

changing diabetes in Bangladesh through sustainable partnerships

In developing countries, rising diabetes rates present enormous challenges to poverty eradication and economic development. In Bangladesh, Novo Nordisk works with local partners to improve health for millions of people. As a result of efforts to strengthen healthcare quality, diagnosis and treatment rates are improving. These efforts create value both for the Bangladeshi society and for Novo Nordisk.

SUPPORT
QUALITY

TOGETHER
RESILIENCE

AMENA AND HUMAIRA NAJIB
Bangladesh
Amena and Humaira have type 1 diabetes

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Shared value grows out of partnerships. By working with local organisations to strengthen the healthcare infrastructure, we help build sustainable communities. The quality-of-life and economic improvements that follow are critical for the long-term success of our own business.

In other words, what's good for our customers is good for us. It's part of our Triple Bottom Line (TBL) principle. It's how we create shared value.

In Bangladesh, we do this by:

- **identifying and addressing barriers to appropriate diabetes care**

Historically, complex issues involving awareness, accessibility, affordability and availability have prevented millions of people who live with diabetes from receiving high-quality care

- **establishing partnerships with non-governmental organisations and local businesses**

Shared goals and a common vision within the Changing Diabetes® agenda allow Novo Nordisk and local groups to collaborate successfully

- **building sustainable business models with our partners**

Improvements in community health status stimulate the economy and create jobs – resulting in significant value to society

- Through these improvements, we expand our market, strengthen stakeholder relationships and generate employee engagement – resulting in significant value to Novo Nordisk

This Blueprint for Change case study shows what we can accomplish together when we all focus on improving people's health.

the business context

Developing nations offer multiple opportunities for improving people's lives and for business expansion for Novo Nordisk. But the success of any effort to create shared value in developing nations relies on first identifying challenges and opportunities, then partnering with local organisations in sustainable business models.

our challenges

Healthy, productive people are the foundation for sustainable development. Without a fully functional healthcare system, however, gains in population-health status are sporadic at best – making poverty reduction in the world's poorest countries elusive and sustainable economic growth unrealistic.¹

Universally, diabetes rates are on the rise. Together with several nutrition-related chronic diseases, these conditions constitute some of the leading causes of death worldwide. This epidemic places a huge burden on societies and health systems,² especially in countries where incomes are among the lowest in the world.

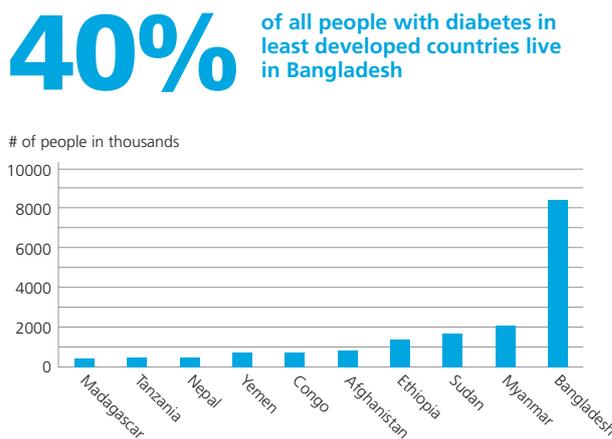
Bangladesh is a United Nations-designated least developed country (LDC)³ with a disproportionately high diabetes population. No studies have been conducted to evaluate the reasons behind the considerable differences in the diabetes prevalence among LDCs. There are, however, studies showing higher predisposition to diabetes among the Bangladeshi and Indian communities in the US.⁴ This partially explains the high diabetes prevalence in Bangladesh compared to other LDCs. Among all people living with diabetes in the 48 LDCs, more than one-third live in Bangladesh (Figure 1).⁵

In any country lacking a cohesive healthcare delivery system, a high burden of illness threatens sustainable development. In Bangladesh, diabetes is a particularly daunting challenge, with more than 12% of the adult population affected by diabetes or prediabetes. Nearly half of the population with diabetes is undiagnosed.⁵ Among those with diabetes, only 1 in 3 people is treated,⁶ and roughly 1 in 13 achieves treatment targets⁷ (Figure 2).

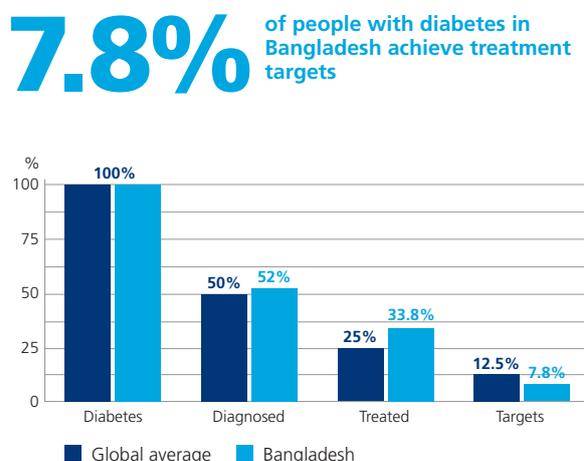
By several measures, standards of living in Bangladesh are rapidly improving. Its market-based economy is growing 6% annually – a rate greater than that of many economies of more developed nations (Figure 3).⁸ Over the past two decades, Bangladesh has also had one of the fastest growth rates in the Human Development Index, a UN-calculated measure of development that combines indicators of life expectancy, education and income.⁹

For these trends to be sustainable, health status in Bangladesh must continue to improve. This requires further strengthening of the healthcare system, combined with patient-focused investments in the quality of healthcare delivery.

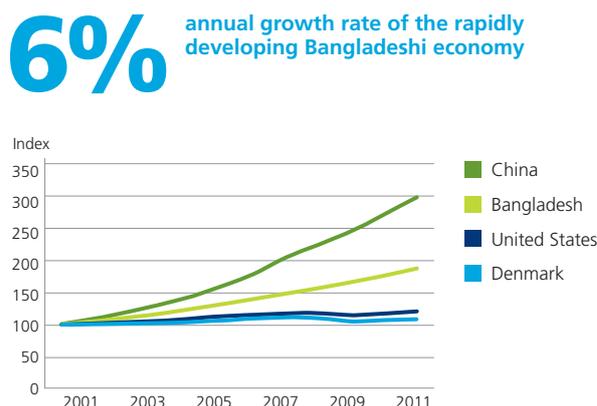
Distribution of people with diabetes in least developed countries Figure 1



Rule of halves, global average vs Bangladesh Figure 2



Gross domestic product (constant prices) Figure 3



the burden

Novo Nordisk estimates that in the next decade more than half of the new people with diabetes we serve will come from our International Operations (IO*) (Figure 4).¹⁰ Increases in population, diabetes prevalence and diagnosis as well as intensified treatment rates are expected to drive this growth.

In LDCs, healthcare systems are traditionally geared towards infectious diseases such as malaria, HIV and tuberculosis. This emphasis is understandable given that these are high-visibility conditions that threaten prosperity. However, as incomes, life expectancy and the number of people with chronic conditions such as diabetes rise, healthcare service demand begins to shift from infectious diseases to non-communicable diseases such as diabetes, cancer or cardiovascular disease.

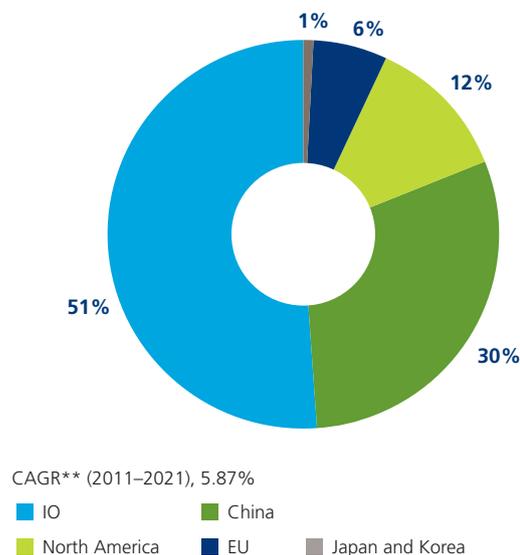
Obtaining care for non-communicable diseases, however, is not necessarily a simple proposition. A person living with diabetes in the developing world faces barriers that are frequently far less acute in more developed countries: awareness, accessibility, affordability, availability and quality of care (Figure 5). Diabetes-specific barriers include lack of patient education about diabetes and diabetes management, stigmatisation, too few clinics, poor training of healthcare professionals (HCPs) and the cost of products.¹¹

For nearly two decades, Novo Nordisk has worked in partnership with non-governmental organisations and local businesses to change diabetes in Bangladesh. With its rapid economic expansion and increasing rates of diabetes, Bangladesh presents an interesting case study in shared value. It is also an important example of the rationale for growing our business by addressing societal issues in LDCs.

Share of global growth by 2021 (patients)

Figure 4

51% of the patient growth is expected to come from International Operations



Barriers to care in developing countries

Figure 5

- Lack of education and awareness about diabetes, its complications and its cost

- It is difficult for many people with diabetes to remember medication and follow scheduling, many have a fear of injections, and many are stigmatised and have psychological issues



- Lack of high-quality HCPs and clinics, long distance to facilities and long waiting time for treatment

- Many cannot afford medicine and treatment services, the majority do not have health insurance or access to other finance solutions, and the healthcare system is lacking the necessary resources to treat diabetes

- Some medicines/package solutions are not available in the country or in the region

Note: The model has been developed together with BADAS and Accenture, and is based on "Access to Health: Our Approach", Novo Nordisk, 2011.

* IO covers South and Central America, the Middle East, Africa, Russia, Oceania, Australia and Asia (excl. Japan and China).

** CAGR: compound annual growth rate.

our key success factors

Understanding the challenges and opportunities is the foundation for success in any new market. But each market has unique characteristics, and in LDCs the presence or lack of certain institutional and process factors can make or break a business model.

In Bangladesh, we identified three critical success factors:

- A local champion
- Political will
- Economic resources

Local champion is a primary key

It is critical to identify and work with a local champion – someone who can maintain focus on the issues, consistently advocate for political will and help to secure economic resources. Changing diabetes in developing countries requires partnerships with public and private players who share our goal to improve healthcare delivery through sustainable business models (Figure 6). The champion in Bangladesh is the Diabetic Association of Bangladesh (BADAS). BADAS is a non-profit, volunteer sociomedical service, founded in 1956 by National Professor (Dr) Mohammed Ibrahim, who was able from a very early stage to foresee the diabetes challenge even though the extent of the problem was not well known at that time.

