

# Partnering to innovate diabetes care in Algeria

Novo Nordisk works with partners to help people with diabetes lead healthier lives. Through innovative programmes and projects, we raise awareness, improve accessibility and enhance quality of life for people with diabetes, while investing in local clinical research and production.



# Algeria



 **40 million**  
people live in Algeria.<sup>1</sup>

 **90%**  
of Algerians are covered by national health insurance schemes.<sup>2</sup>

**\$ 5,500 US dollars**  
gross domestic product per capita.<sup>3</sup>

 **77%**  
of deaths in Algeria are related to non-communicable diseases, of which diabetes is the third leading cause of mortality.<sup>4</sup>

 **70%**  
of people live in urban areas.<sup>3</sup>

## Diabetes is a challenge

**1.7 m**

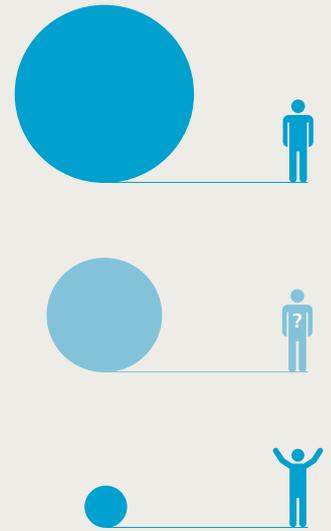
people have diabetes in Algeria.<sup>5</sup>

**700,000**

people do not know they have diabetes.<sup>5</sup>

**90,000**

people live a life free from diabetes-related complications.<sup>5,6,7,8,9</sup>



The costs of diabetes are expected to grow twice as fast as the population.<sup>10,11,12</sup>



Diabetes-related complications are costly and can be prevented.<sup>5</sup>



Well-managed diabetes requires:

- people to know how to manage the condition
- early access to medicine and care.

This is a **social obligation and an opportunity** for us as a diabetes care market leader

We work with partners to innovate diabetes care



**Novo Nordisk Algeria**  
We employ more than 440 people in Algeria<sup>7</sup>



**Local production**

Production of diabetes medicines at our own facilities and in partnership with SAIDAL Group<sup>7</sup>



**Clinical research**

Two-thirds of all diabetes clinical research in Algeria is conducted by Novo Nordisk<sup>13</sup>



**Changing Diabetes® Barometer**

In the future, there will be 30 centres providing care for 24,000 people with diabetes<sup>7</sup>



**Changing Diabetes® Mobile Clinic**

More than 120,000 visitors and 31,200 people screened in 17 cities<sup>7</sup>



**Healthcare professional training**

220 training sessions conducted in 39 provinces<sup>7</sup>



**Patient education**

213,000 patients educated in diabetes care by 63 educators<sup>7</sup>

## Investing in diabetes creates value

# 4.5 years

We help people to get diagnosed before their health deteriorates – early diagnosis and optimal treatment extend life without complications by 4.5 years and may reduce the number of kidney failures by 83%.<sup>A</sup>



We strengthen knowledge among healthcare professionals – 95% of general practitioners say that the overall quality of the care they provide has improved since the training.<sup>14</sup>



We help patients understand how to manage their diabetes – 82% of people with diabetes believe patient education contributes to improvements in their overall well-being.<sup>14</sup>



### Early diagnosis and better controlled diabetes for all can lead to better health outcomes and reduce the cost of diabetes by 439 million euros<sup>B</sup>

On top of our commitment to early diagnosis, training of healthcare professionals and education of people with diabetes, we...



support the government in **diversifying the economy** and establishing a biotech hub.



increase investment in local production of diabetes medicine to **cover the needs of people** with diabetes.



### More can be done to improve the lives of people with diabetes and other non-communicable diseases

We will continue and scale up our investments in...



public health and infrastructure to enhance quality of care



clinical research to ensure our products meet Algerian patients' needs



local production of high-quality diabetes medicines

Together, we can create sustainable improvements for people with diabetes and other non-communicable diseases in Algeria.

<sup>A</sup> Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model.<sup>15</sup> See Methodology on p 26.

<sup>B</sup> Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model.<sup>15</sup> The simulated effects of early diagnosis of those currently undiagnosed with diabetes<sup>5</sup> are added to the simulated effects of optimal treatment to multiple targets<sup>16</sup> for people currently diagnosed.<sup>5</sup> See Methodology on p 26.

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### INFOBOX 1

## What is diabetes?

Diabetes is a chronic condition that requires constant management and affects the daily life of people with the condition and their families. Diabetes occurs when the body either cannot produce enough insulin or use it correctly. Insulin is a hormone that helps sugar enter cells so that the body can use it for energy.<sup>5</sup> Without the help of insulin, sugar builds up in the bloodstream. **Most of the long-term health complications associated with diabetes are the result of persistently high blood sugar levels.<sup>5</sup>**

# Diabetes affects people's well-being and their communities

Increasingly, diabetes poses challenges for the long-term health and economic prosperity of Algeria. Contributing factors are low public awareness, variable access to healthcare, and the need for greater understanding among healthcare professionals and patients about how to treat and manage diabetes.

In many parts of the world, health challenges have been shifting from infectious to non-communicable diseases (NCDs) for decades.<sup>A</sup> In adopting the 2030 Agenda for Sustainable Development, world leaders recognised the burden that diabetes and other NCDs place on sustainable development.<sup>17</sup>

Today, more than three-quarters of deaths in Algeria are related to NCDs, including diabetes.<sup>4</sup> Diabetes accounts for 7% of all mortality in the country and, among NCDs, trails only cardiovascular disease and cancer in terms of cause of death.<sup>4</sup>

Approximately 1.7 million people in Algeria are living with diabetes<sup>5</sup> (Figure 1). This number is projected to nearly double to 3.1 million by 2040.<sup>5</sup> This has implications for public health, considering that under the 'Rule of Halves',<sup>6</sup> roughly half of people with diabetes are diagnosed, half of those receive care, and half of those achieve treatment targets.

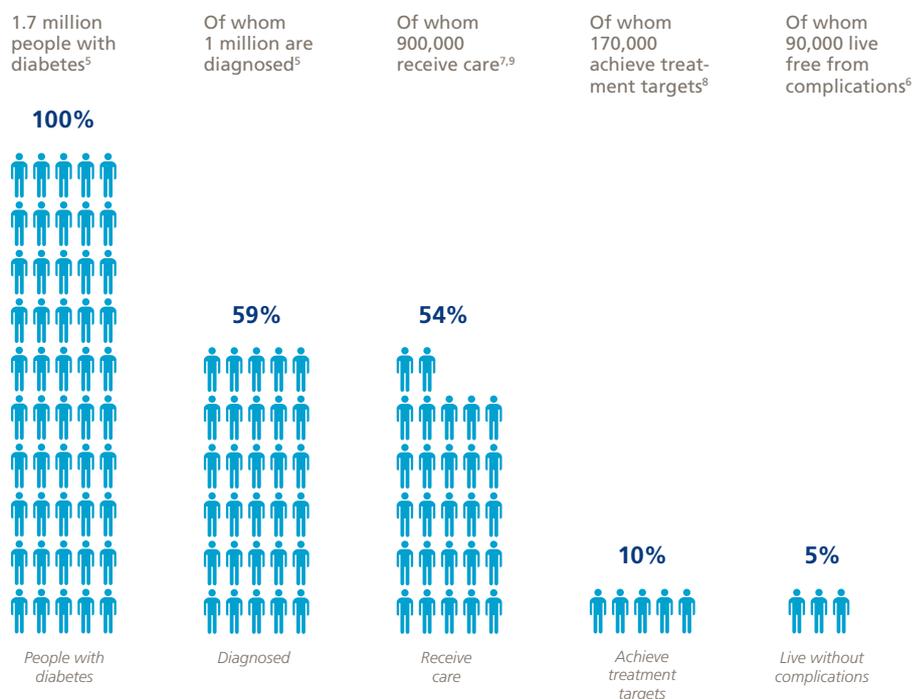
## INFOBOX 2

### What is HbA<sub>1c</sub>?

The target of diabetes treatment is to **keep blood sugar levels at a normal or near-normal level**. One key parameter is HbA<sub>1c</sub>, which is a measure of blood sugar within a three-month period.<sup>5</sup> An HbA<sub>1c</sub> level of ≤ 7% is considered a marker of good control.<sup>18</sup> People with HbA<sub>1c</sub> level of 6.0–6.5% are considered to be at risk for having diabetes.<sup>18</sup> In Algeria, the average HbA<sub>1c</sub> level is 9.2% for people with diabetes.<sup>9</sup> A level higher than 7% is associated with an increased risk of diabetes-related complications.<sup>5,19</sup>

FIGURE 1 — THE DIABETES 'RULE OF HALVES' IN ALGERIA

## Of the 1.7 million people with diabetes, only 10% achieve treatment targets



**Note** — Treatment target defined as recommended HbA<sub>1c</sub> levels.<sup>18</sup> Data for 'Receive care' are collected through the Changing Diabetes® Mobile Clinic<sup>7,9</sup> and represent the share of diagnosed people who regularly see a general practitioner or specialist for regular follow-up. Data are collected in 13 cities. Number of people living without complications builds on the assumptions from the 'Rule of Halves' that 50% of people who achieve treatment targets live without complications.<sup>6</sup> Rounding may cause slight discrepancies in numbers.

In Algeria, the curve is similar (Figure 1), and the average HbA<sub>1c</sub> (Infobox 2) for a person with diabetes is 9.2%,<sup>9</sup> far higher than the recommended treatment target of 7% or lower.<sup>18</sup>

This is no small consideration. When diabetes is undiagnosed or undertreated, it can lead to complications such as cardiovascular disease, stroke, kidney disease,

amputations and blindness.<sup>5</sup> Many people with diabetes may, however, be able to live healthy lives and avoid complications through early diagnosis, and appropriate treatment and care.

### Diabetes is costly to society

Health is a prerequisite for sustainable development. As such, it is relevant to measure the challenge of diabetes not

<sup>A</sup> NCDs are chronic conditions such as cardiovascular disease, cancer and diabetes. What these conditions have in common is that the person will live with them for the rest of their life as no cure exists. A chronic condition such as diabetes requires constant and diligent management, and changes to lifestyle.

only in terms of health outcomes, but also in financial terms.<sup>19</sup> In Algeria, the average diabetes-related health costs per person with diabetes totalled 370 euros in 2015.<sup>5</sup>



**75% increase**

**in health expenditures for diabetes from 2010 to 2030<sup>11</sup>**

As much as 11% of total health spending in Algeria is devoted to diabetes.<sup>11</sup> The cost is expected to grow twice as fast as the population from 2010 to 2030,<sup>10,11,12</sup> effectively increasing the societal burden of diabetes. Because complications account for a high proportion of diabetes costs,<sup>2</sup> prevention of complications through diagnosis, treatment and control is paramount.

