

Meeting the challenge of diabetes in a super- aged society

Attention to diabetes and the health and societal effects of ageing is key to a healthy and prosperous society in Japan. Cross-sector collaboration offers the greatest opportunity to make a difference.

More people rely on high-quality care in a Japanese super-aged society

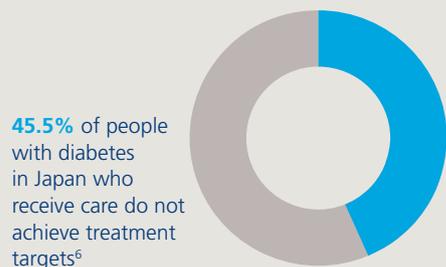
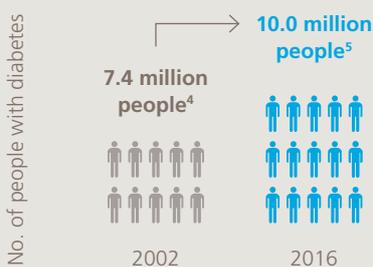
Japan has a declining population and the **longest life expectancy** in the world

1.0% decline in the population of Japan since 2010¹

83.7 years is the average life expectancy in Japan²

37.7% of the Japanese population will be aged 65 or older by 2050³

Ageing is a risk factor for diabetes, and many people living with the condition **struggle to control it** and live healthy

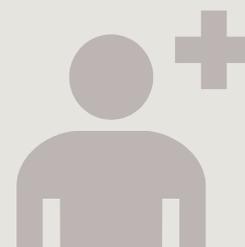


Many people with diabetes spend **limited time with a doctor** and live with **diabetes-related distress**

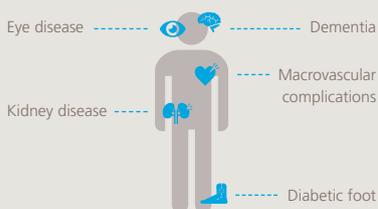


5–15 minutes is the length of a face-to-face consultation with a doctor for most people with diabetes in Japan⁷

1 in 3 people with diabetes in Japan live with diabetes-related distress⁸



Diabetes affects the entire body and may lead to complications; however, **screening rates for complications are low**



Poorly controlled diabetes may lead to diabetes-related complications^{9,10}

Screening rates for complications are low¹¹



We need to go **beyond the medicine** to help people lead a healthy life with diabetes



Invest in further understanding and supporting the **needs of elderly** people with diabetes.



Enhance effectiveness of **communication** among doctors and patients.



Collaborate to **prevent the development** of diabetes-related complications.

It takes all parties to join efforts to make sustainable improvements for many living with diabetes.

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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. 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.⁹

Meeting the challenge of diabetes in a super-aged society

With age comes wisdom, but age also brings a number of challenges – both for the individual and for society. As the Japanese population retires from the workforce, a smaller working population will be compelled to sustain the Japanese healthcare system and society at large. It is therefore more important than ever before to maintain a healthy society.