Influencing political will

BADAS's current President, Professor Azad Khan, is personally committed to changing diabetes in Bangladesh by strengthening healthcare delivery and directing the focus onto people living with diabetes. The association has grown from a single hospital to 99 centres located across the country providing services to 25% of the estimated diabetes population of the country. The ambition is to treat 50% of all people with diabetes by 2020 through advocacy efforts and partnerships with the government and private partners such as Novo Nordisk.

Adequate economic resources

Another critical factor in changing diabetes is the allocation of economic resources. While the national leadership's commitment to diabetes is laudable, basic issues of poverty limit the amount of resources available to confront rising diabetes prevalence. Novo Nordisk stepped in to provide economic resources that strengthened patient empowerment, access to treatment and advocacy in Bangladesh.

The World Diabetes Foundation (WDF) also provides resources to support these activities. The WDF was established to help meet the healthcare needs of people in the developing world who live with diabetes and prediabetes.

Having identified these success factors, Novo Nordisk is positioned to work with our partners to tackle the most significant barriers to diabetes care in Bangladesh – awareness, accessibility, affordability, availability and quality of care for patients. In doing so, we create value for both society and the company (Figure 7).



Professor Azad Khan, President of the Diabetic Association of Bangladesh

“ Changing diabetes in a developing country requires empowered patients and improved awareness, availability, affordability, accessibility and quality of care. We believe that these challenges should be met in partnership with stakeholders that all have sustainable business models. In partnership with Novo Nordisk we have managed to increase accessibility, awareness and affordability of quality diabetes care. Our partnership with Novo Nordisk has been going on for years and is based on shared fundamental values.”

– Professor Azad Khan, President of the Diabetic Association of Bangladesh

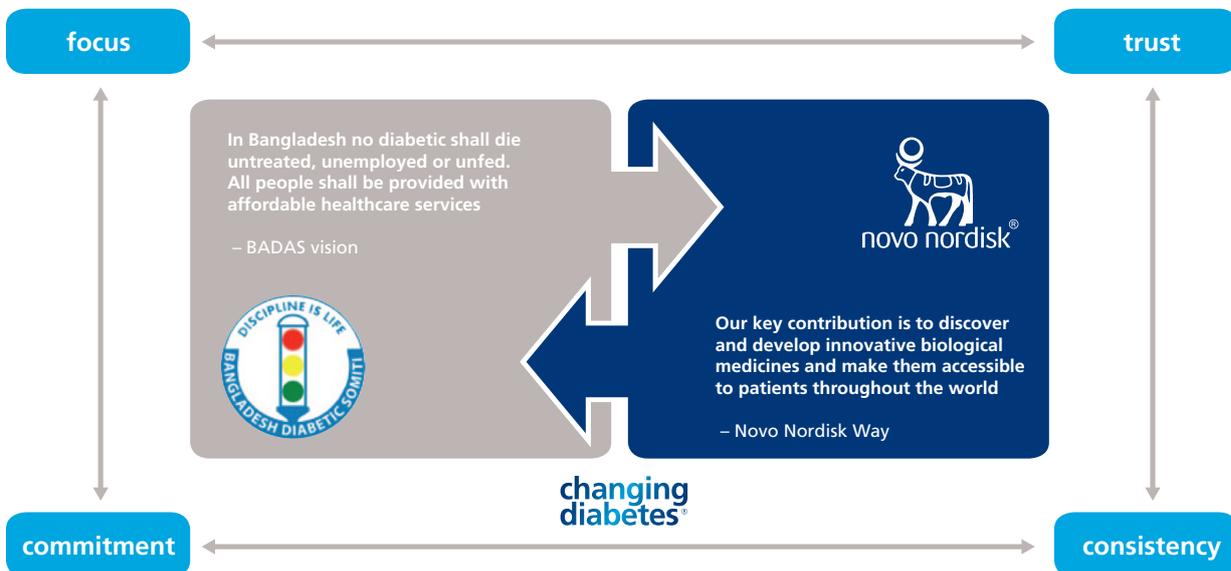
World Diabetes Foundation: making care possible

Through grant-making, the WDF has brought fundamental diabetes care and education at both city and thana (subdistrict) level across Bangladesh. WDF activities range from primary prevention and diabetes eye care to improving nutrition in the population and diabetes management through educators.

In 2001, Novo Nordisk established a 500 million Danish kroner (60 million US dollars in 2001) fund to finance the implementation of these projects over the subsequent decade.¹² Since then, the WDF has invested 2.9 million US dollars for these and other diabetes-related projects in Bangladesh, and has received an additional 4.5 million US dollars in cash and in-kind donations from partners, including BADAS, to expand its work.¹³ Through WDF-funded activities, more than 5.6 million people in Bangladesh have received diabetes care and prevention services.

Diabetic Association of Bangladesh: sharing a common vision

Figure 6



The success of Novo Nordisk’s partnership with BADAS is rooted in shared fundamentals: focus, commitment, consistency and trust. BADAS sponsors activities that focus on education, awareness, research, prevention and diagnosis, and seeks to make these activities self-sustaining.

BADAS has an ambitious goal to double the number of people it treats for diabetes. The societal value, in terms of health outcomes, is incalculable, especially if many of those who are treated reach recommended targets. To Novo Nordisk, the value can be expressed as sales potential: helping BADAS reach its treatment goal could more than double Novo Nordisk’s sales volume.

Investments in public health drive sustainable commercial returns and create shared value

Figure 7



Limiting disease onset or achieving high-quality care may improve the lives of patients and reduce the medical and non-medical cost to society

The most valuable patients are healthy people with diabetes who are loyal to our products and services

our approach

Addressing diabetes in LDCs will require transformational change. Myriad obstacles – insufficient healthcare system funding, too few healthcare providers and an inadequate medication distribution network, just to name a few – can prevent healthcare supply from keeping pace with demand driven by socioeconomic improvements.

Growth in demand for healthcare will also outstrip people’s ability to pay for it. Globally, 20% of diabetes healthcare expenditures were made in low- and middle-income countries, where 80% of people with diabetes live.⁵ According to the World Bank, per-capita healthcare spending in Bangladesh between 2007 and 2009 was constant at around 3% of gross domestic product (GDP), with no change in trend.¹⁴ To put it another way, infrastructural and funding deficiencies prevent healthcare companies doing business as usual in many LDCs.

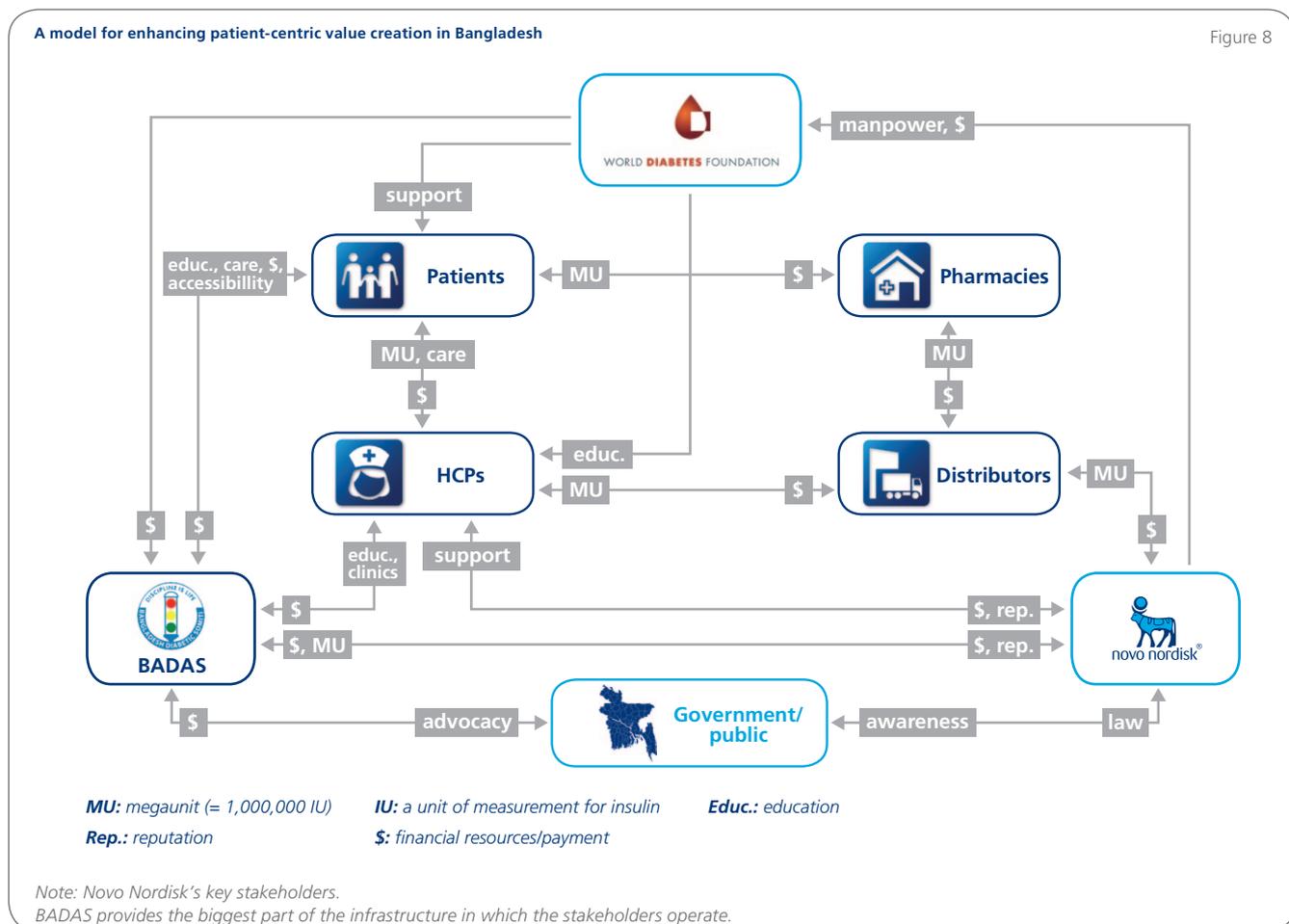
So what is the path to shared value?

