. Mounting an effective global (and national) response to diabetes and related NCDs requires finding ways of working ethically and effectively with all levels and sections of society. Transparent public-private partnerships can be established and strengthened to foster innovation, spark new thinking and build new financing streams. Global agencies, national governments, donors, the private sector, civil society, healthcare workers and academia need to join forces in a concerted effort to respond to the challenges. It is vital to:

- engage business and industry and, for example, encourage:
 - property developers to improve building design for physical activity and social inclusion
 - the food industry to support wide availability of nutritious and affordable food and beverages, reduce marketing of unhealthy food and to adopt socially responsible business policies and practices.
- strengthen civil society, for example by supporting the establishment of new National Diabetes Associations and relevant non-government organisations, strengthening existing associations and encouraging solidarity between national diabetes associations in rich and poor countries.

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ACKNOWLEDGEMENTS

The Global Diabetes Plan 2011-2021 was developed by the International Diabetes Federation (IDF), under the overall guidance of Associate Professor Ruth Colagiuri, IDF Vice President and Chair of IDF's Task Force on Diabetes and Non-communicable Disease Prevention, Policy and Practice. It was conceived and initiated at an IDF Expert Meeting in September 2010, which was the first major activity in IDF's Diabetes Programme for the United Nations High-Level Summit on Non-Communicable Diseases. IDF gratefully acknowledges:

The writing team:

Ruth Colagiuri, Jonathan Brown and Katie Dain – supported by Sheree Dodd and Ann Keeling from the IDF Executive Office

And the participants at the September 2010 IDF Expert Meeting:

Professor Jean Claude Mbanya (IDF President)
Dr Abdullah Ben-Nakhi
Professor Knut Borch-Johnsen
Dr Jonathan Brown (IDF Vice-President)
Professor Ib Bygbjerg
Professor Juliana Chan
Associate Professor Ruth Colagiuri (IDF Vice-President)
Professor Maximilian de Courten
Anne-Marie Felton (IDF Vice-President)
Sir Michael Hirst (IDF President Elect)
Dr K. M. Venkat Narayan
Dr Kaushik Ramaiya (IDF Vice-President)
Professor Robert Ratner
Dr Gojka Roglic
Professor Nick Wareham
Wim Wientjens (IDF Vice-President)

The International Diabetes Federation also thanks the numerous diabetes experts worldwide who reviewed various drafts of the Global Diabetes Plan.

The production of this publication was made possible thanks to the generous support of:

Abbott Fund
Foundation of European Nurses in Diabetes
Johnson & Johnson
Lilly Diabetes
Medtronic Foundation
Novo Nordisk
Roche Diagnostics
World Diabetes Foundation

ANNEX 1: ACRONYMS

ART	Anti-retroviral treatments
BMI	Body mass index
CVD	Cardiovascular disease
DSME	Diabetes self-management education
GDM	Gestational diabetes mellitus
HbA1c	Glycosylated haemoglobin A1c
HIV	Human immunodeficiency virus
IDF	International Diabetes Federation
IFG	Impaired fasting glucose
IGT	Impaired glucose tolerance
LMCs	Low- and middle-income countries
MDGs	Millennium Development Goals
NCD	Non-communicable disease
NDP	National Diabetes Programme
ODA	Official Development Assistance
TB	Tuberculosis
UDHR	United Declaration for Human Rights
UN	United Nations
USD	United States Dollar
WHO	World Health Organization

ANNEX 2: WHAT THE INTERNATIONAL DIABETES FEDERATION WILL CONTRIBUTE

The International Diabetes Federation (IDF) is an umbrella organisation of over 200 national diabetes associations in more than 160 countries. It represents the interests of the growing number of people with diabetes and those at risk. IDF has been leading the global diabetes community since 1950.

IDF's greatest strength lies in the capacity of its membership and the ability to ground global advocacy in the reality of local experience. Its members provide a massive volunteering force to advance the objectives of the Global Diabetes Plan, particularly in low- and middle-income countries where the Federation has a strong presence.