For example, data from Algeria indicate that a complication, such as a non-severe hypoglycaemic event, entails both direct and indirect costs due to loss of work productivity, increased work absenteeism and increased healthcare utilisation.<sup>20</sup>

### Diabetes impacts people's well-being

Lifestyle is a key contributor to the growth in the number of people with diabetes. On average, Algerians consume more calories per day than they need.<sup>21,22</sup> Overconsumption contributes to high obesity<sup>A</sup> rates.



**16% of adults**

**in Algeria live with obesity, and in women the rate is 22%<sup>4</sup>**

Being overweight or having obesity increases the risk of diabetes by up to 20 times.<sup>23</sup>

A 2014 survey showed that more than two-thirds of people living with diabetes in Algeria do not take it seriously.<sup>24</sup> In addition, there is a stigma associated with diabetes<sup>24</sup> that may prevent some people from seeking proper care. This suggests low public awareness of diabetes and may explain why many people do not live a healthy life with diabetes.



**81% of people**

**with diabetes agree that there is a societal stigma associated with diabetes<sup>24</sup>**

76% of people with diabetes in Algeria fast during the religious observance of Ramadan.<sup>25</sup> Fasting may potentially be associated with metabolic effects that can affect general well-being. During Ramadan, the most commonly observed risks are dehydration and episodes of extremely high (hyperglycaemia) or low (hypoglycaemia) blood sugar levels,<sup>26</sup>

either of which can be serious, costly and even life-threatening.

### Healthcare professionals are key to changing diabetes

The number of healthcare professionals (HCPs) per person in Algeria is comparable to the world average,<sup>27</sup> but because most of the population lives in the coastal region,<sup>2</sup> there are variations in access to healthcare across the country.

HCPs can be agents of change by driving awareness, diagnosis and appropriate treatment of diabetes. Until recently, diabetes was not a key contributor to early mortality in Algeria,<sup>28</sup> and only 17% of HCPs believe that the healthcare system is well organised for managing chronic conditions, such as diabetes.<sup>29</sup>

Many HCPs who have not been trained in diabetes care are not confident in their ability to diagnose or treat people with diabetes.<sup>14</sup> Concerned about this, HCPs have called for resources to improve the level of diabetes care and education in Algeria.<sup>29</sup> Their wishes are in line with patients' attitudes: 89% of people with diabetes believe that a higher level of diabetes care knowledge among HCPs would benefit them.<sup>14</sup>

#### INFOBOX 3

## Algeria's healthcare system

Algeria's healthcare system is publicly financed,<sup>27</sup> and the country's healthcare system covers the vast majority of the population. As many as 90% of Algerians are insured by national health insurance schemes.<sup>2</sup>

Diabetes treatments are covered under national health insurance schemes. For instance, **diabetes medicines, including insulin, are available and reimbursed.**<sup>30</sup> Even with the availability of diabetes medicines in Algeria, many people with diabetes do not achieve treatment targets<sup>8</sup> – indicating that diabetes care requires more than medicine alone.

<sup>A</sup> The World Health Organization's definition of obesity is a body mass index (BMI) greater than or equal to 30. A BMI greater than or equal to 25 is considered overweight.

# Opportunities in addressing the diabetes challenge

Addressing the challenges of diabetes can reap considerable rewards for Algeria, and this is a social obligation and opportunity for Novo Nordisk and our partners in Algeria. Investments in better diabetes care can reduce diabetes-related complications that have a negative impact on quality of life and economic productivity.

## Opportunities for Algerian society

High blood sugar levels increase the risk of diabetes-related complications (Infobox 2). For people with diabetes, even small improvements in HbA<sub>1c</sub> can lead to significant health benefits.<sup>31</sup>

For each percentage point decrease in HbA<sub>1c</sub>, people with diabetes can experience:

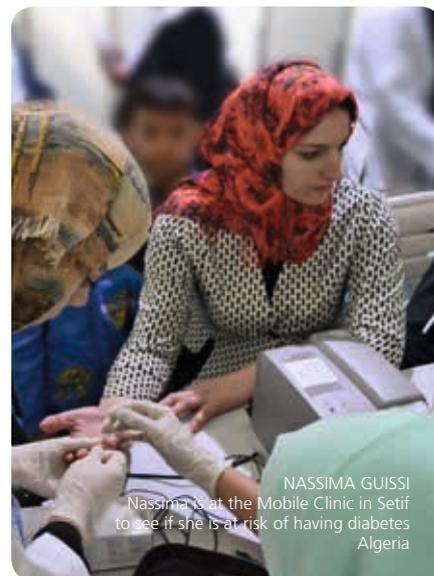
- a 37% reduction in the risk of microvascular complications, such as kidney failure and blindness<sup>31</sup>
- a 14% drop in the risk of macrovascular complications, such as heart attack and stroke<sup>31</sup>
- a 21% reduced risk of diabetes-related death.<sup>31</sup>



## 37% reduced risk

of microvascular complications, such as kidney failure when HbA<sub>1c</sub> is reduced by 1 percentage point<sup>31</sup>

If all people with diagnosed diabetes in Algeria were to receive optimal treatment and achieve near-normal HbA<sub>1c</sub>, cholesterol and blood pressure levels,<sup>16</sup> it could result in the avoidance of 11,700 kidney failures.<sup>A</sup> Together with other health improvements, this could save Algeria 227 million euros in diabetes-related costs.<sup>A</sup>



NASSIMA GUISSI  
Nassima is at the Mobile Clinic in Setif to see if she is at risk of having diabetes  
Algeria

## Opportunities for Novo Nordisk

Algeria is a country with a stable and fast-growing economy.<sup>3,B</sup> In addition, there is an imperative to reduce diabetes-related risks and improve the health and well-being of people with diabetes. This is an opportunity for Novo Nordisk to partner with the authorities to strengthen the delivery of healthcare in Algeria.



## 10% growth

each year in Algeria's economy since 2004<sup>3,B</sup>

Life expectancy in Algeria is increasing, having risen seven years since 1990.<sup>32</sup> As living standards improve and life expectancy increases, more people rely on high-quality care and access to medicines. For Novo Nordisk, this presents both an opportunity to innovate and an obligation to meet the needs of people with diabetes and make a difference.

In Algeria, the Ministry of Health has developed an ambitious National Diabetes Plan,<sup>33</sup> which is aligned with the needs of people with diabetes and also with the desire of healthcare professionals (HCPs) to bolster their own knowledge about diabetes care.

In the spirit of collaboration, we can share more than 90 years of diabetes care expertise. It is our belief that

this ultimately benefits patients and their communities, as healthy people with diabetes can be active contributors to society.

**“ We give healthcare professionals access to diabetes care knowledge and new scientific findings. This contributes to improving the care they provide to patients.”**

*Khiredine Osmani*  
Diabetes Medical Affairs Manager  
Novo Nordisk, Algeria

<sup>A</sup> Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model<sup>15</sup> for people currently diagnosed with diabetes.<sup>5</sup> See Methodology on p 26.  
<sup>B</sup> Gross domestic product in current US dollars.

# Changing diabetes requires a shared understanding of the opportunities

By addressing societal needs through innovative business initiatives, Novo Nordisk creates what we call shared value. This means that we identify areas in diabetes care where, together with partners, we can make a difference for the benefit of both society and our company.

Our approach to good diabetes care is rooted in the Universal Declaration of Human Rights, which defines the right to health as essential for an adequate standard of living.<sup>34</sup> Four key elements shape the right to health: availability, accessibility, affordability and quality for patients.<sup>35</sup> In addition, our approach is inspired by the World Health Organization's framework that points to awareness as an additional critical element.<sup>36</sup>

This framework of five broad elements guides our research into how diabetes care can be strengthened at local level for the benefit of the patient (Figure 2). Through discussions with key stakeholders in Algeria, we have determined that we can contribute most by focusing on the following areas: awareness, accessibility, availability and quality for patients.

## Focus of this case study

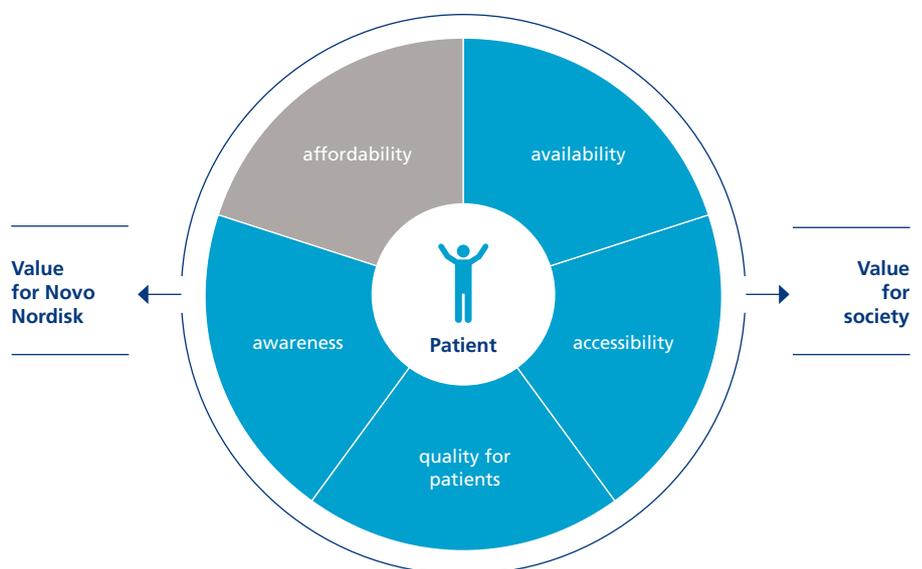
In this case study, we show how Novo Nordisk – in collaboration with local partners – is working within these areas (Figure 2). We help people attain better control of diabetes for the benefit of their families and society.

Our key contribution is to develop innovative medicines and make them accessible to patients.<sup>37</sup> In Algeria, we invest in local production and clinical research to transfer knowledge and technology, and to make high-quality, locally produced diabetes medicines available for people with diabetes in the country.

We create shared value through our work with local partners to address issues and barriers to diabetes care for the benefit of society and all of the partners involved.