At Novo Nordisk, our key contribution is to discover and develop innovative biological medicines and to make them accessible to patients throughout the world.¹⁵ This means that we partner with others, when necessary, to ensure access to healthcare. It is important that our partners are – or are on their way to becoming – sustainable businesses.*

We believe that the path to shared value requires:

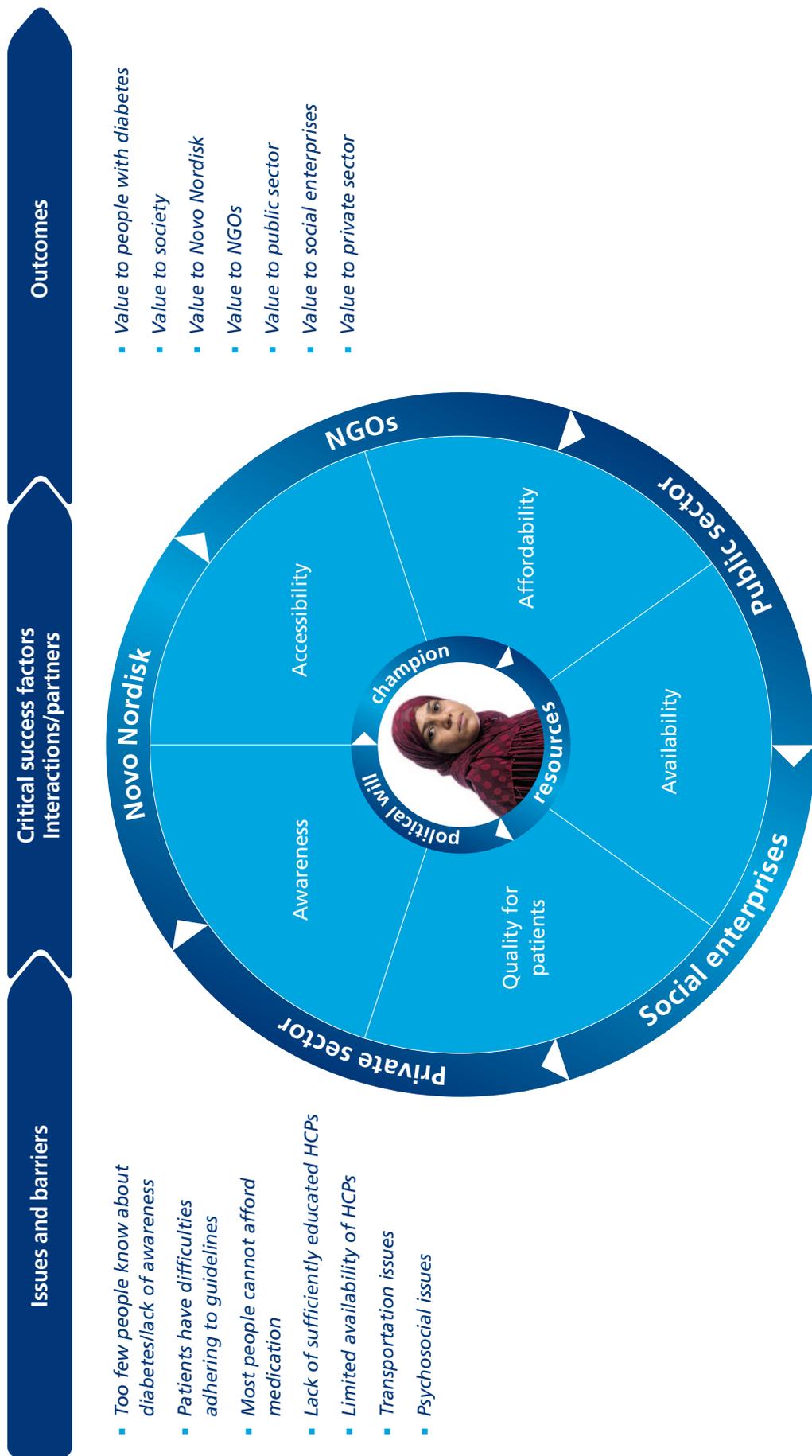
- Significant private sector or social entrepreneurship investments, in addition to government interventions
- A compelling business case that encourages private institutions to invest in healthcare infrastructure and services (Figure 8)
- Early market entry and extensive partnering with government, non-governmental institutions and private enterprises with an aligned vision for removing barriers to care and improving defined outcomes (Figure 9)

The gap between supply and demand for healthcare services will widen even further unless it is addressed. In Bangladesh, the flow of diabetes care services and products among key stakeholders is mapped in Figure 8. This diagram suggests how the diabetes-driven healthcare system in Bangladesh is balancing buying and selling interests.



* A sustainable business is defined as a corporation that generates revenue to sustain business while serving societal purposes.

Figure 9



The circle above illustrates that, firstly, issues and barriers to diabetes care should be identified and clear goals and expectations for the future outcomes should be developed. Secondly, appropriate partners should be involved in converging around the identified issues and barriers. When each partner puts the patient at the centre of the mission, and when critical success factors are in place, the effect can be far greater than any one party can accomplish on its own. It creates a path to shared value.

Note: The figure is inspired by the Accenture paper "Convergence Economy: Rethinking International Development in a Converging World", Bulloch G. et al., 2011.

addressing issues and barriers

Knowing the outcomes of addressing issues and barriers to shared value generation enables better future priorities.

our history

Novo Nordisk is a focused healthcare company. One advantage of our concentration on diabetes is that we can make patient-focused investments that offer substantial promise for growing our business in countries that might otherwise be perceived as high-risk markets.

Bangladesh is one place where entry may be perceived as high risk. In Bangladesh, we have managed those risks by engaging in sustainable business development with partners who share our vision for changing diabetes and improving people's lives.

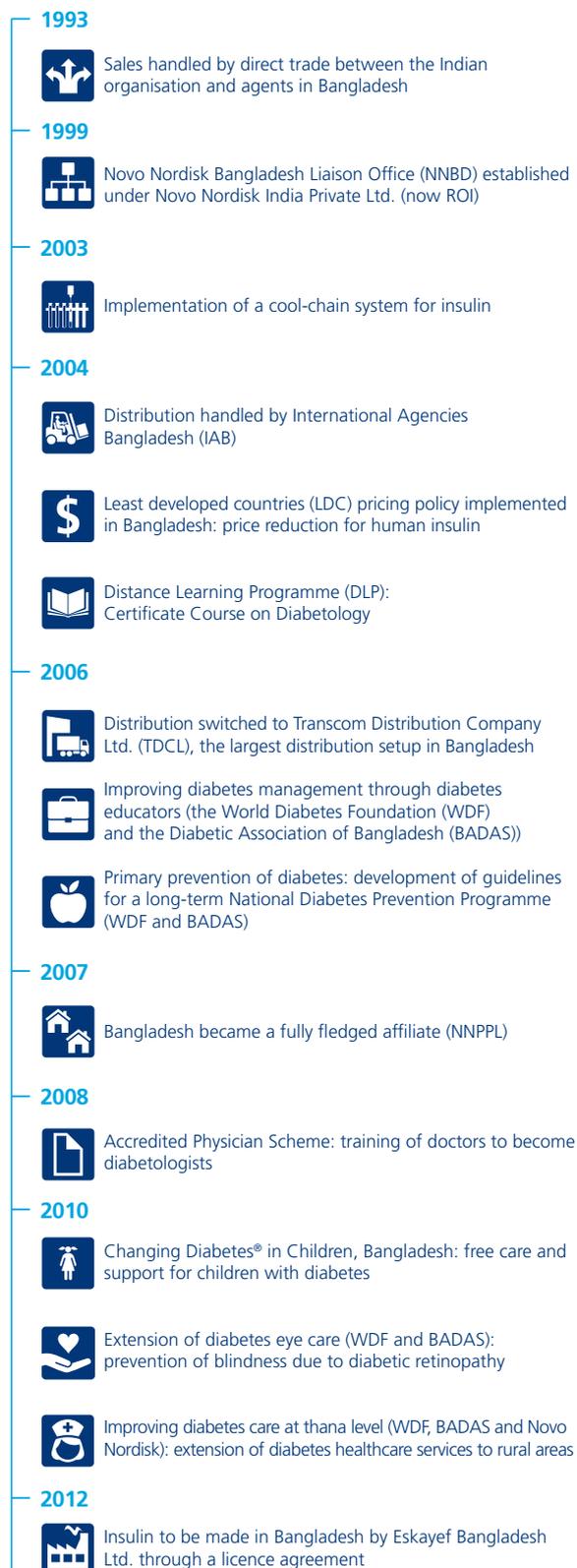
Novo Nordisk has been commercially active in Bangladesh for more than half a century, selling insulin in the country since 1957. We augmented our business activities in Bangladesh in 1993 and established a fully fledged affiliate in 2007.

We actively address barriers to high-quality diabetes care. In Bangladesh, we do this on several fronts: we broaden HCP knowledge about diabetes through the Distance Learning Programme (DLP); we make medications affordable through LDC pricing policies; we ensure that treatment for children is accessible and affordable through the Changing Diabetes® in Children Programme (CDiC); and we have increased the availability of high-quality medication by improving the distribution chain. Prevention has also been part of the initiatives which have been supported in Bangladesh by both the World Diabetes Foundation and Novo Nordisk. One outcome has been a collaboration with the imams in major cities who regularly preach on the importance of having a healthy lifestyle and with singers who promote healthy living when entertaining. Other programmes have resulted in general practitioners trained in delivering counselling to people with high risk factors for diabetes.

The initiatives, described in this report, are just a few of the many activities Novo Nordisk conducts with its partners in care in Bangladesh (Figure 10).

Examples of initiatives implemented by Novo Nordisk and its partners since 1993

Figure 10



accessibility: physician education

In Bangladesh, access to healthcare is startlingly poor. In a country of 149 million people,¹⁶ there are only 43,500 physicians¹⁷ – 1 for every 3,400 people. By contrast, in India this figure is 1 for every 1,700, and in Denmark 1 for every 300.¹⁸

For Bangladeshis living with diabetes, high-quality healthcare services are even more scarce. Only 58% of physicians in Bangladesh receive basic information about diabetes during their medical training, and only 24% are taught about diabetes management.¹¹ When Novo Nordisk entered the market, most of the doctors were reluctant to prescribe insulin due to lack of knowledge about insulin treatment and administration. In general, doctors receive only about five hours of diabetes training during their entire five-year course of medical study, underscoring an acute need for additional professional diabetes education.¹⁰

The impact of this is reflected in measures of health status that are unacceptable by any standard: low rates of people achieving diabetes treatment targets and high numbers of people living with diabetes complications.¹⁹ This situation is exacerbated by patients' lack of knowledge about diabetes; the vast majority of patients believe that diabetes is an infectious disease, that women with diabetes are not allowed to give birth and that diabetes should only be treated by traditional healers.¹¹

Distance Learning Programme

To improve physician knowledge about diabetes and improve quality of care, BADAS developed a Certificate Course on Diabetology (CCD). Established in 2004, the CCD is offered through BADAS's Distance Learning Programme (DLP).²⁰ Novo Nordisk is a financial supporter of the DLP.

