The Economics of Diabetes: Human and Social Effects

The global diabetes epidemic has devastating personal and social effects, far greater than most people imagine. Surprisingly, the highest costs of diabetes are not the hundreds of billions spent on complications that could have been prevented, although these expenditures are large, but the suffering imposed on families (death, disability and economic stress) and the resulting large annual losses in economic growth that harm everyone. Diabetes harms all people in society, not just those who live with diabetes.

From an economic point of view, these effects are tragic because proven, low-cost treatments are available to prevent most of them. Even in the poorest countries, many of these treatments would actually save medical care expenditures.

Death and disability

Diabetes is expected to cause 3.8 million deaths worldwide in 2007, roughly 6% of total world mortality, about the same as HIV/AIDS and malaria combined. Using World Health Organization (WHO) figures on years of life lost per person dying of diabetes, this translates into more than 25 million years of lost life each year.

The International Diabetes Federation (IDF) estimates that the equivalent of an additional 23 million years of life are lost each year to the disability and reduced quality of life caused by diabetes complications.

Losses to mortality and disability are particularly high in poor and middle-income countries, where people with diabetes are unlikely to get the treatments that are proven to prevent the disease’s killing and disabling complications. For example, in sub-Saharan Africa mortality from diabetes is four times higher than the world average.

In these locations, children with type 1 diabetes often die because governments do not ensure that insulin is available and affordable. Instead, many governments tax insulin at their borders, and prevent low-cost generic insulin from being sold. A recent comparison of three otherwise similar African countries showed the consequences. In Zambia, which has a program for insulin management, a person requiring insulin for survival can expect to live an average of 11 years. In Mali, the same person can expect to live for only 30 months, while in Mozambique that person will be dead within a year.

Needless deaths in children are tragic and affecting. Statistically, however, diabetes causes nearly all its death and disability in adults. As a result, many children’s lives are adversely affected by a diabetes-related death or disability in the family. This can mean that children must abandon education to supplement the household income or help care for an ailing relative. The economic impact of diabetes on the family can leave no money to pay for children’s medicine and schooling.
Family economic stress from diabetes

In the poorest countries, people living with diabetes and their families bear almost the entire cost of whatever medical care they can afford. In India, for example, the poorest people with diabetes spend an average of 25% of their income on private care. The most that they can pay for are treatments that keep them alive by blunting the highest, quickly fatal levels of blood sugar.

Where average incomes are higher, as in Latin America and the Caribbean, families still pay 40-60% of diabetes care costs out of their own pockets, which strictly limits the amount of care that they can get. Blood sugar regulating drugs alone are reported to account for about half of all spending. Little or no money is available to pay for the aspirin, ACEI-inhibitors, statins, and other cheap generic drugs that could prevent renal failure, heart attacks, strokes, and amputations.

IDF’s new estimates of national diabetes-care spending for 2007 include USD 6 per person with diabetes in Burundi, USD 10 in Tajikistan, USD 78 in Guyana, and USD 48 in Haiti. These amounts cannot even cover the annual wholesale price of a generic oral agent capable of preventing acute, life-threatening high-blood sugar.
Lost economic growth and development

The devastating effects of diabetes on families translate into significant losses for every individual in society. The mechanisms are many: loss of investments in trained labour; increased taxation (in all its forms) for medical care and support of the disabled; the economic failure of family units and small businesses; withdrawals of children from education (especially girls) to care for ailing relatives; AIDS, tuberculosis, crime and other adverse consequences of destitution; and the general loss of the hope and self-reliance that ultimately drive all economic growth.

Considering mainly the effects of premature mortality, WHO estimates that (between 2005 and 2014) diabetes, heart disease and stroke combined will cost:

→ $555.7 billion in lost national income in China,
→ $303.2 billion in the Russian Federation;
→ $336.6 billion in India;
→ $49.2 billion in Brazil
→ $2.5 billion even in a very poor country like Tanzania.

Much of the heart disease and stroke in these estimates is linked to diabetes.

If nothing is done, diabetes threatens to subvert the gains of economic advancement globally. Accounting for disability, the opportunity costs of care-giving and other factors might triple these WHO figures. Government budgets worldwide will face the immense strain of diabetes care on disability payments, pensions, social and medical service costs, and revenue. Furthermore, private health insurers and employers will face the spiralling costs of treating more and more people with diabetes.

Because diabetes is increasing faster in the world’s developing economies than in its developed ones, it is the developing world that will bear the brunt of lost economic growth. The economic opportunities that the United Nations wants to create for developing countries with its Millennium Development Goals will be greatly undermined by diabetes if treatments to prevent its complications are not used.

