

# GLOBAL REPORT ON DIABETES



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# PREFACE



Diabetes is on the rise. No longer a disease of predominantly rich nations, the prevalence of diabetes is steadily increasing everywhere, most markedly in the world's middle-income countries.

Unfortunately, in many settings the lack of effective policies to create supportive environments for healthy lifestyles and the lack of access to quality health care means that the prevention and treatment of diabetes, particularly for people of modest means, are not being pursued.

When diabetes is uncontrolled, it has dire consequences for health and well-being.

In addition, diabetes and its complications impact harshly on the finances of individuals and their families, and the economies of nations. People with diabetes who depend on life-saving insulin pay the ultimate price when access to affordable insulin is lacking.

In an effort to address this growing health challenge, since early this decade world leaders have committed to reducing the burden of diabetes as one of four priority noncommunicable diseases (NCDs).

As part of the 2030 Agenda for Sustainable Development, Member States have set an ambitious target to reduce premature mortality from NCDs – including diabetes – by one third; achieve universal health coverage; and provide access to affordable essential medicines – all by 2030.

We have an enormous task at hand, which is why I welcome this first WHO *Global report on diabetes*. The report makes an important contribution to our understanding of diabetes and its consequences.

It advances our understanding of trends in diabetes prevalence, of the contribution of high blood glucose (including diabetes) to premature mortality, and of what action governments are taking to prevent and control diabetes.

From the analysis it is clear we need stronger responses not only from different sectors of government, but also from civil society and people with diabetes themselves, and also producers of food and manufacturers of medicines and medical technologies.

The report reminds us that effectively addressing diabetes does not just happen: it is the result of collective consensus and public investment in interventions that are affordable, cost-effective and based on the best available science.

Please join me in ensuring that the findings of this report are used and its recommendations implemented so that we may indeed halt the rise in diabetes.

**Dr Margaret Chan**  
Director-General  
WHO

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# EXECUTIVE SUMMARY

Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces. Diabetes is an important public health problem, one of four priority noncommunicable diseases (NCDs) targeted for action by world leaders. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades.

## GLOBAL BURDEN

Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The global prevalence (age-standardized) of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. This reflects an increase in associated risk factors such as being overweight or obese. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries.

Diabetes caused 1.5 million deaths in 2012. Higher-than-optimal blood glucose caused an additional 2.2 million deaths, by increasing the risks of cardiovascular and other diseases. Forty-three percent of these 3.7 million deaths occur before the age of 70 years. The percentage of deaths attributable to high blood glucose or diabetes that occurs prior to age 70 is higher in low- and middle-income countries than in high-income countries.

Because sophisticated laboratory tests are usually required to distinguish between type 1 diabetes (which requires insulin injections for survival) and type 2 diabetes (where the body cannot properly use the insulin it produces), separate global estimates of diabetes prevalence for type 1 and type 2 do not exist. The majority of people with diabetes are affected by type 2 diabetes. This used to occur nearly entirely among adults, but now occurs in children too.

## COMPLICATIONS

Diabetes of all types can lead to complications in many parts of the body and can increase the overall risk of dying prematurely. Possible complications include heart attack, stroke, kidney failure, leg amputation, vision loss and nerve damage. In pregnancy, poorly controlled diabetes increases the risk of fetal death and other complications.

## ECONOMIC IMPACT

Diabetes and its complications bring about substantial economic loss to people with diabetes and their families, and to health systems and national economies through direct medical costs and loss of work and wages. While the major cost drivers are hospital and outpatient care, a contributing factor is the rise in cost for analogue insulins<sup>1</sup> which are increasingly prescribed despite little evidence that they provide significant advantages over cheaper human insulins.

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1. These are insulins derived from human insulin by modifying its structure to change the pharmacokinetic profile.

## PREVENTING DIABETES

Type 1 diabetes cannot be prevented with current knowledge. Effective approaches are available to prevent type 2 diabetes and to prevent the complications and premature death that can result from all types of diabetes. These include policies and practices across whole populations and within specific settings (school, home, workplace) that contribute to good health for everyone, regardless of whether they have diabetes, such as exercising regularly, eating healthily, avoiding smoking, and controlling blood pressure and lipids.