The six-month programme consists of modules covering 10 different aspects of diabetes care and patient management. BADAS is committed to reaching as many general practitioners as possible throughout Bangladesh, with a goal of improving and standardising the treatment of diabetes in urban and rural areas.

Initially, the programme was offered free of charge. Over time, the DLP became so popular that it has since become self-sustaining. The DLP programme was expanded to the Accredited Physician Programme and then to the Extension of Diabetes Care in rural areas. It will soon be expanded to cover other non-communicable disease areas.

Value creation

Value to society

Since the launch of the programme, more than 4,500 doctors¹⁰ have received CCD certification. This means that to date 11% of all physicians in Bangladesh have received advanced training in diabetes through the DLP. These activities have opened up patient access to higher-quality care and led to demonstrable improvements in health outcomes.

Primary issue:

- Accessibility

Secondary issues:

- Quality for patients
- Awareness
- Availability

Barriers:

- Nationwide, 1 doctor for every 3,400 people
- Only 1 in 4 doctors trained to manage diabetes

Intervention:

- Distance Learning Programme

Partners:

- BADAS provides financial and human resources
- The Open University developed educational materials

Outcomes:

- 4,500 physicians completed the Certificate Course on Diabetology (CCD)
- Measurable improvements in quality of care and health status
- Increased market potential for Novo Nordisk

Best-practice care delivery

The Matrix study,¹¹ which evaluated the effect of the DLP on the quality of diabetes care, showed that DLP-trained physicians are better equipped to provide high-quality diabetes care than doctors who have not participated in the programme (Figure 11). Specifically:

- 57% more DLP-trained doctors feel prepared to give advice to patients on diabetes-related topics.
- 19% more have direct discussions with patients on various aspects of diabetes care.
- 29% more perform tests and measurements that are recommended by accepted practice guidelines; as such, it can be assumed that more patients are being diagnosed.¹¹

Another important finding is that 24% more DLP-trained physicians, compared with physicians who have not completed the DLP, believe that patients are following their advice.

DLP education has brought significant value to the Bangladeshi society. The programme improves physician knowledge and demonstrates positive effects of the quality of care for people with diabetes. In turn, by helping patients understand their disease, physicians can facilitate better patient adherence to medical advice and treatment regimens.

Improvements in patient health

One of the goals of diabetes care is to control the disease by getting patients' HbA1c* to accepted levels. The American Diabetes Association's recommended optimal HbA1c is < 7%.²¹

Health outcomes resulting from diabetes education can be measured in different ways. In Bangladesh, two studies have evaluated the effects of education on physicians and patients.

An analysis of registry data at BIRDEM** hospital suggests improved HbA1c outcomes for patients treated by DLP-educated doctors.²² Results indicate that patients cared for by DLP-trained doctors tend to have a lower HbA1c than patients treated by non-DLP physicians. If these results are confirmed in a larger study, it can be inferred that the DLP leads to improvements in quality of care, as well as patient awareness about their disease and appropriate ways to manage it.

Another study evaluated the effect of patient education and knowledge. Based on the larger DiabCare study, a cross-sectional study evaluating the status of Bangladesh, the data subsets support the conclusions of the BIRDEM study. On average, patients who receive basic diabetes care can expect to have HbA1c levels 3% lower than patients who do not receive education (Figure 12).⁷

Although patient education alone is not sufficient for achieving recommended HbA1c targets, the results suggest that education is an important factor in motivating patients to engage in self-care that reduces their risk of developing diabetes complications.

Value to Novo Nordisk

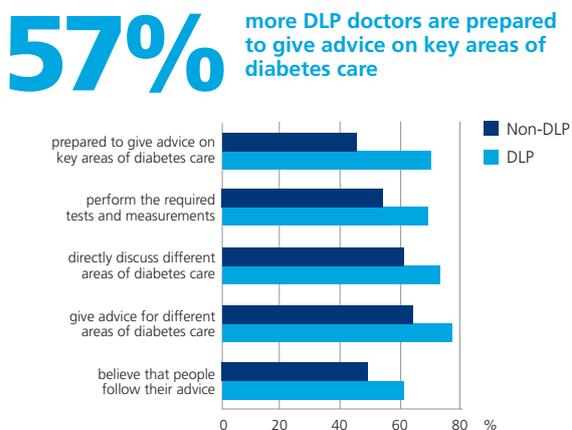
We believe that physician education improves quality of care. Through our partnership with BADAS, doctors in Bangladesh have a greater understanding of diabetes, its complications and how to manage its progression through treatment strategies. This focus on education also improves patients' knowledge about the disease and proper care.

Intuitively, the potential return on these investments could be framed in terms of increased sales. Sales of Novo Nordisk products have increased steadily in Bangladesh over the last five years. Though it would be difficult to measure the specific impact of improved quality of diabetes care on sales, we believe a correlation exists and that increased diagnosis rates resulting from the DLP may increase Novo Nordisk's market potential.

Further, we believe that our involvement in professional education activities strengthens Novo Nordisk's reputation and stakeholder support in the market. Our partnership with BADAS has generated significant value for both parties.

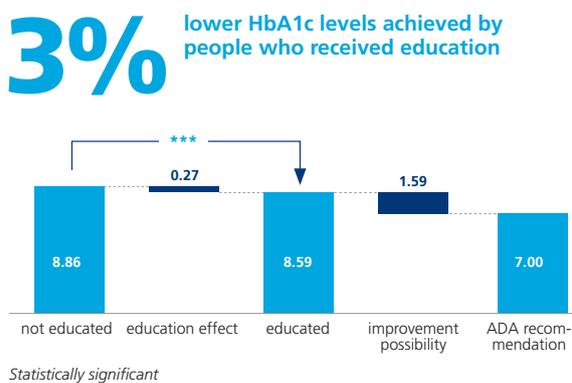
Physician performance: DLP vs non-DLP

Figure 11



Patient HbA1c levels in DiabCare study

Figure 12



Pilot batch of DLP students

* HbA1c: glycated haemoglobin, the average plasma glucose concentration over prolonged periods of time.

** BIRDEM: Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine & Metabolic Disorders.

affordability: pricing policy

Even though per-capita GDP in Bangladesh has increased significantly over the last 20 years,¹⁶ 40% of the population still lives below the poverty line.²⁴ In Bangladesh, poverty is defined as living on less than 2 US dollars per day.

Many people in Bangladesh cannot afford even the most basic medical care. Consequently, the share of people with diabetes meeting treatment targets is sadly low – contributing to a vicious cycle of poverty, poor health and low quality of life. As the number of people in Bangladesh who live with diabetes grows, the scarcity of resources means that the government has a limited ability to care for people with chronic health problems.

Differential pricing policy for least developed countries

To address the challenge of affordability in the world's poorest countries, Novo Nordisk decided in 2001 to offer human insulin products in LDCs at one fifth or less of their price in the western world.¹² Under this policy, prices for human insulin products sold on the open market are not to exceed 20% of their average price in North America, Europe and Japan. Furthermore, the price of insulin provided to LDC governments, private distributors and agents does not exceed US 20 cents per patient per day.²⁵ However, Novo Nordisk is unable to guarantee that the price at which the company sells the insulin will be reflected in the final price to the consumer.

Today, Novo Nordisk operates in 36 LDCs (Figure 13).²⁶ We believe that strong price reductions for essential medications in these countries – including Bangladesh – will make a meaningful difference in affordability and therapeutic outcomes for people with diabetes.

Novo Nordisk does not collaborate directly with other partners on diabetes cost containment in LDCs. Private companies and organisations, however, have taken steps to address affordability in these countries (see above box). The sum of these and our own efforts contributes to a holistic effect that can enable more affordable care and improve quality of life.

Primary issue:

- Affordability

Barriers:

- 40% of the population lives in poverty
- Unaffordable care means few people reach treatment targets

Intervention:

- LDC differential pricing policy

Indirect partners:

- BADAS provides free insulin and services for the poorest people with diabetes in Bangladesh
- Johnson & Johnson decreased prices on essential equipment, such as glucometers and glucometer strips²³

Outcomes:

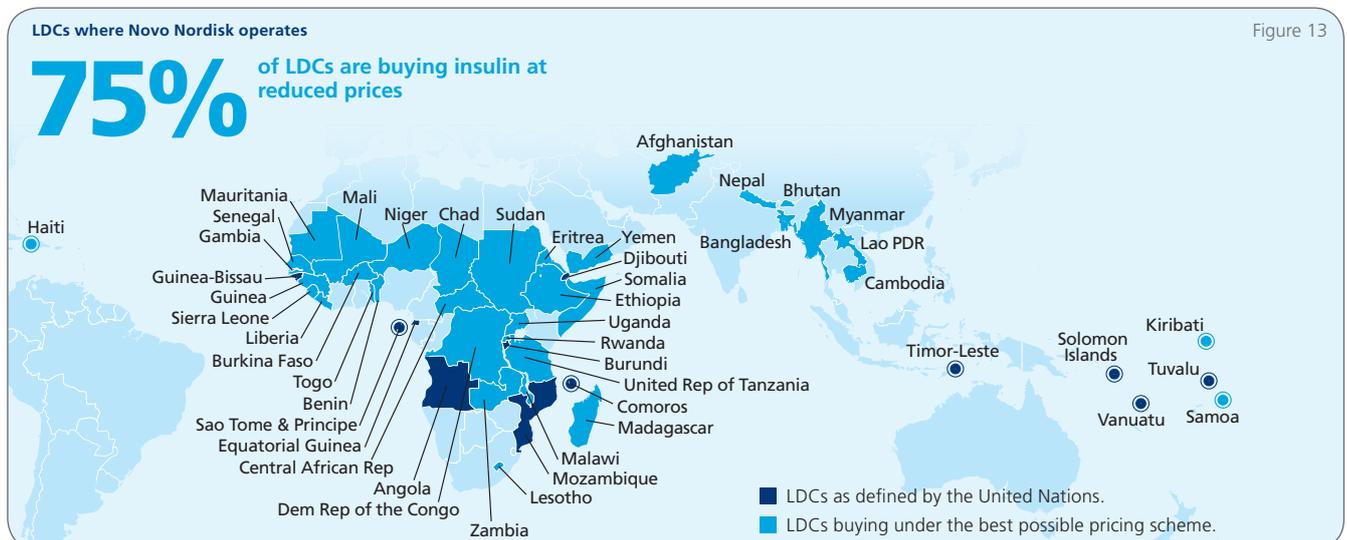
- Overall cost of diabetes care decreased 48% over 10 years
- Share of population that can afford care quadrupled
- Strong increases in market share for Novo Nordisk insulin

Value creation

Value to society

By addressing affordability together with other organisations, we have helped to reduce the cost of insulin diabetes treatment over time. Coupled with steadily rising economic standards in Bangladesh, the effect has been a marked increase in the share of the population that can afford diabetes care.

