OVERVIEW

Diabetes onset occurs when the body fails to produce or effectively use insulin, resulting in raised glucose levels in the blood, also known as hyperglycemia. Improperly managed, the disease has deadly and debilitating consequences. The same risk factors for diabetes also contribute to the three other major non-communicable diseases (NCDs) - cardiovascular disease, cancer and chronic respiratory illness. Such chronic diseases have recently been recognized as a critical public health issue in developing countries.

- More than 220 million people worldwide have diabetes
- Over 80 percent of deaths occur in low- and middle-income countries
- Risk factors are both genetic (insulin gene) and modifiable (obesity and elevated blood pressure)
- In 2010, the burden of diabetes on the world economy reached an estimated $376 billion (USD)
- Businesses can mitigate the burden of diabetes and other NCDs through workplace and community programs, by using core competencies and by engaging in advocacy efforts.

DIABETES: THE PROBLEM

Typically perceived as a disease of wealthy countries, diabetes is now rising rapidly in low and middle-income countries. The WHO expects diabetes-associated mortality to double between 2005 and 2030, with 80 percent of deaths occurring in the developing world.

Africa has the lowest diabetes burden, with 12.1 million people living with the disease as of 2010. This number is expected to rise to 20 million by 2025. China is home to 92.4 million people living with diabetes; India ranks second with 50.8 million. Globally, a large percentage of diabetics remain undiagnosed.

Rising diabetes prevalence in the developing world can be attributed to a number of factors. Rapid urbanization has led to reduced physical activity and unhealthy lifestyle choices around tobacco and junk food. In the past, people living in developing countries consumed energy-dense food, important for a traditionally labor-intensive lifestyle. Today, the shift to an urban, less active lifestyle paired with unhealthy eating habits results in increased obesity and elevated blood pressure – both risk factors for diabetes.

The rising incidence of type 2 diabetes among children has been linked to gestational diabetes (GDM), which occurs during pregnancy. Low birth weight and a limited supply of nutrients as a fetus, which are results of GDM, permanently change the physiology and metabolism of a child, increasing the risk of developing diabetes, hypertension, cardiovascular disease and coronary heart disease later in life.

<table>
<thead>
<tr>
<th>DIABETES: THE DISEASE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Types</strong></td>
</tr>
<tr>
<td>- <strong>Type 1</strong>: autoimmune disorder normally seen in children, teenagers and young adults; occurs when the pancreas does not produce enough insulin. Causes are unknown, but environmental factors (i.e. viral infections) are identified contributors</td>
</tr>
<tr>
<td>- <strong>Type 2</strong>: develops at any age; begins with insulin resistance. The inability of the body to effectively use the insulin it produces creates a need for additional insulin to assist glucose in entering cells for energy use. Risk factors include obesity, poor diet, physical inactivity, increasing age and ethnicity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Cardiovascular disease, kidney disease, nerve disease and eye disease resulting in amputations and blindness</td>
</tr>
<tr>
<td>- Offspring and their mothers who had GDM may develop type 2 diabetes later on in life</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>Fasting Plasma Glucose Test (FPG)</strong>: preferred diagnostic method for its convenience and low cost; taken after a person has not eaten for 8 hours</td>
</tr>
<tr>
<td>- <strong>Oral Glucose Tolerance Test (OGTT)</strong>: more sensitive in diagnosing, but less convenient to administer; taken after a person has not eaten for 8 hours and 2 hours after drinking a glucose-containing beverage</td>
</tr>
<tr>
<td>- <strong>A1C Test</strong>: measures the percentage of glycated hemoglobin, or HbA1c, in the blood; provides average blood glucose control for the past 2-3 months and confirms self-testing results</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment &amp; Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Both types require close monitoring and can be managed through healthy eating &amp; physical activity</td>
</tr>
<tr>
<td>- <strong>Type 1</strong>: controlled through insulin injections, blood glucose testing</td>
</tr>
<tr>
<td>- <strong>Type 2</strong>: blood glucose testing, oral or injection drugs such as metformin, glipizide, and pioglitazone and insulin</td>
</tr>
</tbody>
</table>
HOW DIABETES AFFECTS BUSINESS