Taking a life-course perspective is essential for preventing type 2 diabetes, as it is for many health conditions. Early in life, when eating and physical activity habits are formed and when the long-term regulation of energy balance may be programmed, there is a critical window for intervention to mitigate the risk of obesity and type 2 diabetes later in life.

No single policy or intervention can ensure this happens. It calls for a whole-of-government and whole-of-society approach, in which all sectors systematically consider the health impact of policies in trade, agriculture, finance, transport, education and urban planning – recognizing that health is enhanced or obstructed as a result of policies in these and other areas.

## MANAGING DIABETES

The starting point for living well with diabetes is an early diagnosis – the longer a person lives with undiagnosed and untreated diabetes, the worse their health outcomes are likely to be. Easy access to basic diagnostics, such as blood glucose testing, should therefore be available in primary health-care settings. Established systems for referral and back-referral are needed, as patients will need periodic specialist assessment or treatment for complications.

For those who are diagnosed with diabetes, a series of cost-effective interventions can improve their outcomes, regardless of what type of diabetes they may have. These interventions include blood glucose control, through a combination of diet, physical activity and, if necessary, medication; control of blood pressure and lipids to reduce cardiovascular risk and other complications; and regular screening for damage to the eyes, kidneys and feet, to facilitate early treatment. Diabetes management can be strengthened through the use of standards and protocols.

Efforts to improve capacity for diagnosis and treatment of diabetes should occur in the context of integrated noncommunicable disease (NCD) management to yield better outcomes. At a minimum, diabetes and cardiovascular disease management can be combined. Integrated management of diabetes and tuberculosis and/or HIV/AIDS can be considered where there is high prevalence of these diseases.

## NATIONAL CAPACITY FOR PREVENTION AND CONTROL OF DIABETES

National capacity to prevent and control diabetes as assessed in the 2015 NCD Country Capacity Survey varies widely by region and country-income level. Most countries report having national diabetes policies, as well as national policies to reduce key risk factors and national guidelines or protocols to improve management of diabetes. In some regions and among lower-income countries, however, these policies and guidelines lack funding and implementation.

In general, primary health-care practitioners in low-income countries do not have access to the basic technologies needed to help people with diabetes properly manage their disease. Only one in three low- and

middle-income countries report that the most basic technologies for diabetes diagnosis and management are generally available in primary health-care facilities.

Many countries have conducted national population-based surveys of the prevalence of physical inactivity and overweight and obesity in the past 5 years, but less than half have included blood glucose measurement in these surveys.

## ACCESS TO INSULIN AND OTHER ESSENTIAL MEDICINES

The lack of access to affordable insulin remains a key impediment to successful treatment and results in needless complications and premature deaths. Insulin and oral hypoglycaemic agents are reported as generally available in only a minority of low-income countries. Moreover, essential medicines critical to gaining control of diabetes, such as agents to lower blood pressure and lipid levels, are frequently unavailable in low- and middle-income countries. Policy and programme interventions are needed to improve equitable access.

## CONCLUSIONS AND RECOMMENDATIONS

This first WHO *Global report on diabetes* underscores the enormous scale of the diabetes problem, and also the potential to reverse current trends. The political basis for concerted action to address diabetes is there, woven into the Sustainable Development Goals, the United Nations Political Declaration on NCDs, and the WHO NCD Global Action Plan. Where built upon, these foundations will catalyse action by all.

Countries can take a series of actions, in line with the objectives of the WHO NCD Global Action Plan 2013–2020, to reduce the impact of diabetes:

- Establish national mechanisms such as high-level multisectoral commissions to ensure political commitment, resource allocation, effective leadership and advocacy for an integrated NCD response, with specific attention to diabetes.
- Build the capacity of ministries of health to exercise a strategic leadership role, engaging stakeholders across sectors and society. Set national targets and indicators to foster accountability. Ensure that national policies and plans addressing diabetes are fully costed and then funded and implemented.
- Prioritize actions to prevent people becoming overweight and obese, beginning before birth and in early childhood. Implement policies and programmes to promote breastfeeding and the consumption of healthy foods and to discourage the consumption of unhealthy foods, such as sugary sodas. Create supportive built

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