We estimate that the total cost of minimal diabetes care has decreased 48% over the past 10 years (Figure 14).¹⁰ The largest components of this decline were the cost of insulin, which dropped by 64% from 2001 to 2011, and the price of some supplies, such as glucose meters and strips, which fell 87% during the same period. In fact, supplies are becoming a commodity in what has become an established market with normal market dynamics. These were offset by the cost of professional services, which rose from 88 Danish kroner (16.92 US dollars) per patient per year in 2001 to 241 kroner (46.35 US dollars) (constant 2011 dollars).*



* Novo Nordisk standard currency exchange rate, January 2012. 1 DKK = 5.2 USD.

As a share of income, treatment costs decreased from 41% in 2001 to 12% in 2011.¹⁰ Similarly, the share of the population believed to be able to afford diabetes treatment has increased.

It is estimated that only 10–20% of people in Bangladesh would have been able to afford treatment for diabetes in 2001. Today, this figure is believed to have risen to 40% (Figure 14). This estimate is based on the cost of insulin treatment, GDP and purchasing power parity (PPP) per capita in 2001 and 2011 in Bangladesh. Furthermore, the estimate assumes that people need to earn 4 US dollars per day before they can begin to afford diabetes care. Owing to numerous variables, however, it is difficult to pinpoint how much money a person may have available to spend on his or her own health.

Value to Novo Nordisk

The LDC pricing policy has had a positive effect on Novo Nordisk. After the introduction of a differential pricing policy in Bangladesh in 2004, sales volume increased 7% in the first year.¹⁰ Extra compound annual growth attributable to LDC since then has averaged 2.3 percentage points (Figure 15), which is lower than might be expected from a price reduction.

Market share, on the other hand, increased significantly as a result of LDC pricing. In 2004, Novo Nordisk saw an 8.4 percentage point gain and a near 4 percentage point rise the following year (Figure 15).

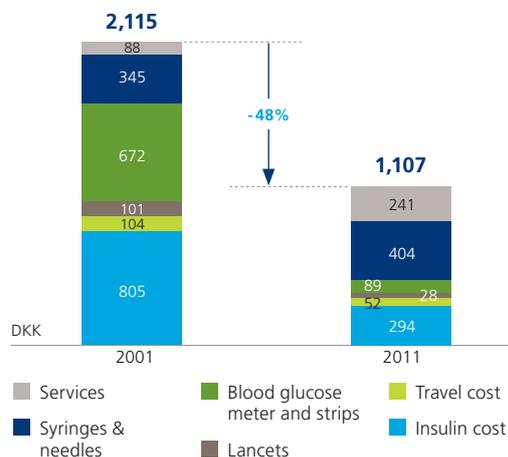
By increasing the share of people who can afford diabetes treatment with insulin, we have increased the potential market for Novo Nordisk products in Bangladesh. It is difficult to quantify this in monetary terms, but the market share curve in Figure 15 versus our market share projections without LDC pricing provides evidence of the benefit.

Much has been done to make basic diabetes care affordable to as many people with diabetes as possible. Still, many more cannot afford even minimal care. We invite all players in the market to join us in doing more to address issues of affordability.

Treatment costs decline over 10 years...

Figure 14

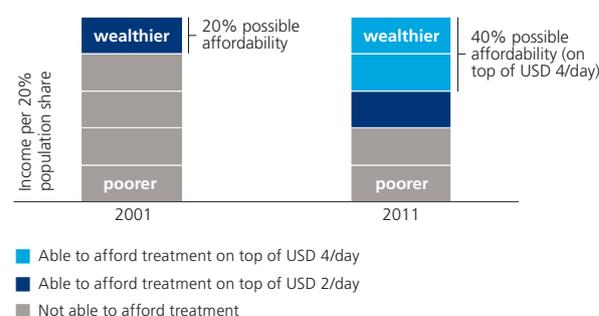
48% decrease in the cost of insulin treatment in the past 10 years



Minimal care

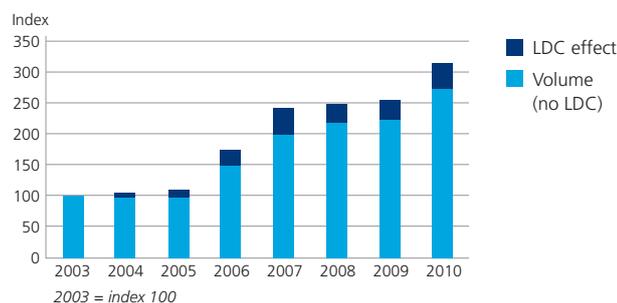
... while purchasing power increases

30% points increase in number of people able to afford minimal diabetes care



Effect of LDC pricing on sales volume

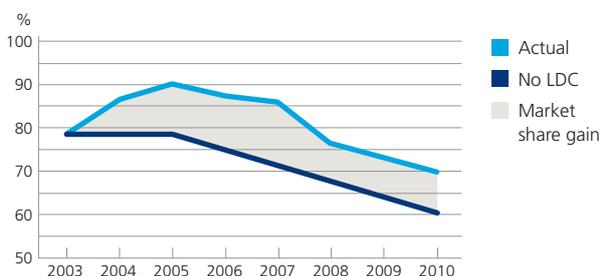
2.3% points extra compound annual growth attributable to LDC pricing since 2003



Effect of LDC pricing on market share

Figure 15

12% points increase in volume market share in the first 2 years



accessibility/affordability: children with diabetes

Nearly all children in the western world have access to care through public or private health insurance. In Bangladesh, however, most families cannot afford to pay for essential medical care. For children with diabetes, poverty is a huge barrier to appropriate diabetes treatment – with life-altering implications.

Ignorance and inadequate resources compound the issue of children not having access to the care they need. Low awareness about type 1 diabetes among HCPs and patients, a paucity of data on the subject,²⁸ insufficient resources to combat the problem and lack of focus on the part of the healthcare system create additional barriers to early detection and proper treatment of children.

Changing Diabetes® in Children

In 2008, Novo Nordisk made a 25 million US dollar commitment to improve care for children with diabetes through the establishment of CDiC. The programme partners with governments to provide treatment for children with type 1 diabetes up to the age of 18, and funds the creation of an infrastructure that will eventually support all people with diabetes. Novo Nordisk's ambition is to enrol 10,000 children with type 1 diabetes in CDiC by 2015.²⁶

23% of all children in CDiC in 2011 were from Bangladesh, where the programme also includes an annual children's camp with the purpose of training around 100 children with type 1 diabetes on how to live with the condition (CDiC camp).¹⁰

Value creation

Value to society

Since the launch of the programme in Bangladesh, more than 1,000 children have been enrolled and 12 HCPs have been trained. To reach more children and to help spread awareness of type 1 diabetes in children, a new clinic will soon open, joining three established clinics in Dhaka, Faridpur and Chittagong.¹⁰

Products provided through Changing Diabetes® in Children

Novo Nordisk provides insulin at no cost to the families of children in the programme. The volume of free medication provided through the programme increased by 50% from 2010 to 2011, reaching 17,200 units of insulin (Figure 16). In addition, Novo Nordisk provided more than 700,000 Danish kroner (138,000 US dollars) in 2011 to cover HCP training and education, devices, strips, patient instruction and programme administration.¹⁰

Primary issues:

- Affordability
- Accessibility

Secondary issues:

- Awareness
- Quality for patients

Barriers:

- 15,000 children in Bangladesh have type 1 diabetes²⁷
- Physicians lack awareness about type 1 diabetes

Intervention:

- Changing Diabetes® in Children

Partners:

- BADAS provides human resources and facilities
- International Society for Paediatric and Adolescent Diabetes (ISPAD) provides expertise for healthcare practitioner training and education
- LifeScan provides free glucometers and reduced-cost strips
- WDF supports clinic renovation and development of training materials and activities

Outcomes:

- CDiC addresses unmet needs of children with type 1 diabetes
- More than 1,000 children started on life-saving treatment in Bangladesh
- Programme is a substantial contributor to employee loyalty

“ We didn't know what insulin was, and we had no idea he [her son] needed it. We went to a religious healer and prayed to cure his disease.”
– Mrs Ahmed, mother of Nime (Nime has type 1 diabetes), Dhaka, Bangladesh

“ Currently, children with diabetes are managed primarily in adult diabetes clinics or general medical outpatient clinics, but treating diabetes in children is not the same as treating diabetes in adults.”
– Professor Azad Khan, President of the Diabetic Association of Bangladesh

“ Children are getting help, especially insulin, for free and it's saving many lives; lots of poor families/children are now dreaming of new things to do and about building their careers.”
– Md Masudur Rahman, assistant sales manager, Novo Nordisk, Bangladesh

Improvement in children's health

HbA1c has dropped among children enrolled in the programme (Figure 16). The lower number of children for first and second follow-up does not reflect drop-outs but rather the ongoing enrolment of children on the programme. While there is room for improvement in controlling their diabetes, it is clear that initial declines in HbA1c reflect the valuable role the clinics play in detecting disease and initiating treatment in children whose type 1 diabetes had previously been undiagnosed and uncontrolled.

Our employees believe that the programme delivers significant value to society,²⁹ beginning with the potentially life-saving provision of free diabetes treatment for impoverished children. In addition to this benefit, the programme creates awareness about type 1 diabetes and provides hope for a better future for children in the programme and their parents.