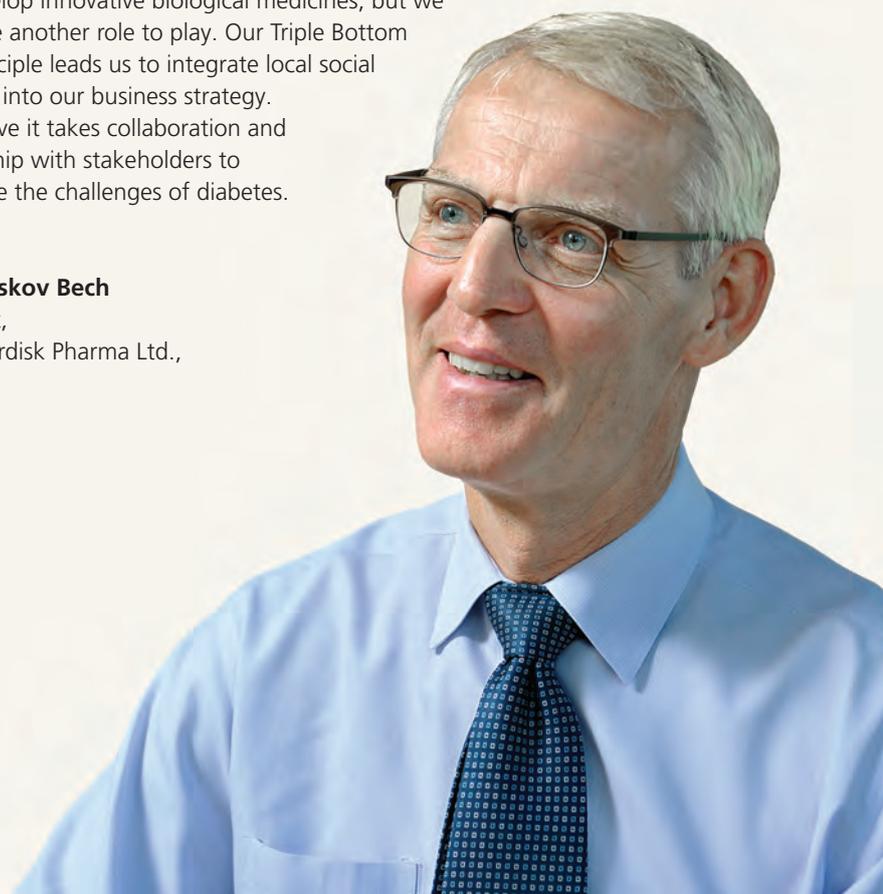
Ageing is one of the major risk factors for non-communicable diseases, the prevalence of which is growing. In Japan, the number of people with diabetes is increasing, particularly among the elderly population. Many Japanese people with diabetes do not achieve diabetes treatment targets, a failure which may lead to complications and lower quality of life. A higher burden of diabetes and its complications increases health expenditure. This impacts society and puts pressure on healthcare budgets.

The good news for people with diabetes and for society is that the government placed diabetes high on the national health agenda in 2000. The current national health strategy, Health Japan 21 (second term), sets concrete targets for addressing the challenge of diabetes. These targets aim to reduce the number of people who will develop diabetes, as well as the number of people with diabetes who discontinue treatment, have unhealthy blood sugar levels and develop diabetes-related complications. Many activities are taking place to move the country closer to meeting those targets.

Novo Nordisk is a committed partner in the fight against diabetes. We have more than 90 years of innovation and leadership in diabetes care and we create value by having a patient-centred business approach. Our key contribution is to discover and develop innovative biological medicines, but we also have another role to play. Our Triple Bottom Line principle leads us to integrate local social priorities into our business strategy. We believe it takes collaboration and partnership with stakeholders to overcome the challenges of diabetes.

Ole Mølsvok Bech

President,
Novo Nordisk Pharma Ltd.,
Japan



Novo Nordisk is dedicated to helping people with diabetes

Novo Nordisk is focused on the needs of people with diabetes through innovative treatments and scientific research into a potential cure. After more than 60 years in the Japanese market, we are committed to providing a reliable supply of medicines to people who depend on them.

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, including haemophilia, growth disorders and obesity.¹²

Headquartered in Denmark, Novo Nordisk employs approximately 42,446 people in 77 countries and markets its products in around 170 countries.¹²

We focus on innovation and on finding a cure for diabetes

Innovation in diabetes care over the years has improved the treatment of diabetes and quality of life for millions of people who live with diabetes.^{13,14}

Novo Nordisk is committed to continually improving diabetes treatment and to finding a cure.¹²

Our researchers are searching for a potential cure for type 1 diabetes through stem- and beta-cell research. We are investigating a compound that conserves beta-cell function, which may prevent the progression of type 1 diabetes.¹⁵



90 years

of leadership and innovation in diabetes care¹²

We are investing in diabetes care in Japan

Novo Nordisk conducts business throughout Japan and has a history in the country dating back more than 60 years (Figure 1). With headquarters in Tokyo, Novo Nordisk Japan has 54 sales offices throughout the country, a factory in Koriyama¹⁶ and invests in local clinical research activities.