FIGURE 2 — CREATING SHARED VALUE THROUGH KEY ACTIVITIES

## Our value proposition rests on five elements of diabetes care



### We raise awareness about diabetes

We contribute to improving diagnosis rates with the Changing Diabetes® Mobile Clinic and Village, and we spread awareness and knowledge about diabetes through World Diabetes Day activities.



### We improve accessibility to diabetes care

We improve accessibility to care and collect key data on diabetes through the Changing Diabetes® Barometer, and build capabilities through healthcare professional training across the country.



### We enhance quality of life for patients

We help people with diabetes take better care of themselves through patient education and a campaign focused on treatment and care during Ramadan.



### We invest locally to make diabetes medicines available to patients

We work to improve health through clinical research and support economic diversification by investing in production, thereby making diabetes medicines available to patients in Algeria.

# Our history and values are centred around patients' needs

Novo Nordisk has an 80-year history in Algeria. This history is characterised by partnerships focusing on the needs of patients and the communities where we work. We are driven by a desire to manage our business sustainably, in the shared interests of business and patients, and in line with societal expectations.

Novo Nordisk is a global healthcare company with more than 90 years of innovation and leadership in diabetes care. Headquartered in Denmark, we employ more than 41,600<sup>38</sup> people in 75 countries and market products in more than 180 countries.<sup>39</sup>

“ **The Novo Nordisk Way is our promise to patients. All employees are tied together across cultures through our company values.**”

*Mohamed Ouaguenouni  
Quality Manager, Novo Nordisk, Algeria*

Our work at Novo Nordisk is driven by a set of guiding principles that we call the Novo Nordisk Way.<sup>37</sup> The Novo Nordisk Way describes who we are, where we want to go and the values that characterise our company. Our way of doing business is governed by the Triple Bottom Line principle, which ensures that we consider

the financial, environmental and social impacts of all our business decisions.

## We are increasing our commitment in Algeria

Our 80-year history in Algeria began with exporting our products to the country back in 1936 (Figure 3). Since then, our commitment has grown substantially. In 1994, we established our Algerian affiliate, and today we are the market leader in diabetes care in Algeria.<sup>40</sup>

Over the past decade, the number of people we employ in Algeria has risen almost four times, reaching more than 440 full-time employees today.<sup>7</sup> This growth is mainly driven by our local production.

## We invest in local production of medicines

We opened our first Algerian production facility in 2006 in Tizi Ouzou. Six years later, we established a partnership with state-owned SAIDAL Group to produce human insulin in Constantine.

Local production supports our commitment to people with diabetes in Algeria. Each year, our factory in Tizi Ouzou produces enough oral antidiabetic products (OAD) to cover the needs of 500,000 people with diabetes.<sup>7,A</sup> Currently, we are expanding production capacity at our facility in Tizi Ouzou as well as investing in a pre-filled device assembly line.

SAIDAL Group is building a new production facility in Constantine. The facility will use high-quality raw materials supplied by Novo Nordisk to produce modern insulin. When completed, the facility will be able to supply enough insulin each year for more than 800,000 people with diabetes.<sup>7,A</sup> We support SAIDAL Group at both its facilities through training activities and by establishing a leading quality management system.



**1 out of 2**

**people with diabetes in Algeria who receive treatment use Novo Nordisk products<sup>40</sup>**

FIGURE 3 — NOVO NORDISK'S HISTORY IN ALGERIA

## A long history of commitment to the Algerian market



**1936**  
First Novo Nordisk products exported to Algeria.



**1994**  
Affiliate established in Algeria.



**2006**  
Production facility established in Tizi Ouzou.



**2008**  
Celebration of World Diabetes Day in partnership with the Ministry of Health.  
Clinical research initiated.  
First patient education session.



**2009**  
Launch of Diabetes & Children campaign.



**2010**  
Launch of Diabetes & Ramadan campaign, supported by the Ministry of Religious Affairs.



**2011**  
Launch of the Changing Diabetes<sup>®</sup> Mobile Clinic in partnership with the Ministry of Health.  
Launch of Diabetes & Women campaign.



**2012**  
Partnership with SAIDAL Group to produce insulin locally.

<sup>A</sup> The number is estimated based on average dose as recommended by the World Health Organization.<sup>41</sup>

# A full-service healthcare partner

In the past 10 years, Novo Nordisk has evolved from a sales and marketing operation in Algeria into a fully integrated partner with a range of local stakeholders, such as patient associations, healthcare professionals and government authorities. Consistent with the Triple Bottom Line principle, we:

**Take a patient-centred approach** through programmes and events that promote awareness, diagnosis of diabetes and quality of care

**Engage in technology and knowledge transfer** through highly skilled jobs and through clinical studies of innovative products for the Algerian population

**Ensure the availability of high-quality diabetes medicines** through local production for the domestic market



**2013**

Inauguration of the Changing Diabetes® Barometer in partnership with the Ministry of Health.

**2014**

External nurses trained to perform patient education.

**2015**

Decision to expand our OAD production facility.

**2016**

Decision to establish a pre-filled device assembly line.



THANINA BENTALEB  
Business Controller  
Novo Nordisk, Algeria

# We raise awareness about diabetes

Through awareness activities and an innovative partnership with the Ministry of Health, Novo Nordisk helps bring diabetes care throughout the country. Through these efforts, we spread awareness and knowledge, and help people take control of their health.

In Algeria, 700,000 people – 41% of all people with diabetes – do not know they have the condition.<sup>5</sup> Undiagnosed, people neither receive treatment nor learn how to manage their diabetes to prevent complications.

The Algerian Ministry of Health acknowledges that education, healthy lifestyles, screening for and treatment of non-communicable diseases (NCDs) in the early stages are effective ways to reduce the burden of NCDs. In 2010, the Ministry of Health developed a National Diabetes Plan (NDP) listing several priorities, including prevention.<sup>33</sup>

The development of Algeria's NDP was prescient, given the target within the

Global Goals to reduce premature deaths from NCDs by one-third.<sup>17</sup> Novo Nordisk believes that achieving this target will require a balanced strategy that spans effective strategies for prevention, detection and treatment.

Some of the ways we raise awareness about diabetes are through the Changing Diabetes® Mobile Clinic and Village (Infobox 4) and World Diabetes Day (Infobox 5).

## Early diagnosis of diabetes improves health

The goal of diabetes treatment is to prevent complications. Early and timely diagnosis and treatment may help



## 4.5 more years

without complications when people are diagnosed early<sup>A</sup>

people to manage their disease and live healthier lives free from complications.<sup>5,19</sup>

Patients who are diagnosed before complications occur, and who achieve near-normal HbA<sub>1c</sub>, cholesterol and blood pressure levels,<sup>16</sup> can expect to live 4.5 years longer without complications com-

### INFOBOX 4 — NOVO NORDISK INVESTS IN...

## Changing Diabetes® Mobile Clinic and Village

Novo Nordisk shares the Ministry of Health's interest in preventing diabetes. In 2011, the [first public-private partnership](#) between the Ministry and a pharmaceutical company took place with the establishment of the Changing Diabetes® Mobile Clinic and Village.

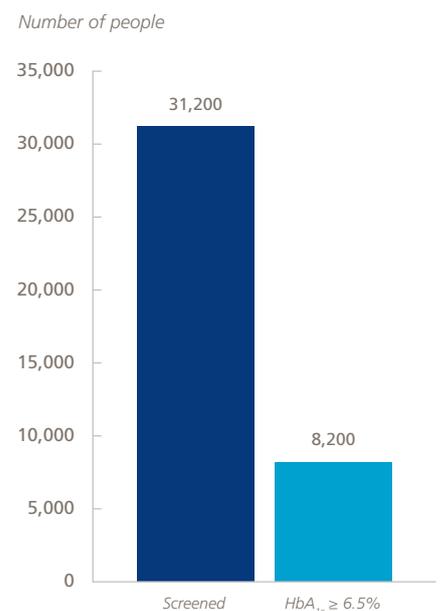
The Mobile Clinic debuted in Blida in 2011. Since then, more than 120,000 people from the general public<sup>B</sup> have visited the Mobile Clinic across Algeria, allowing Novo Nordisk, under the auspices of the Ministry of Health, to reach remote areas of the country. The Mobile Clinic supports raising awareness of

diabetes through screenings of people at risk and 360° health checks for those already diagnosed. The clinic's activities contribute to the Ministry's efforts to meet its diabetes prevention goals.

People who are screened and identified as having a high HbA<sub>1c</sub> level<sup>C</sup> (Figure 4) are referred to a doctor for diagnosis. In addition, at each stop, we conduct training and facilitate relationships between local general practitioners and specialists, who share their knowledge. In these ways and others described in the following pages, the Mobile Clinic and Village have lasting effects, even after they move on.

FIGURE 4 — SCREENINGS AT THE MOBILE CLINIC

26% of people screened have been identified as having a high HbA<sub>1c</sub> level<sup>B</sup>



 31,200 people screened<sup>B</sup>

 17 cities visited<sup>B</sup>

 Ministry of Health partnership

<sup>A</sup> Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model<sup>15</sup> for people with diabetes who are currently undiagnosed.<sup>5</sup> See Methodology on p 26.

<sup>B</sup> Data from the Mobile Clinic as per April 2016.

<sup>C</sup> Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model<sup>15</sup> for the 22,300 people who have received a 360° health check at the Mobile Clinic.<sup>7</sup> See Methodology on p 26.

pared to those who are diagnosed when symptomatic and consequently have been untreated.<sup>A</sup> More than eight out of 10 kidney failures could be avoided if diabetes were diagnosed before health deteriorates.<sup>A</sup>

Early diagnosis has also been shown to produce cost savings.<sup>A</sup> If people with diabetes were diagnosed before the onset of complications, a slight increase in the cost of treatment would be more than offset by reductions in the cost of complications.<sup>A</sup>

### Lower blood sugar levels reduce the risk of complications

People already diagnosed with diabetes may receive a head-to-toe 360° health check at the Changing Diabetes® Mobile Clinic and Village to screen for complications (Infobox 4). So far, 22,300 people with diabetes have received a 360° health check.

One or more diabetes-related complications have been found in 63% of people

who have benefited from these examinations.<sup>7</sup> This prevalence rate supports the fact that people struggle to achieve treatment targets. Among those who have been diagnosed and have received a 360° health check, the average HbA<sub>1c</sub> is 9.2%.<sup>9</sup>

At the 360° health check, patients receive medical advice on how to manage their diabetes. If all 22,300 people were to achieve near-normal HbA<sub>1c</sub>, cholesterol and blood pressure levels,<sup>16</sup> it could prevent 265 kidney failures.<sup>C</sup>

INFOBOX 5 — NOVO NORDISK INVESTS IN...