In 2030, the burden of diabetes on the global economy is expected to reach $490 billion (USD). In developing countries, diabetes has yet to be fully prioritized at the national level as a key health issue. Policy and program efforts tend to focus more heavily on infectious diseases like HIV/AIDS, tuberculosis and malaria. As a result, diabetes management costs fall almost entirely upon the individual, often at great expense. In Mozambique, Mali and Vietnam, diabetes care can cost 50-75 percent of per capita income.

Diabetes management is not only expensive but it is also time-intensive. Diabetics must carefully monitor medication intake and insulin injections; these are daily tasks that must occur during working hours and could potentially impact productivity. Companies employing diabetics also often bear the cost of treatment, either through insurance programs or direct service provision through on-site clinics.

WHAT CAN BUSINESS DO?

WORKPLACE

**Elements of a Workplace Diabetes Program**

Wellness and lifestyle programs are well established in companies operating in developed countries. In developing countries, however, such programs are often new, with potential to improve and expand. Especially today, as diabetes prevalence rates rise rapidly in China, India and South Africa, businesses should seize the opportunity to implement strong workplace programs early on.

Companies can effectively manage diabetes through workplace programs that include the following elements:

- corporate health policy that covers diabetes
- education and risk management
- proper case management and screening
- ongoing monitoring and evaluation

**Corporate health policies** can create an enabling environment for employees to manage their diabetes. They can include time for regular blood glucose testing, opportunities to exercise during the workday and time to maintain a healthy dietary regimen. Policies should also address diabetes-related stigma and discrimination and ensure that privacy around employee health status is always maintained.

**Education and risk management** can be conducted directly through awareness-raising around risk factors and consequences, or indirectly via healthy modifications to the workplace setting. For example, companies can hold educational seminars to promote healthy living and avoid risky behavior. Prevention methods are vital, since 80 percent of type 2 diabetes cases can be avoided through refining diet, increasing physical activity and improving the living environment. Education can be supplemented with screening programs that help assess diabetes risk.

**Case management** including eye exams, foot care programs and blood pressure control treatment can reduce the risk of stroke, heart disease and other diabetes-related complications. The risk of blindness can be reduced by 50-60 percent if early referral for retinal eye exams and appropriate intervention is performed.

Just as a baseline assessment of diabetes in the workplace assists in developing programs, ongoing **monitoring and evaluation** can reveal how employees have benefited from interventions and what further assistance is needed.

**Leverage Existing Resources**

While developing a workplace diabetes program requires a certain level of corporate commitment, there are a number of existing resources and partners businesses can leverage for assistance. In other words, **companies do not have to go about this alone**. Companies can collaborate with health care providers, government officials and other businesses when implementing workplace diabetes programs. Various options exist for providing services and medical benefits to people with diabetes.

Diabetes organizations and alliances can provide guidance on diabetes management. The WHO suggests following The Innovative Care for Chronic Conditions framework (ICCC) specifically when operating in low and middle income countries. Organized along macro (policy and financing), meso (health care organization and community), and micro (patient and family) levels, the framework provides guidance on creating synergy between the patient, health care team and the community in addressing diabetes.

To access ICCC, visit [www.who.int/diabetesactiononline](http://www.who.int/diabetesactiononline).

Many developing countries have a well-established infrastructure in place to manage infectious diseases, particularly HIV/AIDS. Companies can build off of these programs, leveraging existing interventions and maximizing overall health outcomes (see box).
**Integrate Diabetes into HIV, TB and Malaria Workplace Programs**
Implementing wellness programs is relatively simple when entry points through existing health programs are utilized. One such entry point is an established HIV, TB and/or malaria program. By leveraging an infectious disease program in a targeted manner, companies can accelerate outcomes and impact on non-communicable diseases like diabetes.