“The fact that we can meet at a site like this with the right people at Novo Nordisk gives us a unique opportunity to discuss how we can set mutually beneficial targets that will change diabetes in Bangladesh.”
– Professor Azad Khan, President of the Diabetic Association of Bangladesh

Value to Novo Nordisk

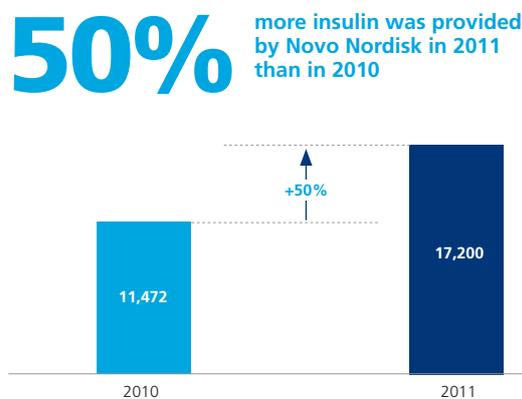
CDiC supports Novo Nordisk's global Changing Diabetes® strategy. The programme's impact on society and on Novo Nordisk extends far beyond the benefits to the children enrolled in CDiC.

Employee surveys show that Novo Nordisk's involvement with CDiC is enhancing the company's reputation in the marketplace, as reflected by high stakeholder support.²⁹ CDiC is also a point of pride among Novo Nordisk employees, and is a substantial contributor to employee engagement, motivation and loyalty.

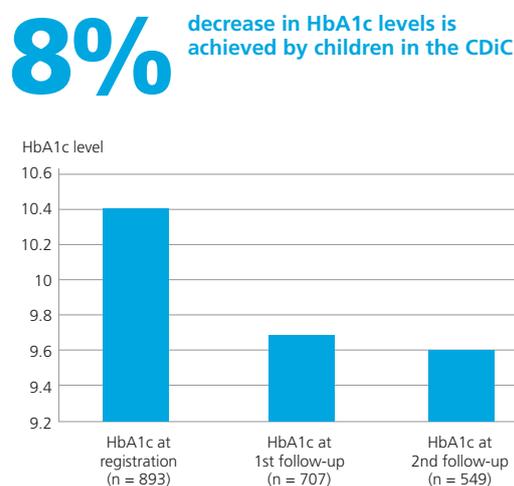
“I am very proud of the CDiC programme. This programme is helping me to promote insulin products to the doctors. They appreciate me for this programme. My family, friends and relatives also appreciate me for working for a company like Novo Nordisk.”
– Md Abdullah Al Mamun, marketing executive, Novo Nordisk, Bangladesh

Volume of insulin provided through CDiC

Figure 16



Effect of CDiC on clinical outcomes



availability: the supply chain

In the poorest nations, the essentials of life and health can be hard to come by – especially when their availability relies on transport from elsewhere. Before 2006, the availability of insulin in Bangladesh was patchy because of a weak supply chain; only 16% of the country's population (all living in or near the capital of Dhaka) had access to Novo Nordisk products. The distributor had only one central distribution facility, in Dhaka, and even then our insulin reached only 25% of the pharmacists in the city.¹⁰

In addition, many pharmacists and doctors lacked proper cooling systems for insulin storage, making them reluctant to keep insulin in stock.¹⁰

Strengthening the distribution network

Availability of insulin has been strengthened by an increased number of BADAS affiliations and through an improved distribution chain. Each BADAS affiliated member has a cold chain established and access to insulin. The availability has further improved with Novo Nordisk entering a distribution agreement with Transcom Distribution Company Ltd. (TDCL) in 2006 (Figure 17).

Value creation

Value to society

In 2005, BADAS was making insulin available through 70 centres across Bangladesh, which has increased to 99 centres today. The distribution agreement with TDCL increased the distribution points from one central depot in Dhaka to 25 depots across the country, increasing pharmacist reach (Figure 17). In the future, the availability in rural areas will

Primary issue:

- Availability

Secondary issues:

- Accessibility
- Affordability

Barriers:

- Only 1 in 6 people had access to Novo Nordisk products
- Without proper refrigeration, HCPs could not stock insulin

Intervention:

- Change the distribution vendor

Partners:

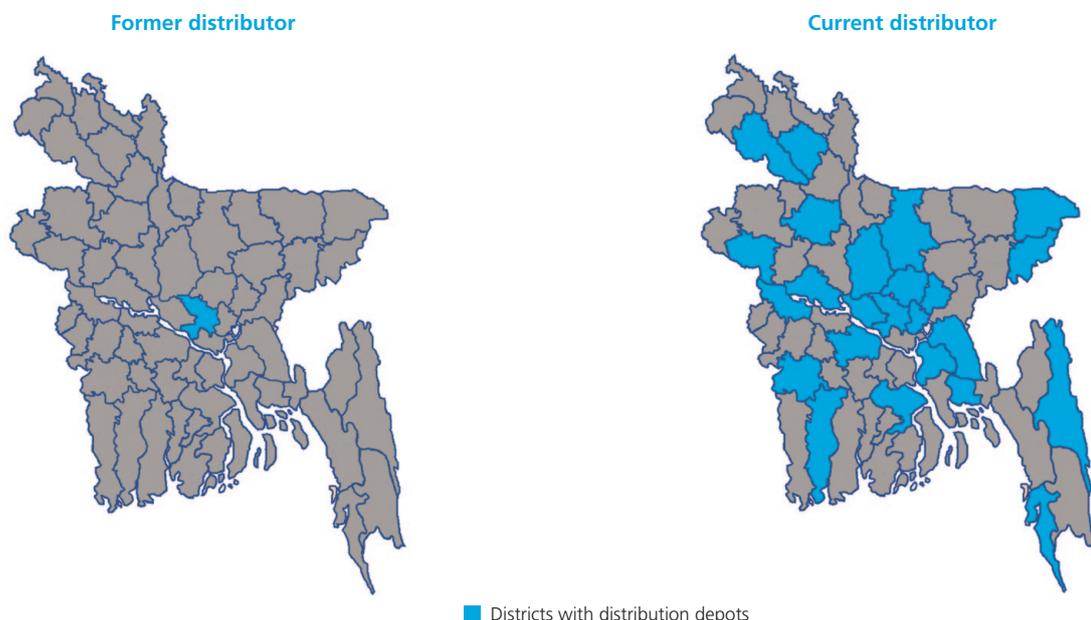
- BADAS distributes insulin through its 99 affiliated associations throughout the country
- Transcom Distribution Co. Ltd. (TDCL) has the largest independent distribution network in Bangladesh³⁰
- Eskayef Bangladesh Ltd., owned by TDCL, will produce Novo Nordisk insulin in Bangladesh

Outcomes:

- Decreased travel distance to pharmacists stocking insulin
- New manufacturing plant will lead to job creation
- Better distribution is contributing strongly to higher sales volume

Districts in which Novo Nordisk products were available before and after the change of distributor

Figure 17



improve with the opening of 500 accredited centres at thana level through Enhancing Diabetes Care, a joint programme involving BADAS, WDF and Novo Nordisk, thereby resulting in a decrease in the average transportation distance for people.

Improving availability through local production

TDCL (through its subsidiary Eskayef Bangladesh Ltd.) is building a manufacturing facility that will produce Novo Nordisk insulin. The effects, once the facility is open and fully functional, will be to ensure a steady supply of insulin in Bangladesh. This will also enable us to gain production efficiencies by being closer to our customers and being able to respond quicker to market demand.

The establishment of the manufacturing plant also contributes value to society through technology transfer and local job creation.

Value to Novo Nordisk

The volume of insulin sold in Bangladesh increased significantly after Novo Nordisk began working with TDCL (Figure 18).

At first glance, it would appear that improving the distribution system had a more considerable impact on sales volume than LDC pricing. We believe, however, that supply and price are interdependent and that some of the effect seen after the change of distributor is a delayed result of LDC pricing policy in Bangladesh. The extra CAGR attributable to the distribution change in 2006 is 9.5 percentage points.¹⁰

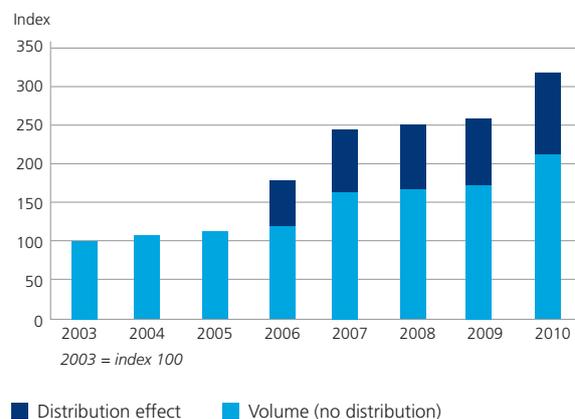
Improving the distribution chain was critically important for our business success in Bangladesh. Today, far more people have access to Novo Nordisk insulin, broadening the company's potential patient pool.

Strengthening the distribution chain also gives Novo Nordisk a competitive advantage. The move opened up access to rural areas beyond the crowded urban markets, creating new possibilities for growth. As physicians in rural areas and at thana level gain new competences through the DLP, greater product availability allows HCPs to put their skills into practice and boost awareness of proper diabetes care throughout Bangladesh.

Effect of the change of distributor on sales volume

Figure 18

9.5% points extra annual growth attributable to the change of distributor in 2006



creating shared value

Partnerships have the greatest potential for success when each side has something to gain. In this context, our collaborative approach provides a model for creating a better future for the people of Bangladesh while contributing to Novo Nordisk's growth.

overall value to society

Because Novo Nordisk has a lot of focus on diabetes and the Triple Bottom Line, we develop partnerships with local organisations with the goal of improving the health of people with diabetes. In doing this in Bangladesh, we also contribute to the economy through job creation.

Health status

Our partnerships with BADAS, WDF and others have improved patients' lives by raising awareness about diabetes, strengthening the quality of care and promoting better availability, accessibility and affordability of treatment.

The value created through these initiatives is reflected in higher rates of diagnosis, treatment initiation and achievement of treatment targets (Figure 19).

These interventions have come at a critical time in Bangladesh. In the adult population, diabetes prevalence jumped from 5% in 2000 to 9.6% in 2011.⁵ The good news, however, is that 52% of adults with diabetes were diagnosed in 2011,⁵ compared with only 40% in 2000.⁶ Similarly, treatment rates have increased; 65% of the diagnosed population received treatment in 2011, corresponding to 33.8% of the total diabetes population.⁶ It is estimated that only 21% of the diabetes population was under treatment in 2000.⁶

These gains are only a beginning as there is considerable room for improvement in reaching treatment goals. According to the 2008 DiabCare study, 23.1%¹⁹ of people treated for diabetes in Bangladesh achieve treatment targets, corresponding to just 7.8% of the total diabetes population.