In Japan, 64% of our business is focused on diabetes. We are the leading supplier of insulin in the country.¹⁶

As of the end of 2016, we employed 1,078 people in Japan, including 69 at our factory in Koriyama. The number of people we employ in Japan has increased by nearly 28% in the past decade.¹⁶

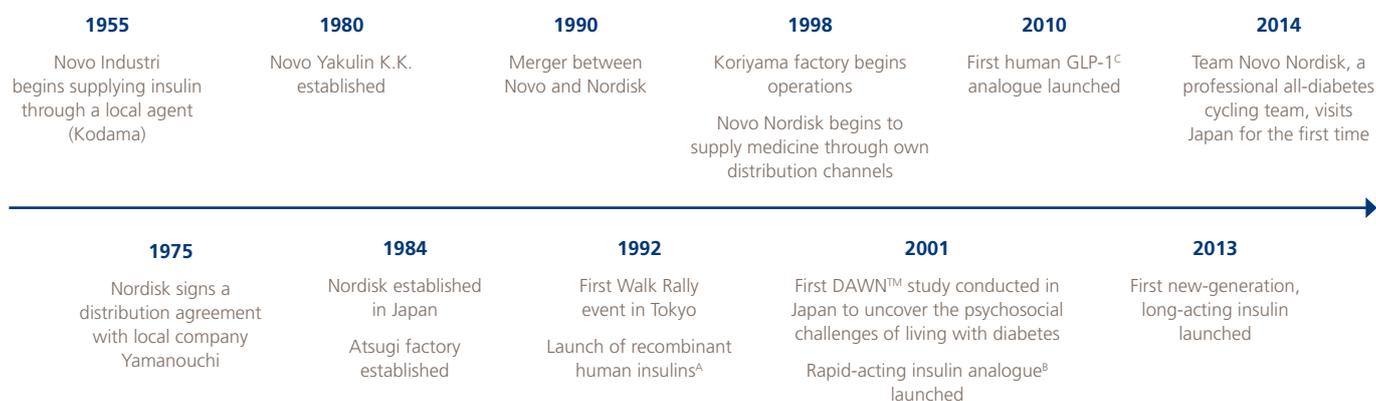
We do business with a long-term perspective

Novo Nordisk is partly owned by the Novo Nordisk Foundation, which has a dual objective: to provide a stable basis for the commercial and research activities of our company, and to support scientific and humanitarian purposes such as support aid organisations, projects with a social purpose and disaster relief needs.¹²

This structure provides the strategic flexibility to pursue our vision, ensuring a balance between long-term value creation for society and competitive shareholder return in the short term.

FIGURE 1 — NOVO NORDISK'S HISTORY IN JAPAN

A long history of commitment to the Japanese market



^A Insulin that is identical to human insulin and is not based on animal insulin. ^B Modified form of insulin that is different from natural human or animal insulin. ^C A new class of injectable medicine for the treatment of type 2 diabetes.

The Triple Bottom Line principle guides our business activities

Doing business responsibly means that we consider how our actions impact patients, stakeholders, communities and society at large. Our Triple Bottom Line (TBL) principle ensures that we always conduct our business in a financially, socially and environmentally responsible way.

The Triple Bottom Line is how we do business

At Novo Nordisk, our work is driven by a set of principles that we call the Novo Nordisk Way. The Novo Nordisk Way describes who we are, where we want to go and the values that characterise our company.¹²

One of the key principles of the Novo Nordisk Way is the Triple Bottom Line principle (Figure 2), which governs how we do business. It is anchored in the company's Articles of Association.¹² It ensures that we consider the financial, environmental and social impacts of our business decisions, because we believe that a healthy economy, environment and society are fundamental to long-term business success.

This mindset dates back to the origins of our company. The Triple Bottom Line ensures that we remain patient-focused, at the same time as being:

- Financially responsible in our long-term business operations and in the economic interests of stakeholders.
- Socially responsible in a way that considers the interests of patients, employees and communities.
- Environmentally responsible so that we minimise our impact on nature.

Our three-tier approach to working with the TBL

1. Act responsibly. We work in full compliance with current requirements and honour our voluntary commitments. We accommodate stakeholder expectations and avoid any controversies and risks to our licence to operate.
2. Integrate societal priorities into our business strategy. Our competitive advantage depends on our ability to

solve societal and environmental issues through business solutions. Through this process, we create shared value for the benefit of society and Novo Nordisk.

3. Address global issues. We help to address systemic issues outside of our direct control that affect business success. We do this by supporting the 17 Sustainable Development Goals (SDGs).¹⁷ Through these activities, we go beyond self-interest in the short term and earn leadership recognition.

Partnerships and a holistic view on value are key

It takes partnerships. We believe that effective cross-sector, public-private partnerships can help to meet global diabetes challenges and create value for all stakeholders.