Better treatment can save money everywhere

The costly and fatal effects of diabetes arise largely from its complications, especially heart disease, stroke, amputation and kidney failure. These can be prevented or long-delayed by inexpensive, off-patent pills to control blood sugar, blood pressure, and bad cholesterol (which together reduce risks by more than half); by low-dose aspirin to reduce heart disease risk by 20-25 percent; by stopping smoking (the most important ‘treatment’ of all), and by adopting a healthy diet and exercise. The most effective way to prevent diabetes is by losing weight and getting exercise, but some pills also delay diabetes.

In 2006, the World Bank systematically assessed the cost-effectiveness and feasibility of diabetes interventions in developing countries. They identified 14 life-saving treatments that would be cost-effective in every developing region of the world, including four that would
actually save money for everyone. The four cost-saving treatments are simple, minimal control of high blood sugar and high blood pressure, foot care in people at high risk of ulcers, and preconception care for women with diabetes. Subsequent research would add a daily aspirin and possibly a daily statin drug to this list.

These diabetes treatments are not only inexpensive and cost-saving, they are straightforward to distribute and easy for patients to take. Side-effects are rare at proposed dosages. Regular monitoring is not essential. The pills are almost too inexpensive to be worth the risk of counterfeiting. And treatments like these flow easily through a country’s existing, locally governed healthcare infrastructure, strengthening the core institutions on which every nation’s health ultimately depends.

Tragically, most of the cost-saving treatments recommended by the World Bank are rarely used outside the industrialized world, despite saving medical care costs. A major reason is that most of the health budgets of the poorest countries come from outside donors. These donors focus almost all their resources on infectious disease and diseases affecting children. However, because illness is the most important cause of destitution in the developing world, the death, disability and poverty of parents and grandparents resulting from diabetes and cardiovascular disease can have a devastating impact upon dependent children and grandchildren.

Global medical care expenditures for diabetes

World expenditures for diabetes treatment are growing more quickly than world population. In 2007, the world is estimated to spend at least USD 232 billion to treat and prevent diabetes and its complications. By 2025, this lower-bound estimate will exceed USD 302.5 billion.

→ In industrialized countries, about 25% of the medical expenditures for diabetes go to treating elevated blood sugar; 25% go to treating long-term complications, largely cardiovascular disease and 50% are consumed by the additional general medical care that accompanies diabetes.

→ For example, expenditures for a person with diabetes who has end-stage kidney disease are 3 to 4 times higher than expenditures for a person with diabetes and no complications.

→ In the United States, acute hospitalization consumes 44% of diabetes-attributable costs; followed by:
  → 22% for outpatient care;
  → 19% for drugs and supplies; and
  → 15% for nursing care.

→ Similar proportions are reported for other high-income countries such as Finland.

→ In middle-income countries, half of diabetes medical expenditures are used for blood sugar control, which is essential for the prevention of acute life-threatening hyperglycaemia. The remainder is split between general medical care and chronic complications.
“The prevention and treatment of diabetes can be highly cost-effective and often cost-saving.”

In Latin America and the Caribbean, drugs to reduce blood sugar levels are believed to account for about 50% of all spending.

It is believed that in low-income countries almost all expenditure for diabetes is directed towards drugs to prevent death from high blood sugar.

Disparities in spending for medical care

More than 80% of expenditures for medical care for diabetes are made in the world’s economically richest countries.

Less than 20% of expenditures are made in the middle- and low-income countries where 80% of people with diabetes will soon live.

One country, the United States of America, is home to about 8% of the world’s population living with diabetes and spends more than 50% of all global expenditures for diabetes care.

Europe accounts for another quarter of diabetes-care spending.

The remaining industrialized countries, such as Australia and Japan, account for most of the rest.

In the world’s poorest countries, not enough is spent to provide even the least expensive life-saving diabetes drugs.

If nothing changes, the disparity in spending for diabetes care between the industrialized countries and the rest of the world will increase.

Access to care

Although the medical care costs of diabetes are much higher in industrialized countries, nearly all of them have organized medical care insurance systems and/or governmental provisions for medical services. This allows families to survive financially when diabetes strikes. However, costs in these countries are higher than they need to be because insufficient
money is invested to prevent expensive complications such as heart disease, stroke, kidney disease and amputations.

In developing countries, most people living with diabetes bear the brunt of the medical costs out of their own pocket, because the majority of such countries lack an adequate healthcare infrastructure. Health budgets are usually very low compared to military and other expenditures. Imported medicines are taxed for revenue, not subsidized. Doctors and nurses are poorly paid and often emigrate to richer countries or leave the core medical care system for the higher salaries paid by outside donors for infectious disease control. Kickbacks and inappropriate incentives from drug manufacturers are not unknown. Drug distribution by governments is unreliable, forcing people to buy from private pharmacies, which charge high prices. Health insurance to spread risk is largely unknown.