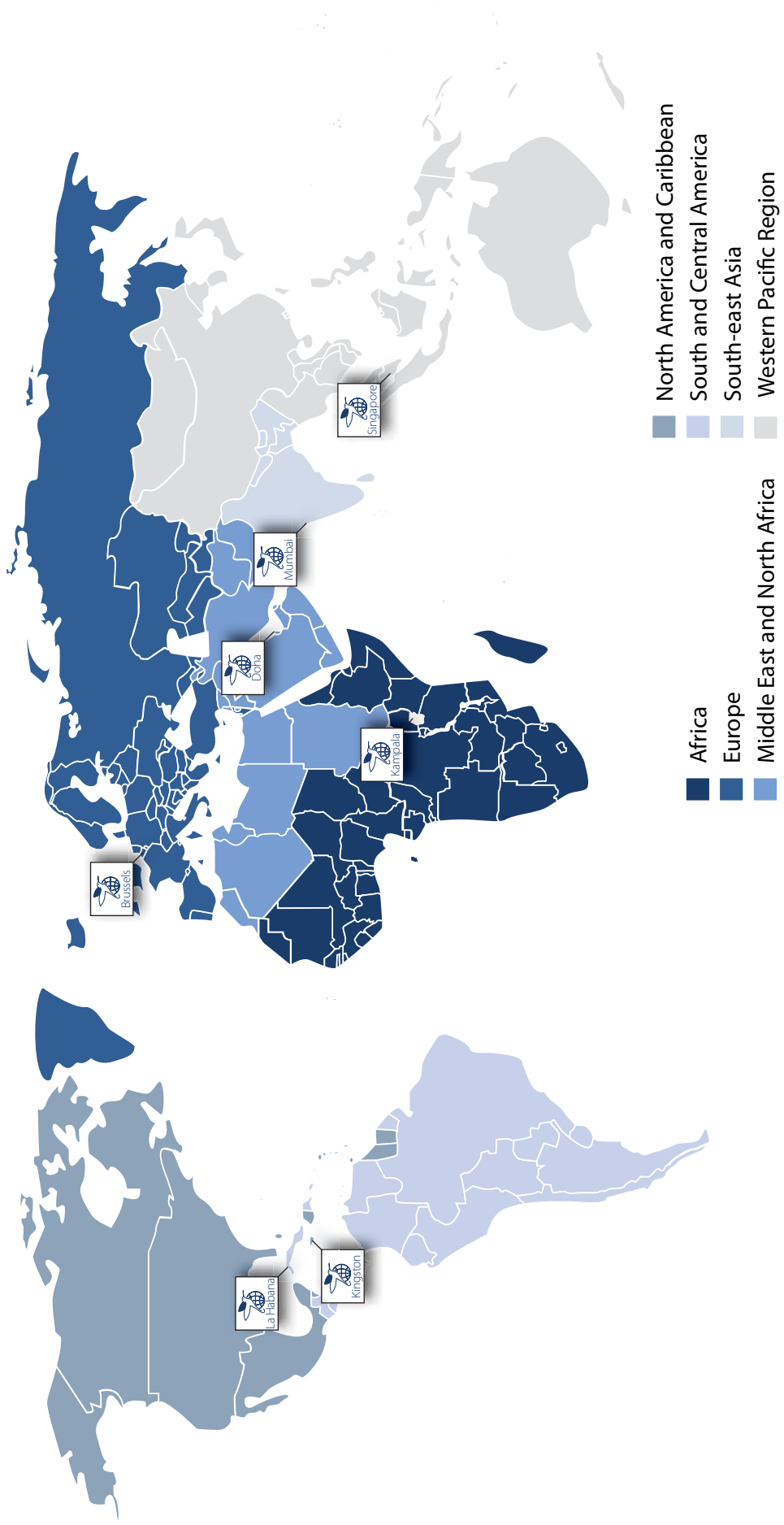
As a priority IDF will campaign to achieve the objectives and goals set out in the Global Diabetes Plan 2011-2021, working with influential partners such as our sister federations in the NCD Alliance (IDF, the International Union Against TB and Lung Disease, the Union for International Cancer Control and the World Heart Federation), WHO, World Economic Forum and senior private sector organisations. Experience and expertise gained during global campaigns – including the campaign to secure a UN High-Level Summit – means the Federation can make a powerful case for the actions proposed in this Plan to the widest possible audience including decision makers, policy developers, healthcare professionals and academics.

IDF will work through its Board, seven regional offices to advocate action on diabetes and to monitor and report to key stakeholders at regular intervals. The Federation can also call on the support and advice of international experts in various fields such as education, epidemiology, clinical practice and health economics. These volunteers who have significant professional expertise, experience and knowledge provide their advice through a formalised structure including the Board, Task Forces and Consultative Sections.

This Global Diabetes Plan is aligned with IDF's mission to promote diabetes care, prevention and a cure worldwide and it reflects our current Strategic Plan 2010-2012. It will guide the development of future Strategic Plans. Our strategic goals for 2010-2012 are:

- to drive change at all levels, from local to global, to prevent diabetes and increase access to essential medicines
- to develop and encourage best practice in diabetes policy, management and education
- to advance diabetes treatment, prevention and cure through scientific research
- to advance and protect the rights of people with diabetes, and combat discrimination.

Figure 2: Map of IDF regions and Regional Offices



ANNEX 3: GLOSSARY OF IDF RESOURCES

The International Diabetes Federation regularly publishes facts and figures, position statements, standards and guidelines. Practical tools such as education materials and advocacy documents are also available. A selection is listed below. All materials can be found on the IDF website at www.idf.org

Reports, facts and figures

- Annual Report
- Diabetes Atlas (Fifth edition published Nov 2011)
- Diabetes Voice

Resources, guides and tools

- A Guide to National Diabetes Programmes, 2010

Clinical management guidelines

- Global Guideline on Pregnancy and Diabetes, IDF Clinical Guidelines Task Force, 2009
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- Joint statement on Integrated Prevention of Non-Communicable Diseases, 2004
- Diabetes Education, 2004

- Diabetes and Kidney Disease, 2003
- Diabetes and Smoking, 2003
- Diabetes and Cardiovascular Disease (CVD), 2003

Education resources

- Diabetes Education Modules – Slides, CD-ROM and Leaflet, 2011
- International Curriculum for Diabetes Health Professional Education, 2008
- International Standards for Diabetes Education, Third Edition, 2003

Advocacy

- Calling the World to Action on Diabetes: An Advocacy Toolkit, 2011
- International Charter of Rights and Responsibilities of People with Diabetes, 2011
- A Call to Action on Diabetes, 2010
- Diabetes Roadmap to the UN High Level Summit on Non-Communicable Diseases (NCDs), 2010

NCD Alliance briefing papers and publications

- NCD Alliance Briefing Paper – Access to Essential Medicines and Technologies for NCDs, 2011
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- NCD Alliance Briefing Paper - A Focus on Children and Non-Communicable Diseases, 2011
- Non-Communicable Diseases: A Priority for Women's Health and Development, 2011
- Proposed Outcomes Document for the United Nations High-Level Summit on Non-Communicable Diseases, 2011
- NCD Alliance Plan for the United Nations High-Level Summit on Non-Communicable Diseases, 2010



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