We also believe that value goes beyond monetary gains. It is created when we

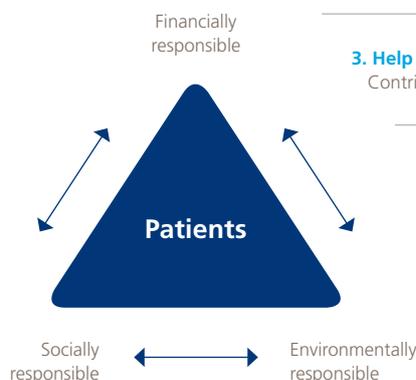
“The Triple Bottom Line principle reminds us how we do business: we always strive to conduct our activities in a financially, environmentally and socially responsible way, because we know this is a prerequisite for a sustainable business and long-term value creation.”

Lars Fruergaard Jørgensen, President and Chief Executive Officer

focus on the short term as well as the long term. We strive to enhance our positive impact (tangible and intangible) as well as minimise any negative effects of our activities (risks and costs).

FIGURE 2 — THE TRIPLE BOTTOM LINE

Our three-tier approach to working with the TBL



3. Help address global issues
Contribute to sustainable development goals

2. Integrate societal priorities into business strategy
Create shared value for society and our business

1. Act responsibly
Identify, prevent and mitigate possible adverse impacts on society

Our key contribution to patients is innovation

We put the patient at the centre of everything we do. This philosophy extends to our way of doing clinical research, through which we generate data on the efficacy and safety of our products.

Novo Nordisk's corporate strategy is framed by the company's purpose to defeat diabetes and other serious chronic conditions.¹² It is based on our focus on five selected therapy areas where we have unique expertise and capabilities, and a values-based management system which guides our decisions.

We invest in the future and innovative diabetes medicine

Despite the progress achieved in diabetes care (see timeline on the right), there are still many unmet needs. Therefore, the need for continued innovation is as essential as ever. Clinical trials are a crucial part of the development process for human medicines. Without them we would be unable to document the efficacy, safety and optimal use of the medicines we bring to the people who need them. Globally, Novo Nordisk invested 2.2 billion US dollars (235 billion Japanese yen) in research and development (R&D) activities in 2016, of which 79% is allocated to diabetes and obesity care.¹² Total R&D investment accounted for 13% of our global

revenues in 2016.¹² Every year, 15,000 to 25,000 people in more than 50 countries take part in Novo Nordisk-sponsored clinical trials.¹⁸

R&D is conducted around the world. We have research centres in the US, China and Denmark,¹² and we are investing in a new centre at the University of Oxford in the UK.¹⁹ We also collaborate with other biotech companies and world-class universities to accelerate the spread of innovation.



USD 2.2 billion

spent globally by Novo Nordisk on R&D in 2016, accounting for 13% of global annual revenue¹²

Research activities in Japan

In Japan, investment in clinical research has increased significantly – by an average of 22% each year since 2011.¹⁶

INFOBOX 2

The Novo Nordisk Way of conducting clinical research

We are committed to developing products that make a [difference to the people](#) who need them and we [never compromise on ethics or quality](#).

We develop our current and future medicines in [a close and direct collaboration](#) with healthcare providers and health authorities to document the efficacy, safety and optimal use of our medicines.

All Novo Nordisk-sponsored clinical trials are performed using [one global standard](#) in accordance with the Declaration of Helsinki and

the International Conference on Harmonisation guidelines on Good Clinical Practice.

We take pride in collaborating directly with investigators and [support the development of research sites](#) by providing necessary capabilities, such as staff training and research competences.

We encourage [best practice in patient care](#), inspired by the scientific advancements deriving from clinical research and spread through networks and scientific journals.²⁰

Milestones in diabetes care^{13,14,21}

2010s

Easier-to-use device improves confidence in medicine delivery
New-generation pre-filled insulin pen

Lower risk of hypoglycaemic episodes and improved dosing flexibility
New-generation modern insulins/
combination insulin

2000s

Injection immediately before meal – rapid time of action
Rapid-acting modern insulins

Less variability, more stable control of blood sugar
Basal modern insulins

New type of treatment with a unique mode of action
Glucagon-like peptide-1 (GLP-1)

Accurate insulin doses, easy and discreet insulin use
Pre-filled insulin pen

1980s

Fewer allergic incidents, scalable production of insulin
Recombinant human insulin

Ease of use
The world's first insulin pen

1946

Prolonged action of animal insulin – fewer injections
Animal insulin + protamine
(NPH, Neutral Protamine Hagedorn)

1922

Life-saving diabetes treatment
Isolation of animal insulin
(Banting and Best)

Note — Unless otherwise stated, these are milestones achieved related to Novo Nordisk activities.