## World Diabetes Day

Since 2008, Novo Nordisk has celebrated World Diabetes Day in Algeria in partnership with the Ministry of Health. The day, celebrated annually on 14 November, aims to draw attention to diabetes as a major public health challenge.

Aside from the public awareness it generates, World Diabetes Day presents an opportunity for Novo Nordisk to [unite with people with diabetes, health authorities and healthcare professionals](#) to discuss how diabetes affects patients and the Algerian society. In Algeria, Novo Nordisk has hosted eight World Diabetes Day [National Diabetes Forums in partnership with the Ministry of Health](#). At these meetings, stakeholders come together to discuss awareness, prevention, diagnosis, treatment and strategies for meeting the challenges of diabetes at national level.

## More than 120,000 people have visited the Changing Diabetes® Mobile Clinic since 2011



# We improve accessibility to diabetes care

People with diabetes benefit when healthcare professionals have the knowledge, skills, tools and facilities to treat diabetes and to help people with diabetes manage their health. In cooperation with the Ministry of Health, Novo Nordisk is engaged in innovative programmes that bring quality care to more people who need it.

Currently, there is no cure for diabetes, so the goal of treatment is to ensure the well-being of patients and avoid complications by managing blood sugar. Far too many people with diabetes, however, exceed the recommended HbA<sub>1c</sub> level of  $\leq 7\%$ .<sup>8</sup> In Algeria, more than a third of patients have an HbA<sub>1c</sub> level above 9%.<sup>8</sup>

From data collected through the Mobile Clinic, we see that access to regular diabetes care and follow-up varies across the country.<sup>7,9</sup> We see that patients who routinely visit a specialist are generally in better control of their diabetes and tend to achieve treatment targets more often than those who are treated by a general practitioner (GP).<sup>9,A</sup> However, only half of people with diabetes see a specialist for regular follow-up and care.<sup>7,9</sup>

Some of the ways we improve accessibility to diabetes care are through healthcare professional (HCP) training (Infobox 7) and the Changing Diabetes® Barometer (Infobox 8).



## 92% of HCPs

believe that if they had better diabetes care knowledge, patients would benefit<sup>14</sup>

### Healthcare professionals call for more knowledge about diabetes

To some extent, the discrepancy in HbA<sub>1c</sub> levels between patients who see a specialist and those who visit a GP for regular follow-up and care may be explained by differences in knowledge and training between the two disciplines.<sup>14</sup> For GPs, for example, we see that 73% want

“ The Barometer project has changed my way of taking care of patients.”

*Nassima Sekhri*

*General practitioner, Diabetic House  
Ruisseau Barometer Centre, Algeria*

more training and support regarding diabetes-related complications so that they can provide their patients with better care.<sup>14</sup> Closing this knowledge gap, then, has the potential to improve patient care and outcomes.

The Changing Diabetes® Barometer project (Infobox 8) may also motivate HCPs to provide consistently high-quality care over time. One of the objectives of the project is to establish performance indicators, measure quality of care and identify unmet needs through a registry



FATIHA CHERKI  
Fatiha has type 2 diabetes  
Algeria

and tracking system. Over the next years, the project will follow 24,000 people with diabetes (Infobox 6).<sup>7</sup>

#### INFOBOX 6

## Ambition for the Changing Diabetes® Barometer

The Barometer is a project co-organised by the Algerian Ministry of Health and Novo Nordisk. In addition, the project is integrated into the National Diabetes Plan. The project will bring multidisciplinary diabetes care to thousands of people with diabetes across Algeria.



**24,000 patients** will receive care and regular follow-up



**30 Barometer Centres** will be established across the country



**24 cities** in Algeria will have Barometer Centres

<sup>A</sup> The terms 'general practitioner' and 'primary care physician' are used interchangeably.

<sup>8</sup> Data as per April 2016.



NABIL KHIKHI  
Business IT Project Coordinator  
Novo Nordisk, Algeria

INFOBOX 7 — NOVO NORDISK INVESTS IN...

## Healthcare professional training

Part of making diabetes care more accessible means helping HCPs broaden their [knowledge about medical and behavioural interventions](#). To meet this need, Novo Nordisk has conducted more than 220 in-depth diabetes care training sessions for HCPs in Algeria since 2010.<sup>7</sup>

We offer a 100-hour, multidisciplinary training course where HCPs learn to communicate effectively with one another and their patients about diabetes care.<sup>7</sup> During this course, we train specialists, general practitioners, nurses, dieticians and psychologists using a [team-based approach to provide optimal, patient-centred care](#), geared to the skills of each discipline.



**220 training sessions** conducted since 2010<sup>B</sup>



**39 provinces<sup>B</sup>** have benefited from our HCP training



**5 HCP specialisms** included in a multidisciplinary approach

INFOBOX 8 — NOVO NORDISK INVESTS IN...

## Changing Diabetes<sup>®</sup> Barometer

Novo Nordisk supports the government's efforts to improve access to multidisciplinary diabetes care through the Changing Diabetes<sup>®</sup> Barometer. The Barometer is a project co-organised by the Algerian Ministry of Health and Novo Nordisk.

Barometer Centres are at the heart of the project. These centres provide patients with access to [high-quality, multidisciplinary diabetes care at no cost in many parts of the country](#). Since 2012, we have opened 26 Barometer Centres in 20 cities.<sup>7</sup> Each time a Mobile Clinic (Infobox 4) stops, we open a Barometer Centre in the same city. This ensures not only that people are diagnosed, but that they have a place to obtain treatment and care after the Mobile Clinic moves on.



**26 Barometer Centres** in 20 cities<sup>B</sup>



**12,000 patients** currently receive regular follow-up at Barometer Centres<sup>B</sup>



**More than 150** GPs, specialists, nurses and diabetes educators work at the centres<sup>B</sup>

### HCP training improves diabetes care knowledge

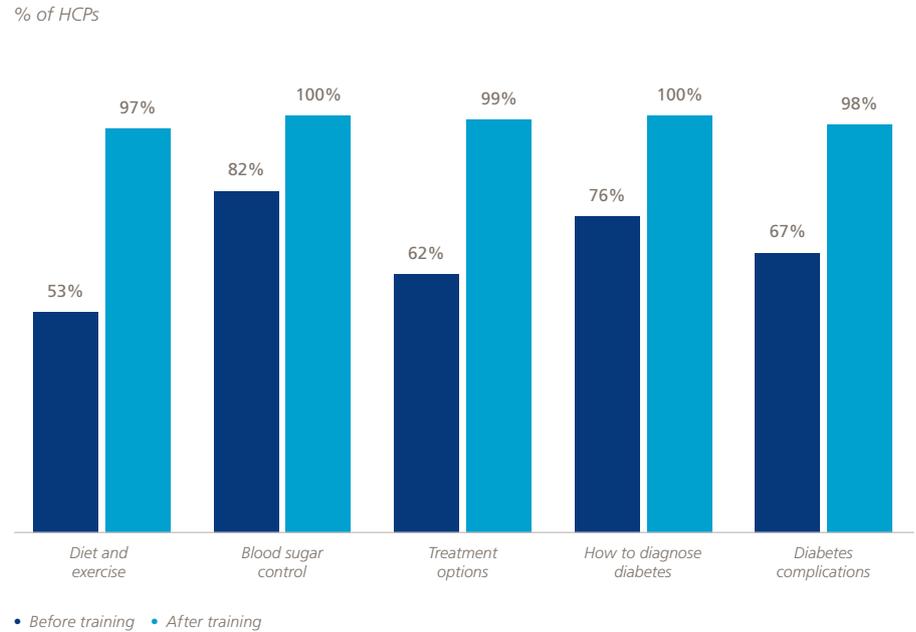
Our investment in training healthcare professionals (HCPs) results in tangible benefits. According to HCPs, industry-sponsored training is effective in increasing their knowledge about diabetes care, particularly in the areas of diet and exercise, treatment options and diabetes complications<sup>14</sup> (Figure 5).

Across disciplines, the greatest knowledge improvements occur among nurses and general practitioners (GPs).<sup>14</sup> For example, 33% of nurses report that they had good knowledge about diabetes-related complications before training, compared to 97% of nurses after training.<sup>14</sup> As an integral part of the care team, nurses can educate patients about diet, exercise and management of complications. For their part, GPs learn about treatment options and diabetes-related complications, among other things,<sup>14</sup> so that a given patient receives the most appropriate treatment and care.

Ultimately, training HCPs in diabetes care improves access to quality care for patients, as many GPs who have participated in this training see more than 200 people with diabetes per month.<sup>14</sup>

FIGURE 5 — KNOWLEDGE LEVEL AMONG HCPs

## HCPs report increased knowledge levels after participating in diabetes training



**Note** — HCPs (GPs, specialists and nurses) were asked: "How would you rate your knowledge of diabetes before and after participating in training in terms of the following aspects?" Respondents answering 'Very good' or 'Quite good'.



MOUFIDA HALALCHI  
Moufida has type 1 diabetes  
Algeria

## HCP training improves quality of care

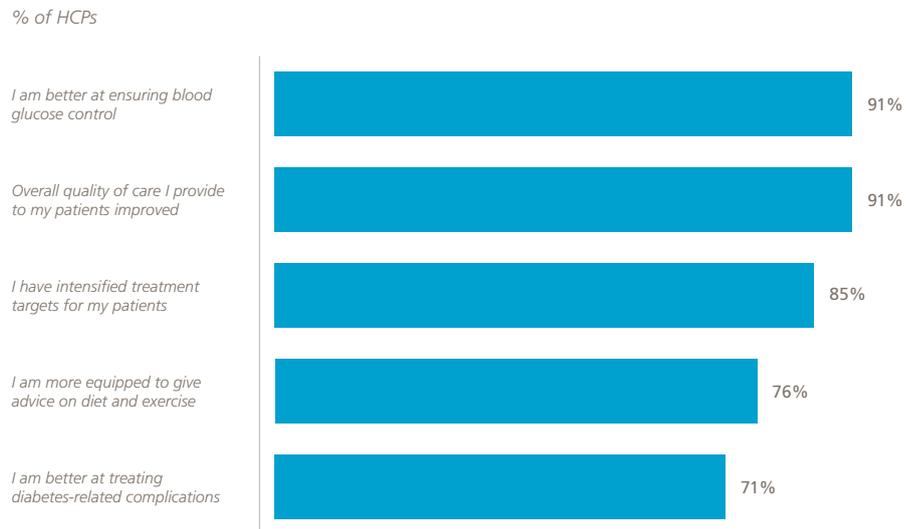
The benefits of investing in HCP diabetes care training extend to people with diabetes. HCPs believe that the knowledge and skills they acquire through this training improve the quality of care they provide<sup>14</sup> (Figure 6).