Job creation

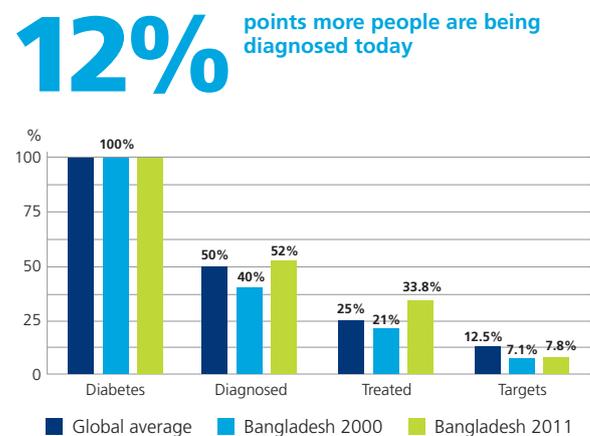
By improving people's health, our partnerships help to lay the foundation for a strong economy. Novo Nordisk's business activities have also had a direct effect on the economy through job creation.

Through our sales, distribution and production planning activities, Novo Nordisk created nearly 180 jobs in Bangladesh between 2004 and 2011.¹⁰ This has had ripple effects that generate even greater value to society. The expansion of our business activities has resulted in the creation of almost 440 jobs among our suppliers and more than 230 jobs as a result of employee responding.

Thus, in a country where 40% of people are underemployed,³¹ our activities have led to the creation of approximately 850 jobs (Figure 20). We are a small but vital part of the socio-economic improvements occurring in Bangladesh. This linkage has important implications for the growth of our company.

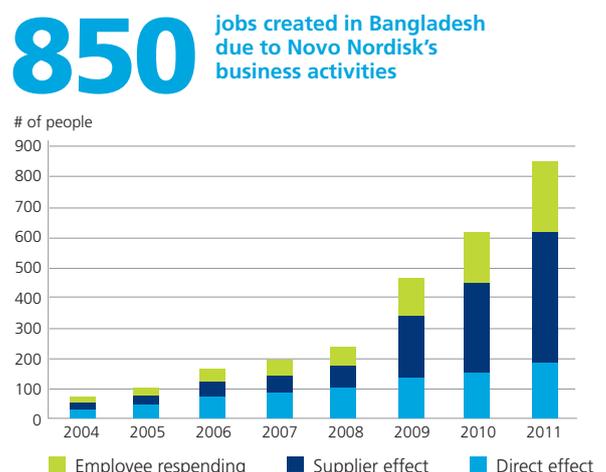
Improvements in diabetes care

Figure 19



Job creation in Bangladesh

Figure 20



overall value to Novo Nordisk

The partnerships and initiatives described in this Blueprint for Change case study – as well as many smaller efforts not covered in this report – were carefully developed for their potential to enhance the sustainability of our business model. These efforts have created value for Novo Nordisk through high employee engagement, our company’s enhanced reputation and strong stakeholder support.

Employee engagement

In Bangladesh, our retention rates are similar to those seen globally within Novo Nordisk (Figure 21).¹⁰ High retention rates indicate that Novo Nordisk employees in Bangladesh are motivated and satisfied – two factors that drive employees to stay with Novo Nordisk for long periods of time. The resulting absence of staff turnover reduces internal costs, builds brand loyalty among the staff and positions the company as an employer of choice that attracts talented people.

Reputation

Our focus on diabetes and our approach has helped Novo Nordisk to build a strong reputation in Bangladesh among our business stakeholders and partners.

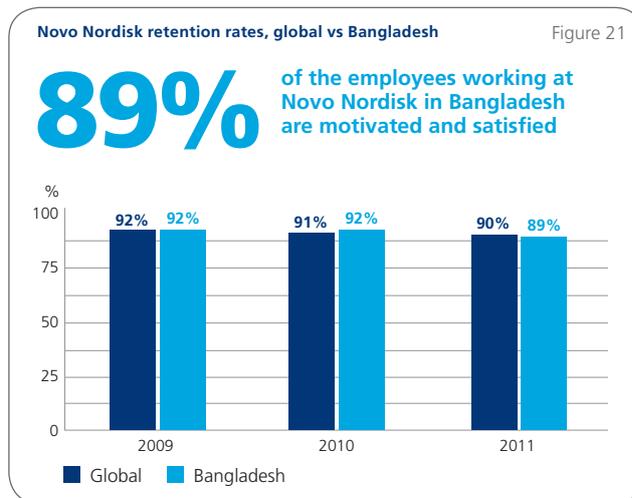
Stakeholder support

Perhaps especially in LDCs, where working with local partners is crucial to success, a company’s reputation is a make-or-break proposition. By being known as a company with which our stakeholders want to work, Novo Nordisk has been able to increase sales volume significantly in Bangladesh in the past decade.

Despite increased competition during that period, Novo Nordisk has managed to maintain a market share well above the company’s global average. Currently, six to seven out of 10 people in Bangladesh who are treated for diabetes use Novo Nordisk insulin.¹⁰ Being one of the first diabetes companies to enter the market has also allowed us to withstand the pressures of increased competition through customer loyalty and access to decision-makers.

“Novo Nordisk is the company that cares about the patients, society and employees.”

– Novo Nordisk employee, Bangladesh



In the picture, Professor Azad Khan, President of the Diabetic Association of Bangladesh, and Lise Kingo, Executive Vice President of Novo Nordisk. CDiC clinic inauguration, Bangladesh, 2010.

“Novo Nordisk’s reputation, which we have built over the years, is now the most important asset of our company in Bangladesh. Our focus on sustainability and continuous contribution to the society in which we operate has positively boosted our corporate image on the market. It has enabled us to improve access to HCPs and patients and build valuable relationships, which in turn helps expand our social and business activities.”

– A. Rajan Kumar, managing director, Novo Nordisk, Bangladesh

perspectives

Analysing diabetes in Bangladesh has been showing promising shared value results. The scalability of the method and interventions depends on good preanalysis and a clear partnership model.

what works in Bangladesh – and why?

Driving patient and volume growth

The law of supply and demand suggests that lowering the price of a product in a competitive market leads to higher quantities sold. An analysis of the LDC pricing policy, however, has found that after prices for human insulin in Bangladesh were reduced significantly in 2004, there was not a corresponding increase in sales. Sales have increased, though only by 2.3 percentage points (CAGR).

Following the LDC pricing analysis, we looked at the effect of changing our distributor in Bangladesh in 2006. The effect of this initiative on sales has been much stronger than that of LDC pricing. The volume of insulin sold in Bangladesh has increased 9.5 percentage points (CAGR) solely as a result of the change in distributor.

Hence, addressing affordability issues alone is not sufficient for reaching more people with diabetes. Other important factors, such as infrastructure development, have to be addressed in tandem with pricing concerns. This is a complex dance that is dependent on a partnership approach.

Possibility of replication in other LDCs

The success of Novo Nordisk's activities in Bangladesh is clear. But can the model of changing diabetes in Bangladesh be replicated in other LDC countries?

The answer is yes – and no. If the critical success factors in a given LDC were the same, the model could, in theory, be replicated. At the moment, very few other LDCs have these same factors in place, especially the presence of a strong local champion with focus on diabetes care. As such, this model cannot be replicated successfully in another LDC, at least as it exists in Bangladesh.

We strongly believe, however, that key components of this model can and should be applied in other similar markets. In each market, we should focus on the key issues, and identify and collaborate with appropriate stakeholders with a clear view of the desired outcomes. A good concrete example is the DLP. HCP education brings significant value to societies and to the company, and the example in Bangladesh has shown that such a programme can become self-sustaining. A DLP-like effort would need start-up capital and expertise, which Novo Nordisk could provide to drive its Changing Diabetes® agenda in LDCs.

Sustainability of the partnership with BADAS

BADAS's success in improving diabetes care in Bangladesh is largely the result of the vision of one extraordinary man, Professor (Dr) Mohammed Ibrahim, now succeeded by Professor Azad Khan. The relationship between Novo Nordisk and Professor Khan is strong.

Over time, Novo Nordisk has built strong and loyal relationships – not only with BADAS leaders but also throughout the organisation because of our active involvement at local level. Further, Novo Nordisk's engagement in various activities under the Changing Diabetes® agenda in Bangladesh has enabled us to build a strong reputation and stakeholder support beyond BADAS.

We therefore believe that our established partnerships are strong enough to flourish when, in time, Professor Khan leaves his position with BADAS.

Mutual accountability

Interactions between BADAS, Novo Nordisk and the World Diabetes Foundation are based on a shared objective: changing diabetes. The approach has been to establish a mutual framework. BADAS knows and respects the way Novo Nordisk conducts its activities based on the Novo Nordisk Way, and Novo Nordisk is well aware of the volunteer-based setup of BADAS.

When BADAS began working to improve diabetes care through better HCP education, it contacted several organisations for help. Novo Nordisk saw potential in how the DLP could help improve diabetes care for millions of people, and through this support the programme got off the ground.

Over the years, Novo Nordisk and BADAS have built a close and transparent relationship. Novo Nordisk and the World Diabetes Foundation provide financial support for BADAS activities. BADAS, in turn, is the biggest insulin customer in Bangladesh. To ensure a constant and ethical relationship, all financial interactions between BADAS, Novo Nordisk and the World Diabetes Foundation are public and disclosed via BADAS's annual reports, statistical yearbooks and website. Thus, the successful changing diabetes activities have been largely based on trust, commitment, transparency and mutual accountability, and a common vision of changing diabetes in Bangladesh.

looking to the future

In partnership with local organisations, Novo Nordisk has been successful in establishing a well-functioning infrastructure in Bangladesh focused on raising diabetes awareness and rates of diagnosis and treatment. It is this platform for changing diabetes that enables us to grow our business. The proof of concept is demonstrated in our performance in Bangladesh over the past decade.

Rising to the challenges of supply and infrastructure, however, is not enough. To meet long-term demand for healthcare services, a patient-centric, holistic approach must begin to emerge from this platform. It is important to recognise that the fight against diabetes is multifaceted. Because of this, there are actions that we can take either directly or in conjunction with partners (for example, medication supply and accessibility), and others (for example, prevention through efforts to combat malnutrition) that are best addressed by organisations with complementary expertise (Figure 22).