Since 2010, more than 5,300 patients in Japan have participated in Novo Nordisk-sponsored diabetes clinical research,¹⁶ helping us generate data about the efficacy and safety of our products.


1 in 5

industry-sponsored multi-regional diabetes clinical trials in Japan since 2010^A have been sponsored by Novo Nordisk^{16,22}

Through training and personalised care, participants may gain valuable information on how to live healthily with diabetes. The number of patients who have participated in our diabetes clinical trials in Japan has increased at an annual average rate of 16% since 2010.¹⁶

Over the same period, more than 2,300 healthcare professionals (HCPs) at more than 1,100 sites have been involved in Novo Nordisk-sponsored clinical research in Japan.¹⁶

Spreading scientific progress through quality publications

The value of new scientific knowledge is amplified when its reach is broadened. This is accomplished through scientific publications. Since 2010, Novo Nordisk-sponsored diabetes research has resulted in the publication of 132 articles in scientific journals, accounting for approximately one in four industry-


4.26

is the average impact factor of Novo Nordisk-funded publications in Japan, compared with the industry average of 3.68^{16,24}

funded publications on diabetes in Japan.^{16,23,A}

More important than the number of publications, however, is the credibility of their content. One way to assess the quality of a scientific journal is through a journal impact factor (JIF).^B JIF is a reflection of how frequently articles in a journal are cited – the higher the factor, the more important the journal in its field.

JIF is a measure of the quality of both the content and the journals that have accepted our articles for publication. The pharmaceutical industry average JIF is 3.68. However, across all Novo Nordisk-sponsored published research in Japan, the average is 4.26.^{16,24}

Clinical research allows for sharing of best practices

The scientific advancements that derive from clinical research are also spread through professional networks and conferences. By participating in clinical research, doctors gain access to networking opportunities such as



Over half of HCPs

who have participated in clinical research in the US, India or Denmark shared their learnings with professional colleagues, helping to spread best practices^{20,C}

scientific meetings, talks and other peer activities. These events allow doctors to learn from their colleagues and share best practices in patient care. Novo Nordisk conducts various multi-regional clinical trials where Japanese investigators also have the opportunity to share their knowledge and experiences with international peers.¹⁶

Partnerships and networking are key to scientific progress

In Japan, we conduct various activities to support scientific networking. For example, Novo Nordisk hosts annual meetings that focus on managing diabetes in elderly populations and on the treatment of children and adolescents. Our support for the Japan Diabetes Society's annual Hagedorn Award, the country's most prestigious prize for scientific work in the area of diabetes, recognises the contributions made by HCPs in the field of clinical research.¹⁶

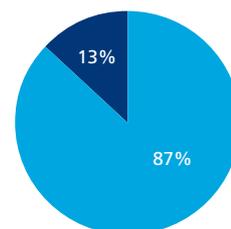
We also partner with local and international universities and key opinion leaders to enhance cross-sector collaboration and dialogue regarding diabetes, for example by co-hosting the Diabetes Innovation Summit and supporting local studies such as J-DOIT3^D that aim to better understand diabetes in a Japanese setting.²⁵

Doctors appreciate our way of conducting research

We regularly ask HCPs who are involved in our clinical trials for feedback. The majority of HCPs who have participated in our clinical trials say that Novo Nordisk would be their first choice of company to work with in an identical clinical trial (Figure 3).¹⁶

FIGURE 3 — SATISFACTION IN CLINICAL TRIALS

87% of participants in our clinical trials in Japan rate Novo Nordisk as their favourite company to work with in a clinical trial¹⁶



■ Novo Nordisk as first choice
■ Other companies as first choice

^A Data as per August 2017. ^B Journal impact factor: an indication of journal prestige, based on the volume of citations of articles published in the journal in question.