As many as 97% of nurses and 95% of GPs agree that the overall quality of the care they provide has improved as a result of the knowledge gained through their training.<sup>14</sup> In addition, seven out of 10 HCPs say they are better at treating diabetes-related complications as a result of participating in training in diabetes care.<sup>14</sup>

GPs who have received training are more likely to keep a close eye on indicators of good control such as blood sugar levels, blood pressure and cholesterol levels.<sup>14</sup> This underlines the important role GPs have in the treatment and care of people with diabetes in Algeria.

FIGURE 6 — IMPROVEMENT IN DIABETES CARE

## The vast majority of HCPs believe that the knowledge and skills they acquire improve quality of care



**Note** — HCPs (GPs, specialists and nurses) were asked: "To what extent, if at all, do you agree that knowledge you acquired through training leads to the following improvements?" Respondents answering 'Strongly agree' or 'Somewhat agree'.

## Local diabetes centres improve access to HCPs and care facilities

With the establishment of diabetes centres across Algeria, the Changing Diabetes® Barometer partnership with the Ministry of Health has improved the accessibility of diabetes care.

Take, for instance, the effect of the Barometer Centre in the city of Adrar, in the province of the same name in south-western Algeria. Prior to the opening of this centre, no multidisciplinary healthcare infrastructure existed for people with diabetes in this Sahara desert city with a population of 65,000.<sup>42</sup> Those who could, would travel a long way by bus to cities in the north for

regular care in the private sector. Many, however, may have been unable to afford the cost of travel or taking time off work, making this choice impractical.

Today, thanks to the Barometer Centre in Adrar city, the average travel time to receive care for people living here is 30 minutes – at a cost of less than one euro.<sup>7</sup> Previously, people living in Adrar city could travel up to eight hours, having to pay more than 20 euros for travel and to see a doctor.<sup>7</sup> This proximity allows people with diabetes to receive more regular care and also to see HCPs trained in diabetes care at no cost.<sup>7</sup>



**88%** lower cost to see a healthcare professional annually



**81%** reduction in travel time for care on a yearly basis



**3 times** more visits to the healthcare professional

# We enhance quality of life for patients

Diabetes often interferes with people's daily lives. Novo Nordisk has invested in patient education and other initiatives to help people with diabetes understand and manage their condition well, and avoid complications.

For some, it can be difficult to grasp that diabetes is a lifelong condition that currently cannot be cured. It requires lifestyle changes and care for the rest of the person's life. Only around one in 10 people with diabetes achieves the recommended treatment target of an HbA<sub>1c</sub> level below 7%.<sup>5,7,8,9,18</sup>

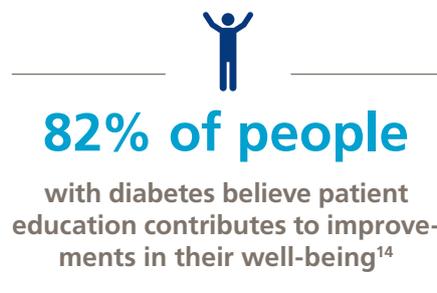
If a person with diabetes does not achieve treatment targets and therefore has an increased risk of complications, it may be necessary to intensify medical treatment in addition to proper care. However, many people simply do not know how to monitor their blood sugar and use their medicine.<sup>14</sup> Although people with diabetes generally have

good basic knowledge about diabetes, misconceptions are still prevalent. For example, some believe that they must stop treatment while fasting.<sup>14</sup>

To be in good control, people with diabetes need to know how to manage the

condition in their daily lives.<sup>19</sup> Through patient education, people with diabetes can gain knowledge to help them reduce the impact of their condition on their well-being<sup>14</sup> (Figure 7).

Some of the ways we enhance quality of life for patients are through patient education (Infobox 9) and the Diabetes and Ramadan Campaign (Infobox 10).

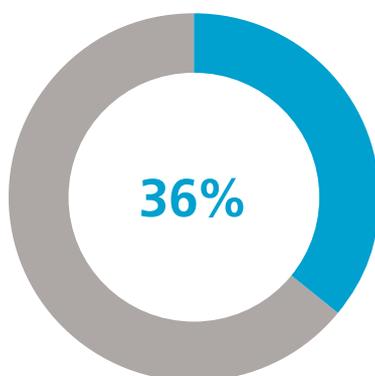


## Patient education improves diabetes care knowledge

Patient education leads to significant improvements in the knowledge level of people with diabetes in Algeria.<sup>14</sup> Compared with before the education sessions started, six times as many people

FIGURE 7 — INTERFERENCE WITH DAILY LIFE

One-third of patients say that they have recently felt limited at work due to their diabetes



**Note** — Patients were asked: "During the last 30 days, did you feel limited in the kind of work or other activities you were able to do due to your diabetes?"

INFOBOX 9 — NOVO NORDISK INVESTS IN...

## Patient education

In 2008, Novo Nordisk became the **first pharmaceutical company in Algeria to engage people with diabetes in patient education.**

We began by training our own educators, but to meet strong demand, we expanded the programme by enrolling external nurse educators **certified by the Société Francophone du Diabète** (French diabetes society). Today, 63 educators convey life-saving knowledge and skills at no cost to patients.<sup>7</sup>

Around the country, we have conducted training sessions for 213,000 patients since the programme started.<sup>7</sup> These smaller group settings with approximately eight patients per session cover a **broad range of topics**, including diet and exercise, self-management, complications, how to use medicine and how to prevent hypoglycaemic events.



**In 2008**, the first patient education session took place



**63 educators** currently involved in the programme<sup>A</sup>



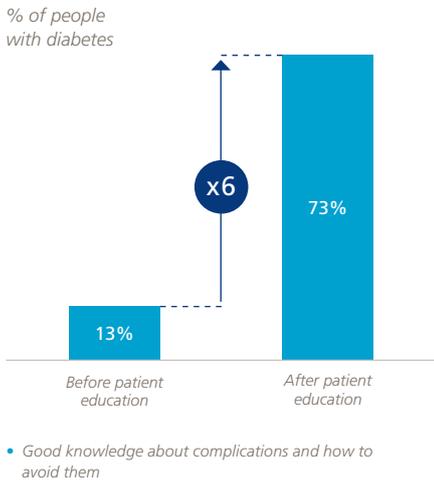
**213,000 patients** educated<sup>A, B</sup>

<sup>A</sup>Data as per April 2016.

<sup>B</sup>Some patients might have participated in several sessions on different topics.

FIGURE 8 — DIABETES CARE KNOWLEDGE

**Six times as many people know how to avoid diabetes complications after taking part in patient education**



**Note** — People with diabetes who have attended patient education sessions were asked: “How would you evaluate your level of knowledge regarding what the complications of diabetes are and how to avoid them before and after the patient education session?” Respondents answering ‘Quite good’ and ‘Very good’.

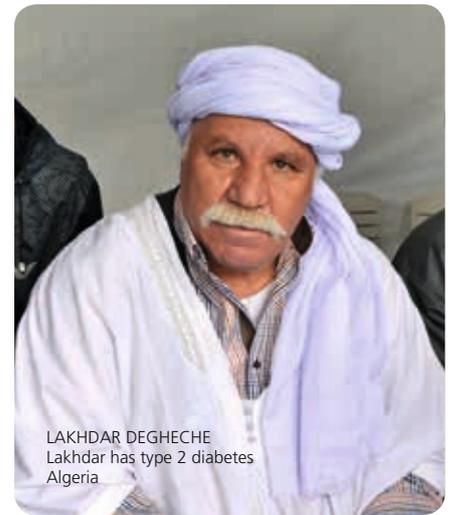
say they have a good understanding of the complications of diabetes and how to avoid them<sup>14</sup> (Figure 8). Three times as many understand how to take their medicine, and improvements of a similar magnitude are seen in people’s knowledge about diet and other aspects of self-management.<sup>14</sup>

**Patient education is useful for self-management**

There is evidence that patient education leads to improvements in care.<sup>14</sup> People who have received diabetes care education say that they are now more confident in their ability to manage their diabetes and take care of themselves.<sup>14</sup> More than three-quarters of people with diabetes found the sessions on how to take their medicine useful in their daily lives.<sup>14</sup>

In addition, more than half gained insights into living with diabetes while practising their religion.<sup>14</sup> In Algeria, this is particularly important during

Ramadan, when nearly eight out of 10 of people with diabetes fast<sup>25</sup> (Infoboxes 9 and 10). Within this group, most report having experienced dizziness and fatigue, leading many to break their fast.<sup>24</sup> In addition to appropriate treatment, one way to avoid these complications could be through patient education.



INFOBOX 10 — NOVO NORDISK INVESTS IN...

**Diabetes and Ramadan Campaign**

When fasting during Ramadan, people living with diabetes must be careful not to place themselves at risk of dehydration, or extreme low or high blood sugar. People with diabetes who are fasting should do so under medical supervision. However, 36% of patients do not consult a doctor before fasting, for reasons that may include the stigma surrounding diabetes.<sup>24</sup>

We know that people with diabetes who fast under a doctor’s supervision have better blood glucose control.<sup>24</sup> This was the starting point for Novo Nordisk’s annual Diabetes and Ramadan Campaign. Supported by the Ministry of Religious Affairs, this unique awareness effort promotes the importance of adapting diabetes treatment in consultation with a doctor when fasting during Ramadan. Since its inception in 2010, the programme has reached more than 39,600 patients, educating them about various aspects of managing their diabetes during Ramadan.<sup>7</sup>

In addition, this campaign supports healthcare professionals (HCPs) by supplementing their knowledge. More than 250 HCPs have taken part in training sessions on how to communicate with people with diabetes about reducing health risks during this time of fasting.<sup>7</sup>



**Supported by the Ministry of Religious Affairs**



**39,600 patients** reached with recommendations on managing diabetes during Ramadan<sup>A,B</sup>



**250 HCPs** have taken part in training sessions<sup>A</sup>

# Clinical research drives innovation and better patient care

Clinical research may lead to better treatment options for people with diabetes. Our key contribution is to discover and develop innovative biological medicines<sup>37</sup>...

We conduct clinical research to document the efficacy, safety profile and optimal use of medicines.<sup>43</sup> Clinical research enables us to develop products that benefit patients by addressing convenience, medical needs and safety concerns.