Novo Nordisk’s core competence is in providing access to health. This is where Novo Nordisk can contribute the most value, along with working with our partners to make healthcare available and affordable. The right pricing strategy is crucial for enabling a sustainable business model and is a key success factor in developing countries where scarce

resources prevent sufficient public spending on health. In these countries, the private sector fills an important niche in meeting the need for healthcare services.

No one can tackle the diabetes epidemic alone – it requires partners to work together. We can play a useful role in identifying barriers that prevent people from getting diabetes and patients from reaching desired outcomes. Whether we then engage other stakeholders or act as a third-party advocate for improvement, this kind of interdependent web requires that we understand the strengths each entity brings to the value chain and how we can support their efforts.

When fighting diabetes in LDCs, Novo Nordisk should take a conscious partnership approach that identifies patient needs and ensures sustainable business models throughout the value chain. This not only satisfies the immediate need for product and service supply, but also ensures a foundation for meeting long-term demand. As greater numbers of patients receive care and reach optimal treatment outcomes, population health improves and the marketplace for Novo Nordisk products expands.

It is the very essence of shared value.

Our role and the roles of others

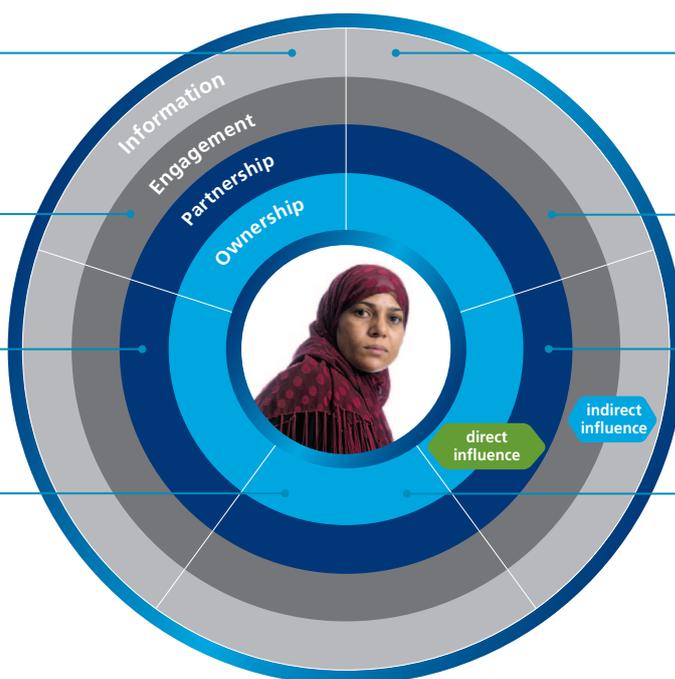
Figure 22

Definition

- Information provided to the relevant partners if an issue is identified
- Engagement with partners without direct influence or control
- Close partnership established to address an issue
- Core business issues addressed solely by Novo Nordisk

Examples

- Food security/ healthy diets
- Quality of clinics
- Prevention/ diabetes advocacy
- Quality of insulin



methodology

Assessing shared value creation

This Bangladesh case study is the fourth in our Blueprint for Change Programme series. Assessment of value creation is based on a model developed by Novo Nordisk in collaboration with Accenture (Figure 23). We create shared value by maximising the upside and minimising the downside. "Maximising the upside" includes increasing awareness about diabetes; improving accessibility, availability and affordability of diabetes care; and increasing quality of care. It also includes building reputation, trust, employee engagement, stakeholder support and market potential for Novo Nordisk. "Minimising the downside" includes reduction of diabetes costs, limiting diabetes onset and other examples of risk mitigation for the business and society. Initiatives that address societal issues within diabetes care are a central focus in this Blueprint for Change case.

Diabetes

Diabetes mellitus, often referred to simply as diabetes, is a group of diseases in which a person has excessively high blood sugar, either because cells do not produce enough insulin or because cells do not respond to insulin. Diabetes can be caused by a combination of genes, external factors and lifestyle.

Data search

Analysis conducted for this case study is based on extensive research. The initiatives chosen for examination are based on the perceptions of key Novo Nordisk employees and external partners about the most important Changing Diabetes® initiatives in Bangladesh over the past decade. Included was a comprehensive anonymous survey in which all Novo Nordisk Bangladesh employees documented their perception of how the TBL initiatives created value for Novo Nordisk and for the Bangladeshi society.

Employee survey

The employee survey referenced herein was conducted in January 2012 to assess Novo Nordisk employees' perceptions about the value created through the Changing Diabetes® in Children Programme. All Novo Nordisk employees in Bangladesh received and answered the survey.

Jobs created in Bangladesh

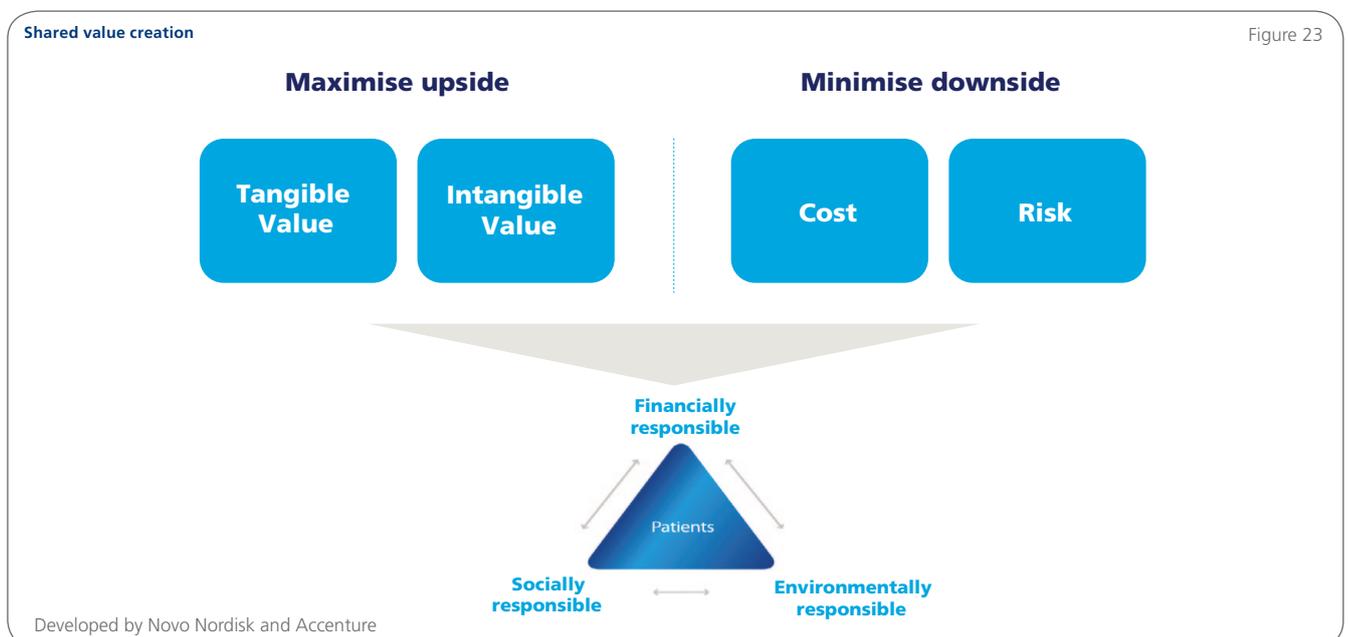
The number of jobs derived from our activities in Bangladesh is based on Chinese national accounts and illustrates the direct and indirect jobs created by resending and suppliers. The job creation is calculated by job category, where production workers create more indirect jobs than sales persons.

The multipliers used are: supplier effect, 6.52 (production employees) and 0.69 (sales employees); employee resending effect, 2.87 (production employees) and 0.62 (sales employees). The calculation is based on the assumption that the effects of jobs created in Bangladesh are the same or similar to those seen in China, and based on the Chinese national accounts.³²

Academic review

Academic reviewers of this Blueprint for Change case:

- Associate Professor Jette Steen Knudsen, Copenhagen Business School
- CSV researcher Jem E. Hudson, Institute for Strategy and Competitiveness, Harvard Business School
- Director Aileen Ionescu-Somers, IMD Corporate Sustainability Management
- Professor Azad Khan, President of the Diabetic Association of Bangladesh



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About the Blueprint for Change Programme

By definition, a blueprint is a guide or plan that gives instructions about how to build or create a new structure. Based on a common methodology, the Novo Nordisk Blueprint for Change Programme aims to assess and communicate how our Triple Bottom Line business principle delivers value to business and society. All topics in the programme explore our approach to sustainability and related value creation that:

- Goes beyond – or seeks to go beyond – traditional challenges of incremental improvement, compliance and accountability
- Drives – or has the potential to drive – genuine market transformation through innovative partnerships, products and practices
- Delivers ethical robustness and transparency throughout the value chain – or is en route to doing so

Our intent is not to present a solution. Rather, each paper presents work in progress. The presentation of these topics also therefore identifies key challenges ahead.

For more information, please visit:

<http://novonordisk.com/sustainability/How-we-manage/blueprints.asp>

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We believe that a healthy economy, environment and society are fundamental to long-term business success. This is why we manage our business in accordance with the Triple Bottom Line (TBL) principle and pursue business solutions that maximise value to business and society.

About Novo Nordisk

Novo Nordisk is a global healthcare company with 89 years of innovation and leadership in diabetes care. The company also has leading positions within haemophilia care, growth hormone therapy and hormone replacement therapy. Headquartered in Denmark, Novo Nordisk employs approximately 33,000 employees in 75 countries, and markets its products in more than 190 countries. Novo Nordisk's B shares are listed on NASDAQ OMX Copenhagen (Novo-B). Its ADRs are listed on the New York Stock Exchange (NVO). Novo Nordisk strives to conduct its activities in a financially, environmentally and socially responsible way. The strategic commitment to corporate sustainability has brought the company onto centre stage as a leading player in today's business environment, recognised for its integrated reporting, stakeholder engagement and consistently high sustainability performance. In 2012, Novo Nordisk received the top ranking on Corporate Knight's list of Global 100 Most Sustainable Corporations. Novo Nordisk is listed in the 2010/2011 Dow Jones Sustainability Indices with a gold class rating. For more information, visit novonordisk.com/sustainability