**Launching points to engage on diabetes:**
- Train company HIV/AIDS peer educators on diabetes
- Expand company HIV/AIDS education seminars to include diabetes
- Plan a Diabetes Awareness Day, modeling it after World AIDS, TB and/or Malaria Days
- Adapt relevant components of the DOTS TB framework to diabetes

**Benefits of integration:**
- Align prevention and case management activities
- Gain efficiencies by combining resources and learnings
- Expand employee trust in company’s commitment to workforce health

**COMMUNITY**
Managing diabetes does not stop at the end of the workday. Employees must continue monitoring and treatment at home, while also maintaining healthy living and eating habits. Family support is critical to helping those living with diabetes stay healthy. As such, workplace programs should also include family members. It is especially important to engage children, who are just establishing their eating and living habits, in education efforts. When employees and their families have access to the same education, screening and treatment options, there is greater probability for achieving the intended health impact.

Beyond the household level, companies can also support diabetes programs for the broader community. Such programs can include broad awareness-raising or even door-to-door screening for diabetes and other chronic diseases (see AMPATH-Kenya example)

**CORE COMPETENCE**
Companies large and small can also fight diabetes by utilizing their core business competencies and skills. For example, food manufacturers can leverage their marketing savvy to educate consumers on healthy living. They can also commit to providing information on the nutrient content of their products. Diabetes and drug manufacturers can develop access programs to ensure that affected individuals in developing countries are able to use their products.

Businesses outside of the food or healthcare industries can also contribute. As with the HIV, TB and malaria epidemics, the media and entertainment industries can lend expertise to support public education campaigns.

**ADVOCACY & LEADERSHIP**
Diabetes is just emerging as a key global health issue and still does not tend to draw as much attention as, for example, HIV. By advocating for diabetes now, business leaders have an opportunity to demonstrate early leadership on the issue.

**BENEFITS TO BUSINESS**

**A Healthy Workforce**
According to data collected from almost two million workers, the University of Michigan Health Management Research Center reported that individuals with health risks including obesity, cigarette smoking and high blood pressure are often less productive than healthier peers. Therefore, investing in human capital through workplace health promotion programs can yield higher returns from increased productivity. Not only will absenteeism and lost time due to illness be reduced, but businesses will also increase on-the-job productivity, reduce employee turnover and attract better workers. Workplace programs can also serve to engage employees and improve morale.

**Economic Returns**
Since medically high-risk employees are generally medically high-cost employees, providing workplace diabetes programs can lower a company’s healthcare costs. It is estimated that 75 percent of all healthcare costs are results of preventable chronic health conditions. By intervening, companies can better allocate resources and ultimately save money. In low and middle-income countries, addressing diabetes in conjunction with HIV, TB and malaria will achieve greater impact since symptoms of one disease may influence the other. Additionally, research shows that employers want communities in which they work to provide a pool of healthy, potential new employees and productive current employees. Health promotion efforts are not only important to immediate business success, but also contribute to long-term interests.

**A Healthy Economy**
Businesses are in a unique position to influence the lives of their employees and reverse increasing trends worldwide. Supporting a healthy environment in the workplace, where individuals spend a majority of their day, will ultimately spur a healthier climate in the
surrounding community and broader national population.

**Reputation-Building**
Awareness of diabetes and other NCDs has just recently emerged on the global health stage. By stepping up now to prevent and treat diabetes in resource-constrained areas, companies can become leaders. Action against diabetes in the workplace and community demonstrates social responsibility and conveys the image of an aware and concerned company.