## Innovation in treatment requires clinical research

In the past, innovation led to the development of insulins requiring fewer daily injections and insulins that can be dose-adjusted with meals.<sup>44</sup>

Today, eight out of 10 people with diabetes in Algeria worry about the risk of hypoglycaemic events.<sup>45</sup> Many of their doctors believe medicine that could reduce this risk would improve patient outcomes.<sup>14</sup> We search for these breakthroughs by embracing the highest standards of clinical research.

## Clinical research drives better patient care

Globally, 13% of our annual sales are reinvested in research and development (R&D).<sup>39</sup> In Algeria, we have seen average annual growth of 9% in the number of employees driving our R&D activities since 2009.<sup>7</sup>

In Algeria, two-thirds of all diabetes clinical research studies since 2008 have been conducted by Novo Nordisk<sup>13</sup> (Figure 9). During this time, we have involved more than 6,000 patients<sup>A</sup> in local studies at 25 research sites.<sup>7</sup>



## 1.8 billion euros

invested globally in R&D by Novo Nordisk in 2015<sup>39</sup>



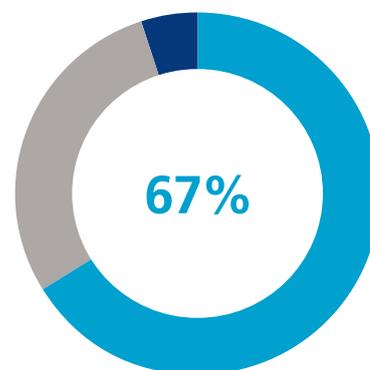
## 75% of HCPs

in a study said clinical trials contribute to improvements in treatment and care<sup>43</sup>

Besides the development of new innovative medicines, the benefits to patients from clinical research can be seen at both the research site and in the local treatment setting. In a study carried out in India, the US and Denmark, 80% of patients said that their involvement in clinical trials resulted in HbA<sub>1c</sub> improvements.<sup>43</sup> In Algeria, more than 150 doctors have been involved in our clinical research,<sup>7</sup> gaining knowledge they can use to improve care for their patients when the study is over.

FIGURE 9 — CLINICAL RESEARCH IN ALGERIA

2 out of 3 diabetes clinical studies in Algeria are conducted by Novo Nordisk



- Novo Nordisk
- Industry (not Novo Nordisk)
- Non-industry

## INFOBOX 11

# The Novo Nordisk Way of conducting clinical research

Our clinical research is based on [global standards](#) and executed with an overarching focus on engaging with stakeholders and maintaining a high level of scientific and process quality.<sup>43</sup>

We pursue open communication with stakeholders, rooted in a sense of accountability and guided by a desire for mutual respect.

We keep the [patient at the centre](#) and strive for the best scientific results, which requires attention to [rigorous science and processes](#).

We advance [treatment area expertise](#) as learnings from the trials are analysed and shared, contributing to the spread of scientific knowledge.<sup>43</sup>

We support [the development of research sites](#) by developing necessary capabilities, for example staff training and research competences.<sup>43</sup>

We create relationships when executing clinical trials as [we do not outsource late-phase clinical trials](#) and prefer to generate scientific advancements in direct collaboration with our investigators.<sup>43</sup>

<sup>A</sup> Number includes interventional and non-interventional studies.

# Local production contributes to knowledge and technology transfer

... and make them accessible to patients throughout the world.<sup>37</sup> Local production provides high-quality medicines to people with diabetes and supports society through the transfer of technology and knowledge in addition to economic diversification.

For many decades, Algeria's economy has relied on oil and gas exports. With changes in the economic environment, the government has set out to diversify the economy.

One focus of economic diversification is the production of medicines. The government has an ambition that, within the near future, the majority of pharmaceutical products consumed should be produced locally.<sup>46</sup> Through investments in local production, Novo Nordisk has been working to support this objective for many years.



## We are committed to quality

Novo Nordisk is the world's largest producer of insulin, with more than 90 years of manufacturing experience.<sup>39</sup> Making protein-based pharmaceuticals such as insulin is a highly sophisticated task. It requires large investments in sterile production facilities and strict adherence to quality standards to produce a uniform product.<sup>39</sup>

Around the world, our production facilities comply with international and national regulations, as well as Novo Nordisk's global quality management system.<sup>39</sup> Our production facilities in Algeria meet the same consistent, high-quality thresholds we demand of ourselves worldwide.

In addition to direct production in Algeria, we are engaged in a strategic partnership with state-owned SAIDAL Group to produce insulin.

## We aim to expand our local production

Novo Nordisk's own production facility in Tizi Ouzou opened in 2006 with 20 employees.<sup>7</sup> Today, this facility employs 165 people.<sup>7</sup> Our current investments in the expansion of this facility will significantly increase the number of people who can benefit from our locally produced oral antidiabetic products (OAD). We are also investing in a pre-filled device assembly line which, when completed, will meet



**500,000 people**  
with diabetes in Algeria can benefit annually from our current OAD production in Tizi Ouzou<sup>A</sup>

the needs of many people with diabetes and also help the government to achieve its ambition for locally produced medicines. Our local production will enable us to meet Algerian needs and potentially also enable us to export in the future.



**Zero CO<sub>2</sub>**

emission target for our production facility in Tizi Ouzou by 2020<sup>47</sup> enables further technology transfer

## We partner to produce insulin locally

In Constantine, SAIDAL Group is upgrading its production facility to produce human insulin using raw materials supplied by Novo Nordisk. This facility will produce enough insulin each year to meet the needs of 150,000 people with diabetes.<sup>7,A</sup>

SAIDAL Group is also building a new facility in Constantine for the production of modern and human insulin in cartridges. When in full operation, this facility will be capable of covering the needs of more than 800,000 people with diabetes.<sup>7,A</sup>

Novo Nordisk has partnered with SAIDAL Group to establish a leading quality management system at the facilities. With SAIDAL Group, we maintain the same high standards of quality as in our own facilities. We share knowledge, facilitate technology transfer, and train SAIDAL Group staff in the scientific complexities of insulin production and in good manufacturing practice.

<sup>A</sup> The number is estimated based on average insulin and OAD dose as recommended by the World Health Organization.<sup>41</sup>

# Overall value for society

To summarise, some of the ways we contribute to better care are through activities that boost diagnosis rates, strengthen quality of care and improve patient well-being. Furthermore, our commitment to Algeria extends to clinical research that may lead to improvements in diabetes care, and local production that creates jobs.

## Early diagnosis reduces and delays complications

In line with the Global Goals and the target to reduce premature deaths from NCDs,<sup>17</sup> early diagnosis of diabetes may delay onset and reduce the number of complications in people with diabetes.<sup>A</sup> People who are diagnosed before symptoms occur enjoy 4.5 more years free from complications than people who are diagnosed when symptomatic.<sup>A</sup> Further-



**89% of the cost**

**of kidney complications could be avoided through early diagnosis<sup>A</sup>**

more, 83% of kidney failures may be avoided through early diagnosis.<sup>A</sup>

## HCP training strengthens quality of care

Optimal care builds on an informed dialogue between people with diabetes and HCPs who are knowledgeable about how to diagnose, treat and manage complications.<sup>19</sup> As a result of participating in diabetes care training, 71% of HCPs say they are better at treating diabetes-related complications, and 91% say that the quality of the care they provide has improved.<sup>14</sup>

## Patient education improves their overall well-being

When people with diabetes understand how to manage their condition, they may become more independent and make lifestyle adjustments, test their



**91% of HCPs**

**say the quality of the care they provide has improved since training<sup>14</sup>**

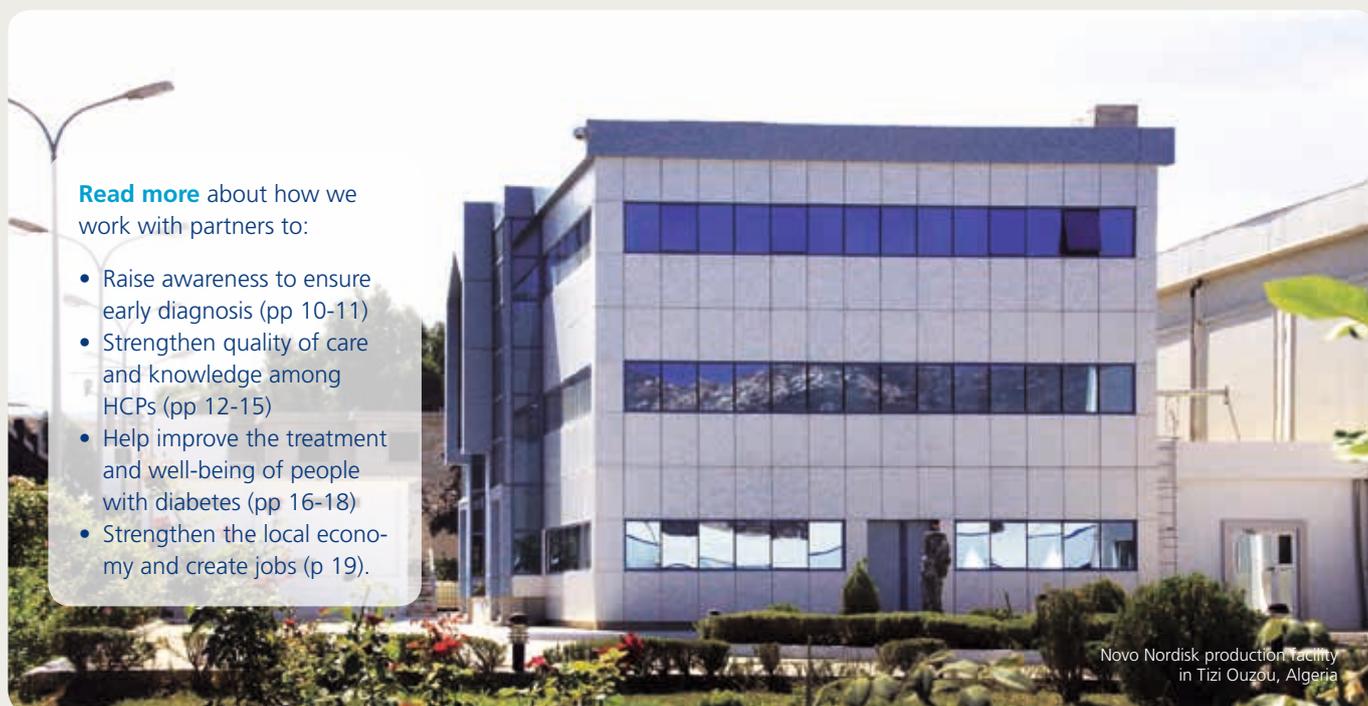
blood sugar, and take their medicine as prescribed. Patient education leads to improvements in patient knowledge in many aspects of care – we see a sixfold increase in the number of patients saying they know about complications and how to avoid them.<sup>14</sup>

## Clinical research leads to improvements in treatment

Clinical research brings innovation to the country. Since 2008, Novo Nordisk has conducted two-thirds of all diabetes

**Read more** about how we work with partners to:

- Raise awareness to ensure early diagnosis (pp 10-11)
- Strengthen quality of care and knowledge among HCPs (pp 12-15)
- Help improve the treatment and well-being of people with diabetes (pp 16-18)
- Strengthen the local economy and create jobs (p 19).