^C Based on a study conducted in the US, Denmark and India by a third-party research company for Novo Nordisk. ^D J-DOIT3: Japan Diabetes Optimal Integrated Treatment study for three major risk factors of cardiovascular diseases.²⁵

Focus on diabetes is key for the health of older people

In Japan, one in five people are at risk of developing diabetes, and 20.5 million people are living with diabetes or prediabetes. The ageing population is the key driver of diabetes in Japan. Government health strategy sets out to reduce the number of people developing diabetes and its potentially disabling consequences.

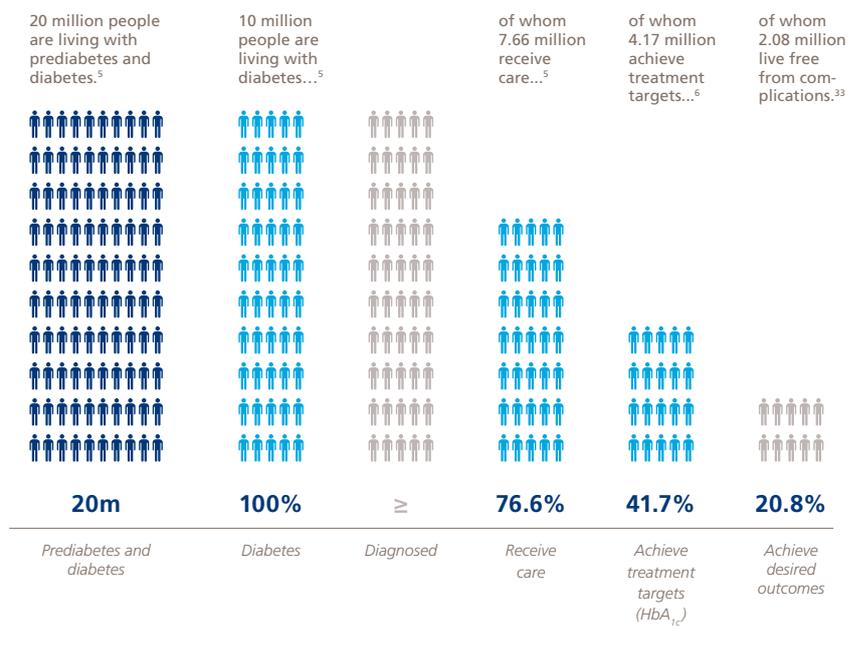
People in Japan have the longest life expectancy in the world (OECD).²⁶ In Japan's healthcare system, 84% of expenditure is publicly financed,²⁷ and covered services and goods are available to most people for a flat 30% co-insurance.²⁸

By 2050, 37.7% of the Japanese population will be aged 65 or older,³ meaning that the sustainability of the country's healthcare system will increasingly be put under pressure. Because ageing is a risk factor for non-communicable diseases (NCDs), including diabetes,²⁹ improving the health of the whole population has the potential to pay dividends, both now and in the future, as working-age people move into retirement.

In 2013, the Japanese government implemented Health Japan 21 (second term), a strategy for extending healthy life expectancy that sets concrete targets across disease areas, including diabetes.³⁰ These targets aim to reduce the number of people who will develop diabetes, as well as the number of people with

FIGURE 4 — THE DIABETES 'RULE OF HALVES' IN JAPAN

20 million people are living with diabetes and prediabetes in Japan



Note — 20 million people are living with diabetes or prediabetes.⁵ Of the estimated 10 million people with diabetes,⁵ about 76.6% receive care,⁵ of whom about 54.5% achieve the HbA_{1c} treatment target of 7%.⁵ Among this group, 50% are free from complications.³³ No data exist for the number of people diagnosed. The last column is estimated based on the assumptions of the Rule of Halves.³³

INFOBOX 3

What is HbA_{1c}?