**BEST PRACTICE EXAMPLES**
The following examples show how companies across various industries are addressing diabetes.

**LAFARGE – U.S.**
After analyzing company health data, Lafarge found a high percentage of diabetic employees, a high obesity rate and increasing prevalence of diabetes. The company decided to intervene through on-site health screening days for employees and dependents, incentivizing healthy behavior and revamping worksites to foster healthy lifestyles. After five years, Lafarge has realized real savings from their disease management programs, bringing medical claim payments down from 15 to 3 percent. The next step is implementation of the “Health and Wellness Roadmap” and expansion to international sites. When speaking on company health initiatives, Lafarge’s Director of Health Benefits and Employee Insurance says, “we have made it part of our culture.”

**CHEVRON - Global**
Chevron leverages learnings from HIV/AIDS programs to implement a workplace program for NCDs with the aim of increasing productivity, reducing lost worktime and motivating employees. Chevron encourages employees to “know your numbers” by providing an online or paper risk assessment. Employees then have access to self-help materials and coaching to decrease their risk or maintain a low risk of developing NCDs. The program targets lifestyle choices and resulting factors such as blood pressure, cholesterol, weight management, nutrition, smoking, stress and sleep. By standardizing assessment approaches, focusing on continuous improvement and relying on partnerships, Chevron has implemented the program in Nigeria, the Philippines and the US, with intentions of continued rollout to other countries of operation.

**AMPATH - Kenya**
GBCHealth’s Health at Home/Kenya Initiative supports the AMPATH (Academic Model Providing Access to Healthcare) program, which aims to dramatically increase the number of Kenyans who know their HIV status. Using groundwork established by a USAID-AMPATH partnership for addressing HIV, members of the faculty administering care have applied lessons learned to other chronic diseases, such as diabetes. The resulting organized system of care includes an electronic medical record, instructions on self-management and complications of diabetes, and glucose and ketone testing supplies as well as home glucose monitoring systems provided by Abbott Laboratories. In a resource-constrained setting, 2.5 million Kenyans have benefited from the diabetes program.

**DIAMLER – South Africa**
Daimler has taken measures to reduce the risk of NCDs in its workforce. The company’s health program encourages employees to watch their weight and diet, exercise and limit consumption of nicotine and alcohol. Health promotion teams offer advice and services to reduce and eliminate employees’ risk factors. Using the same approach used for HIV counseling and testing, employees who take advantage of company health services are offered screening of body mass index, blood pressure, blood glucose and cholesterol screenings.

**REFERENCES AND RESOURCES**
- Diabetes Facts, International Diabetes Federation, 2011
- Diabetes Fact Sheet, WHO, 2011
- The Evolution of Diabetes in the Rural, Resource-Constrained Setting of Western Kenya, Pastakia, Sonak D et al., 2011
- Diabetes Atlas, International Diabetes Federation, 2009
- Diabetes in the Workplace, International Labour Organization
- Making the Business Case, diabetessatwork.org, 2011
- Diabetes Action Online, WHO, 2011
- Diabetes mellitus and tuberculosis in countries with high tuberculosis burdens: individual risks and social determinants, Goldhaber-Fiebert, Jeremy D et al., 2010
- Care of Patients with Diabetes Mellitus, American Optometric Association, 2009
- National Health and Nutrition Examination Survey, CDC, 2004
- Diabetes Facts, World Diabetes Foundation, 2011
- Healthy Workforce 2010, Partnerships for a Healthy Workforce, 2010
- The Role of Clinical Preventive Services in Disease Prevention and Early Detection, National Business Group on Health, 2009

**About GBCHealth**
GBCHealth is a global coalition of over 200 private sector companies and top NGOs leading the business fight for improved global health. GBCHealth supports members by developing comprehensive workplace policies; supporting community programs; leveraging core competencies; facilitating leadership and advocacy by business leaders; and brokering partnerships. GBCHealth also manages the private sector delegation to the Global Fund to Fight AIDS, Tuberculosis and Malaria, serving as an entry-point for corporate collaboration and engagement with the Fund and its recipients worldwide. GBCHealth has offices in New York, Johannesburg, Beijing, Nairobi and Moscow.

www.gbchealth.org