Novo Nordisk production facility in Tizi Ouzou, Algeria

<sup>A</sup> Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model<sup>15</sup> for people with diabetes who are currently undiagnosed.<sup>5</sup> See Methodology on p 26.

<sup>B</sup> Jobs in the surrounding economy include indirect jobs created at suppliers and induced jobs through household consumption. See Methodology on p 26.



## 82% of patients

believe education has led to improvements in their well-being<sup>14</sup>

clinical research studies run in Algeria.<sup>13</sup> A study carried out in India, the US and Denmark shows that the knowledge HCPs gain from participation in clinical research is taken back home for the benefit of their patients.<sup>43</sup> Among HCPs who have participated in clinical trials, 75% report that they believe these activities have contributed to overall improvements in treatment and patient care at their hospital or clinic.<sup>43</sup>

### Innovating diabetes care holds great potential

Combined, access to quality treatment and care, knowledgeable HCPs, and

healthy and empowered patients could lead to health and cost benefits for Algeria (Figure 10). If those currently undiagnosed are diagnosed before their health deteriorates, and if all people with diabetes achieve near-normal blood sugar, blood pressure and cholesterol levels today,<sup>16</sup> 15,500 kidney failures could be avoided and 439 million euros could be saved.

### Local production strengthens the economy

Novo Nordisk produces diabetes medicines in Algeria and has partnered with SAIDAL Group to produce insulin,



## 3.8 jobs created

in the economy for each Novo Nordisk employee<sup>B</sup>

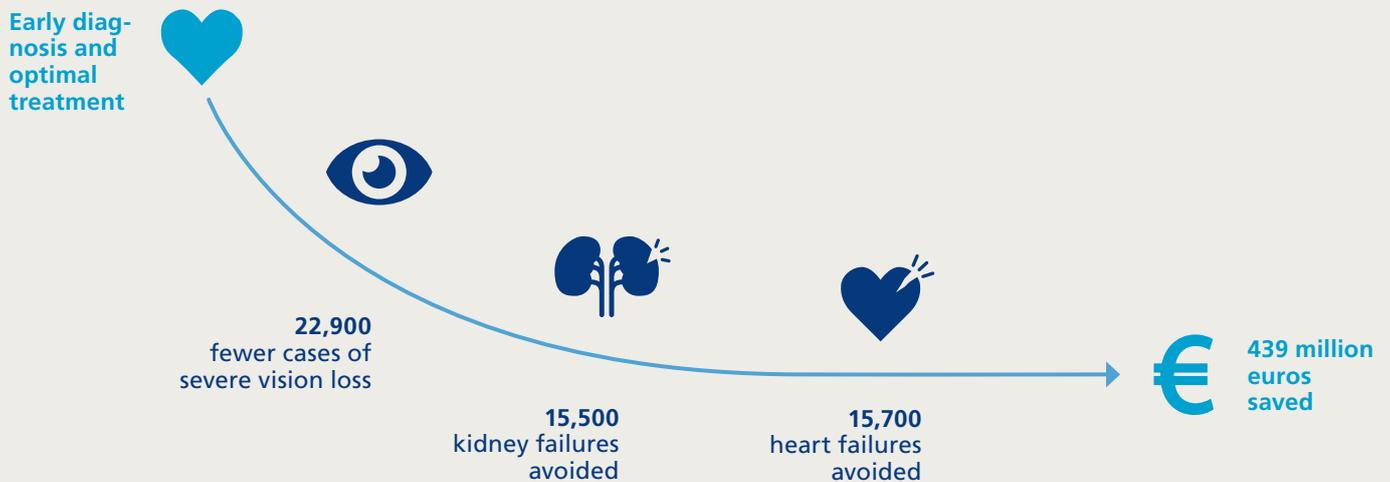
resulting in continuous and countrywide access to locally produced, high-quality diabetes medicines. Combined, these efforts contribute to strengthening the Algerian economy through job creation, technology and knowledge transfer, and diversification.

### Job creation beyond our walls

Our job creation goes beyond the number of people who work for us directly – hiring has a knock-on effect that leads to indirect job creation at our suppliers and induced job creation as a result of household spend. Today, we employ more than 440 people,<sup>7</sup> with a knock-on effect that results in 1,600 additional jobs outside our walls in the surrounding economy.<sup>B</sup> We expect further job creation in the future – both directly and indirectly, as we keep investing in the growth of our business in Algeria ahead of the diabetes curve.

FIGURE 10 — POTENTIAL BENEFITS OF EARLY DIAGNOSIS AND OPTIMAL TREATMENT TO MULTIPLE TARGETS

# Early diagnosis and optimal treatment of diabetes may lead to better health and cost benefits



**Note** — Calculations relate to a 15-year period and are based on the IMS CORE Diabetes Model.<sup>15</sup> The simulated effects of early diagnosis of those currently undiagnosed with diabetes<sup>5</sup> are added to the simulated effects of optimal treatment to multiple targets<sup>16</sup> for people currently diagnosed.<sup>5</sup> See Methodology on p 26.

# Overall value for Novo Nordisk

We do business with long-term value creation in mind. This requires partnering with local stakeholders and creating an organisational culture that attracts and retains the best people.

Our long-term success depends on our ability to generate societal and business value. That is why we invest in addressing diabetes care in partnership with stakeholders in the communities where we do business.

Strategic growth markets, such as Algeria, offer enormous potential for improving diabetes awareness, knowledge and care. We believe that our patient-centred way of doing business and focus on stakeholder relations have enabled us to maintain our leadership position in Algeria over several years.



## 1 out of 2

people with diabetes in Algeria who receive treatment use Novo Nordisk products<sup>40</sup>

### A good reputation is the foundation for a successful business

The way a healthcare company does business in a market is important, because its reputation influences its ability to succeed. In Algeria, factors that shape a company's reputation among healthcare professionals (HCPs) (Infobox 12)<sup>14</sup> align with our values and with our activities described in this case study. Patients rely on their HCPs for advice.<sup>14</sup> Therefore, our reputation among HCPs is key in securing our position as the market leader.

It is a priority for us to maintain relationships based on mutual trust with our stakeholders. We are now considered a local company by the government and were the first private pharmaceutical company in Algeria to form a partnership

“ If we're not seen as creating value for the local communities in which we have a presence and the countries in which we do business, we will not be successful in the long run.”

Lars Rebien Sørensen  
President and CEO, Novo Nordisk

with the Ministry of Health to address the burden of diabetes. We conduct many of our activities to change diabetes in cooperation with the Ministry of Health and other important organisations.

#### INFOBOX 12

### Top 5 factors HCPs in Algeria consider when forming an opinion of a healthcare company

- 01 Quality and efficacy of products
- 02 High ethical standards
- 03 Investments in the local community, including HCP training and patient education
- 04 A wide product portfolio
- 05 Locally produced products

Note — HCPs (general practitioners, specialists and nurses) were asked: "When you form a perception of a pharmaceutical company and its reputation, how do you rate the importance of the following factors?"

### The best people create the best organisation

Our employees are important for us to stay in business for the long run. Our way of doing business enables us to attract, retain and develop people who are committed to building an outstanding organisation. The Novo Nordisk Way recognises the unique strengths of our employees and fosters a culture of engagement.

“ Each of us is encouraged to do what we're good at, to challenge the status quo, and to constantly develop and improve.”

Abdessamie Belguendouz  
Product Manager, Novo Nordisk  
Algeria

We create a diverse workplace where one-third of managers are women<sup>7</sup> – and an inclusive workplace that provides equal opportunities. We are committed to professional growth and leadership development.



## One of the best places to work in Algeria<sup>48</sup>

We believe that these investments in our corporate culture keep Novo Nordisk competitive in Algeria. Today, we are considered one of the five best companies to work for in Algeria<sup>48</sup> and we filled more than six in every 10 positions in 2014 through internal promotions,<sup>7</sup> reducing the administrative costs of turnover. Moreover, we had a high retention rate of 95% of high-performing employees, rewarding and renewing the commitment of the very best and brightest.<sup>7</sup>



### Employees in Algeria ▶

(From top left)

AMINA HAMOUTENE  
Vice President & General Manager

BACHIR HAMLIL  
Strategic Partnership Manager

MOUSSA KIDOUCHE  
Factory Manager

KHIREDDINE OSMANI  
Diabetes Medical Affairs Manager

ABDELLAH TAIBI  
Total Rewards Specialist

NEWFEL OULMANE  
Public Affairs & Market Access Director



# Our growth in Algeria relies on partnerships

Our vision is to become the Algerian authorities' preferred partner in the fight against non-communicable diseases. We want to work with the government and other key stakeholders towards a shared vision of healthy and empowered people. Fulfilling this vision rests on public health and infrastructure enhancements, clinical research and local production.

The Agenda for Sustainable Development<sup>17</sup> presents an opportunity to improve the lives of people around the world. We believe that an integrated approach, implemented through partnerships and involving the private sector, is crucial to achieving these goals.<sup>49</sup>



**By 2030, the target 3.4 in the Global Goals aims to reduce premature mortality from non-communicable diseases by one-third<sup>17</sup>**

At Novo Nordisk, we particularly welcome the recognition of the growing burden of diabetes and other non-communicable diseases and will do our part to contribute to Goal 3 as well as several other goals through our business.<sup>49</sup>

## Our vision for diabetes care

Novo Nordisk takes a patient-centred approach to innovation and other activities to the benefit of all stakeholders. Our Triple Bottom Line business principle, which ensures that we consider the financial, environmental and social impacts of all our business decisions, enables us to optimise the use of resources and maximise value creation in a sustainable way.

We develop and manufacture innovative biological medicines and make them accessible to patients. We are on a mission to change diabetes and, ultimately, find a cure for it. Our focus extends to other non-communicable diseases, in-

cluding obesity, haemophilia and growth disorders (Figure 11).