The goal of diabetes treatment is to **keep blood sugar levels at a normal or near-normal level**. One key parameter is HbA_{1c}, which is a measure of blood sugar within a three-month period.⁹ An HbA_{1c} level of < 7% is considered a marker of good control.³¹ People with an HbA_{1c} level of 6.0–6.5% are at increased risk for having diabetes.³² **A level higher than 7% is associated with an increased risk of diabetes-related complications.**³¹

diabetes who discontinue treatment, have unhealthy blood sugar levels and develop diabetes-related complications.³⁰

Ageing is a key contributor to the growth in the number of people living with diabetes

As with many places in the world, physical inactivity, hypertension and excess body weight contribute to the prevalence of diabetes in Japan.^{5,9,34,35} In Japan, however, the biggest causes of diabetes are advanced age and genetic predisposition.^{3,9,36} Today, more than 80% of people with diabetes are aged 60 or older.^{37,A} When it comes to patients aged 75 or older, one in four men (28.4%)

and one in six women (16.1%) have diabetes.³⁷

Overall, one in five people in Japan are at risk of developing diabetes at some point in their life.^{3,5} According to the 'Rule of Halves' framework,³³ of the 10 million people who are living with diabetes in Japan (Figure 4),⁵ 7.66 million receive care, of whom 4.17 million achieve recommended treatment outcomes.⁵

The other 10 million are living with prediabetes.^{5,B} Of those people with an HbA_{1c} level of 6.4%, 67.8% will develop diabetes later in life, and of those with HbA_{1c} levels between 6.0% and 6.1%, 27.5% will eventually develop diabetes.³⁸

A Calculation based on data from the Ministry of Health, Labour and Welfare in Japan. B Prediabetes is defined as HbA_{1c} of 6.0%–6.5%.⁵

People with diabetes can benefit from a team-based approach to care

While it may take time for a person to develop the physical symptoms of diabetes, many patients live with diabetes-related distress and require psychosocial support. Thus, it takes a team of healthcare professionals to effectively care for people living with diabetes to ensure their physical and psychosocial well-being.

Diabetes negatively affects patients and their families

Diabetes is a slow-motion threat that can go unnoticed for years before major physical symptoms occur.⁹ However, the psychosocial aspects of diabetes often contribute to reduced quality of life (QoL)³⁹ for people who live with it.

DAWN™ (Diabetes, Attitudes, Wishes and Needs) is the first research of its kind carried out to uncover the psychosocial challenges faced by people with diabetes and the people who help them.⁴⁰ DAWN™ consists of a series of studies around the world. In Japan, almost 12,800 patients, 700 HCPs and 380 family members have participated in four DAWN™ studies.¹⁶

More than one in three people with diabetes in Japan say that they experience diabetes-related distress, which includes fear and worry about the future, coping with complications of diabetes or taking time out of the day to care for themselves. 43.1% of people with diabetes say that their medication routines interfere with their ability to live a normal life.⁸



1 in 3 people

with diabetes in Japan live with diabetes-related distress⁸

Despite these concerns, only 15.9% of patients in Japan who participated in DAWN2™ said that they had been asked whether they have been anxious or depressed as a result of their condition (Figure 5).⁸

Nearly three out of five family members consider diabetes a burden on family

members, many of whom often do not know enough about the disease to be of help.⁴¹

Communication gaps between doctors and patients are common

The amount of information a patient needs to manage diabetes well can be overwhelming, and what the doctor says and what the patient understands can differ vastly. The communication gap is evident in the findings of the DAWN2™ study. In DAWN2™, only 11.2% of patients in Japan said that HCPs ask them how diabetes affects their lives,⁸ while 37.3% of HCPs in Japan said they ask patients about the impact of diabetes on their lives.⁴²



5–15 minutes

is the length of a face-to-face consultation with a doctor for most people with diabetes in Japan⁷

Patients' perceptions may, in part, be attributable to the fact that many doctors have only 5–15 minutes to spend with them in a typical visit.⁷ Only about one in three patients says they consult their doctors on all aspects of diabetes, from blood sugar measurements and medications to advice on self-management and living with diabetes.⁷

In terms of seeking more information about their condition, patients rely on the Internet for diabetes education as often as they rely on their doctors.⁷ Working as a team, all healthcare professionals, including nurses, dieticians, educators and pharmacists, should join together to help people lead a healthy life with diabetes.

We support the inclusion of QoL measurements in care standards

DAWN2™ results formed the basis of an innovative QoL questionnaire, which was made available as an app for HCPs in Japan, called DTR-QOL.^{43,44}



more than 2,500

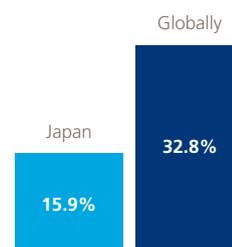
healthcare professionals downloaded the DTR-QOL app¹⁶

The DTR-QOL app features 29 questions that help HCPs assess each patient's QoL, make informed treatment decisions and serve as a platform for dialogue with patients.⁴⁴ In Japan, more than 2,500 HCPs have downloaded the app.¹⁶

We have disseminated DAWN2™ findings through other means as well, including in-person seminars for HCPs and online networks.¹⁶

FIGURE 5 — ATTENTION TO PSYCHOSOCIAL ASPECTS OF DIABETES

15.9% of patients in Japan say they have been asked by the doctor whether they have been anxious or depressed⁸



Asked whether you have been anxious or depressed?