No single player can accomplish significant and lasting changes on its own. Our vision is to be the preferred partner in the fight against diabetes and other non-communicable diseases.

Our activities in Algeria focus on public health and infrastructure, clinical research and local production, among other things (Figure 11).



## Healthy and empowered

**people receive optimal treatment and care, and live free from complications**

## Public health and infrastructure

Today, many people with diabetes in Algeria are diagnosed by coincidence, visiting their doctors simply because they did not feel well.<sup>14</sup> This points to the need for greater public awareness and knowledge about diabetes to ensure early diagnosis.

For people with diabetes, knowledge about how to live with the condition is important. Public-private partnerships could supplement existing educational activities through settings such as support groups and classes.<sup>14</sup>

People who are treated by a specialist are generally in better control of their diabetes,<sup>9</sup> but there are not enough specialists

to meet demand across Algeria. Training general practitioners, nurses, pharmacists and community workers can play an instrumental role in making good diabetes care more accessible to a large population.

Investing in infrastructure also encompasses the establishment of multidisciplinary centres of excellence for diabetes care and investments in data collection within diabetes and other non-communicable diseases. Furthermore, we support the Algerian authorities in these efforts.

## Clinical research

We focus on innovations that help people live better lives with diabetes. By conducting clinical research in Algeria, we ensure that people with diabetes have faster access to products tailored to their needs.

## Local production

We will continue to produce medicines locally, through our own production facilities and in partnership with SAIDAL Group, making investments that will enable us to increase the volume and broaden the range of medicines we supply for the Algerian market, and potentially enable export in the future. In partnership with SAIDAL Group, we support the estab-



## Strong local production

**and reduced import of essential medicines is an ambition of the Algerian government<sup>46</sup>**

ishment of state-of-the-art insulin facilities and quality management systems. Through these activities, we transfer knowledge and expertise to Algeria.

By increasing the scope of our local production, we help create many new highly skilled jobs. Furthermore, increased production carries the potential to export medicines to other countries. Widening the portfolio of medicines we produce enables further economic diversification and helps to establish Algeria as a biotechnology hub in Africa.

### We invite partners to join us

Successful partnerships attract complementary expertise and resources, offering potential for scaling up the work. Consequently, at the same time as remaining committed to our partners, we invite additional organisations and opinion leaders to discuss collaborations and new partnerships with us. We seek partners that are interested in a shared vision of health improvement, transparency and mutual investment by:

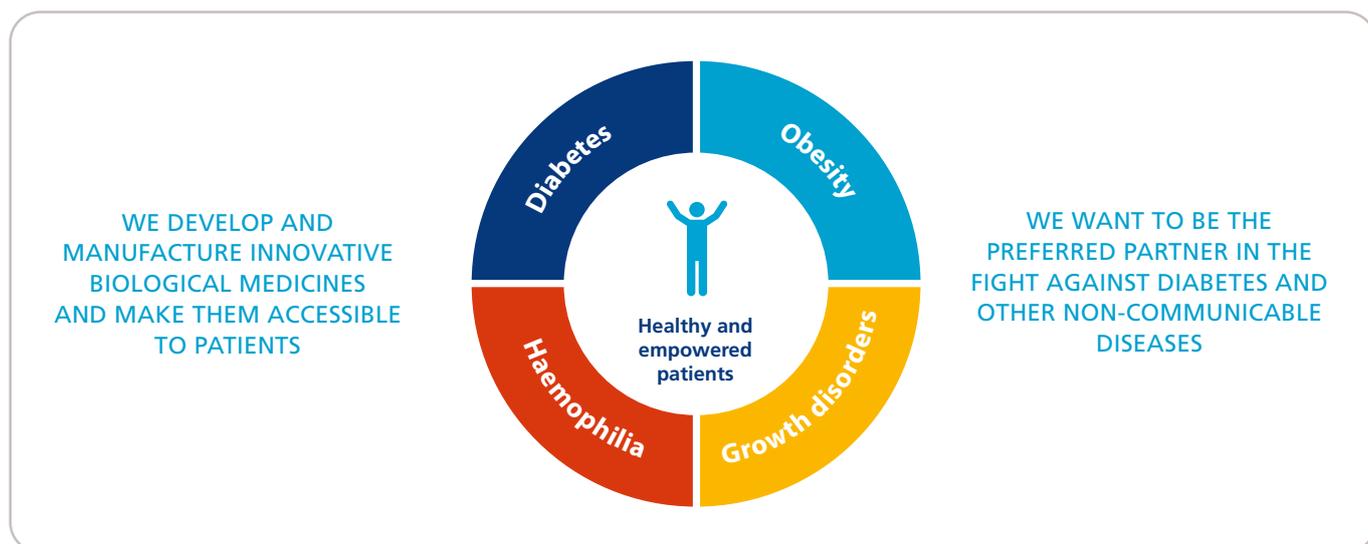
- setting clear goals for what we want to achieve, together and individually

- organising sustainable partnerships in compliance with ethical standards
- working with partners with compatible values and pursuing an open, honest dialogue
- embracing differences and respecting boundaries, acknowledging the integrity and intent of each partner
- measuring performance and impact
- sharing learnings and results.

**Together, we can create sustainable improvements for people with diabetes and other non-communicable diseases in Algeria.**

FIGURE 11 — VISION AND STRATEGY

## A path for achieving a shared vision in Algeria



**Public health and infrastructure**

- Raise awareness about diabetes and non-communicable diseases
- Invest in primary and multi-disciplinary care
- Ensure early diagnosis.

**Clinical research**

- Document the efficacy and safety profile of our products
- Develop innovative high-quality medicines to meet local patient needs
- Ensure early access to innovation.

**Local production**

- Manufacture a full portfolio of innovative diabetes medicines
- Support economic diversification and establish a biotech hub
- Ensure fast availability of our products.

# Methodology

## Holistic value creation

In our approach to measuring the societal and business value created through our Triple Bottom Line business principle, we identify drivers that could yield the greatest value for society and Novo Nordisk. Some of those drivers may be short-term, such as diagnosis rates (society) or talent attraction (Novo Nordisk), or long-term, such as reduced costs of diabetes (society) and our reputation among stakeholders (Novo Nordisk). We then consider actions that maximise tangible and intangible benefits and minimise risks for all parties (Figure 12).

Specifically, we begin by identifying key stakeholders and opportunities for change. We then test hypotheses to

analyse the impact of what we can do and formulate a value proposition for society and for Novo Nordisk.

We identify needs as well as partners whose complementary capabilities allow us to work together to address those needs. Finally, we prioritise and make suggestions for action.

## Data collection and analysis

In Algeria, we researched opportunities to support the government and people with diabetes. We then interviewed stakeholders to validate where opportunities existed. Stakeholders included HCPs, a patient association, industry partners, the media and the management team of Novo Nordisk Algeria.

## Market research

A third-party vendor conducted quantitative research to assess the value of HCP training and patient education.<sup>14</sup> This double-blinded survey involved 150 HCPs (60 specialists, 40 general practitioners and 50 nurses) and 300 people with diabetes. All results were collected through face-to-face interviews with trained or untrained participants.

## Employment effects

To estimate our effects on indirect and induced job creation at supplier level and in the surrounding economy,<sup>7</sup> we employed multipliers using a standard Leontief input-output model<sup>50</sup> and publications from the Office National des Statistiques.<sup>51</sup>

## Health economic modelling

Through the IMS CORE Diabetes Model,<sup>15</sup> we simulated potential gains in Algeria in terms of reduced costs and complications avoided over a 15-year period. We simulated the effects of two scenarios:

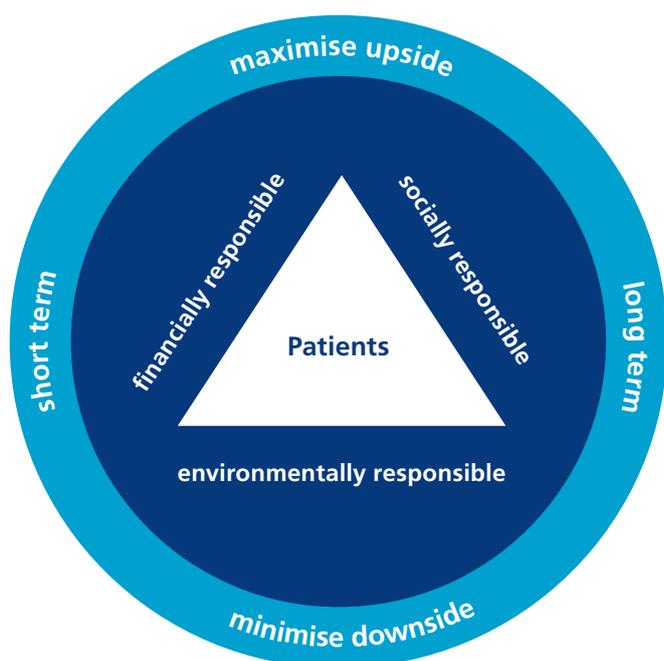
- People with diabetes achieving near-normal blood sugar, blood pressure and cholesterol levels today.<sup>16</sup>
- Early diagnosis of diabetes before the onset of symptoms followed by optimal treatment, allowing people to achieve near-normal blood sugar, blood pressure and cholesterol levels today.<sup>16</sup>

Internal data on file<sup>7</sup> and data from UKPDS<sup>31</sup> were used for the early diagnosis simulations. This data was supplemented with data from the Algerian arm of the A1chieve study<sup>52</sup> to simulate the effect of all people with diagnosed diabetes achieving near-normal blood sugar, blood pressure and cholesterol levels today.<sup>16</sup> The simulations do not take into account the cost of intervention, and costs are discounted at 3%.<sup>53</sup>

Full methodology for employment effects and health economic modelling available on request.

FIGURE 12 — OUR APPROACH TO VALUE CREATION

## Value lies in maximising upsides and minimising downsides for society and Novo Nordisk



Developed by Novo Nordisk and Accenture.

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### **About Novo Nordisk**

Headquartered in Denmark, Novo Nordisk is a global healthcare company with more than 90 years of innovation and leadership in diabetes care. This heritage has given us experience and capabilities that also enable us to help people defeat other serious chronic conditions: haemophilia, growth disorders and obesity. We believe that a healthy economy, environment and society are fundamental to long-term value creation. This is why we manage our business in accordance with the Triple Bottom Line business principle and consider the financial, environmental and social impact of our business decisions.

For more information, visit [novonordisk.com/sustainability](http://novonordisk.com/sustainability)