Patient-centred care helps prevent diabetes-related complications

The goal of diabetes care is to control blood sugar levels to prevent the development of diabetes complications. These complications, which include blindness, kidney and heart disease, and amputation, among others, are debilitating, costly and potentially avoidable.

Many people with diabetes struggle to achieve and maintain treatment targets.⁶ In part, this is because diabetes is a progressive disease.⁴⁵ Many elderly people may have difficulties managing the condition. In Japan, 45.5% of people diagnosed with diabetes do not achieve recommended blood sugar levels or have poor glycaemic control.⁶

Poorly controlled diabetes may lead to complications

Poor glycaemic control leads to diabetes-related complications⁹ (Figure 6). While there is no clear picture of how many people in Japan are living with diabetes complications, one study indicates that 11.8% of people with diabetes have nerve damage, 11.1% have kidney disease and 10.6% have eye disease – all as a result of poor glycaemic control.⁴⁶ These complications have a major negative impact on the quality of life and well-being of people with diabetes.³⁹

Kidney disease, in particular, is prevalent in Japan.⁴⁷ Diabetes is a major cause of dialysis,^A with 16,072 people starting dialysis each year because of diabetic nephropathy.⁴⁸ In all, 120,278 people with diabetes in Japan underwent dialysis in 2016.⁴⁸

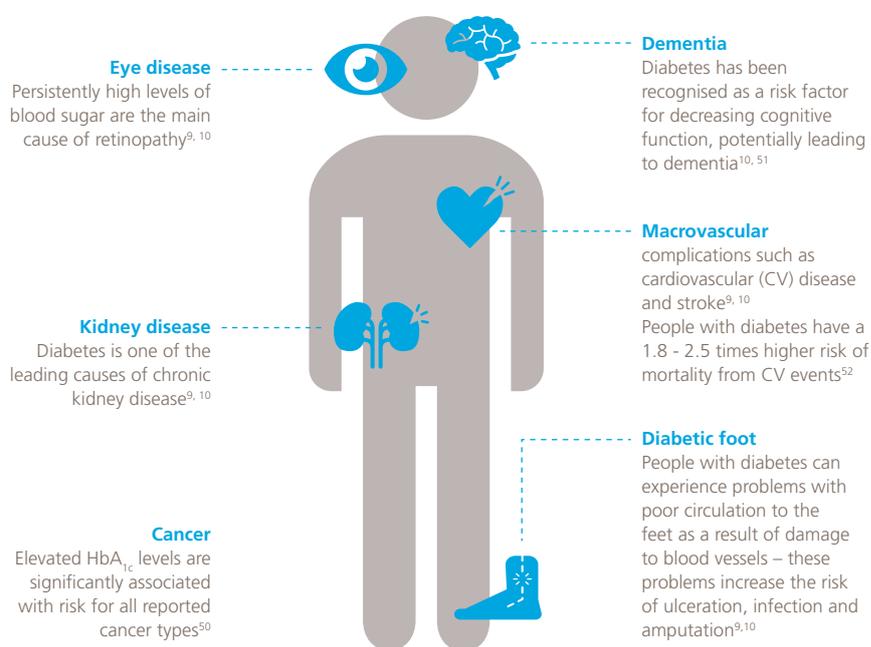
Screening rates for complications are low

Doctors in Japan frequently measure patients' HbA_{1c} levels,⁸ yet findings do not always guide decisions about screenings for early stages of complications. Kidney and eye examinations – two important barometers for diabetes complications – occur less often (Figure 7).¹¹ These rates are also low compared with European countries,⁴⁹ where the rates for eye examinations and kidney screenings were 74.8% and 59.4% respectively.⁴⁹

^A Dialysis is the clinical purification of blood, as a substitute for normal kidney function.

FIGURE 6 — DIABETES-RELATED COMPLICATIONS

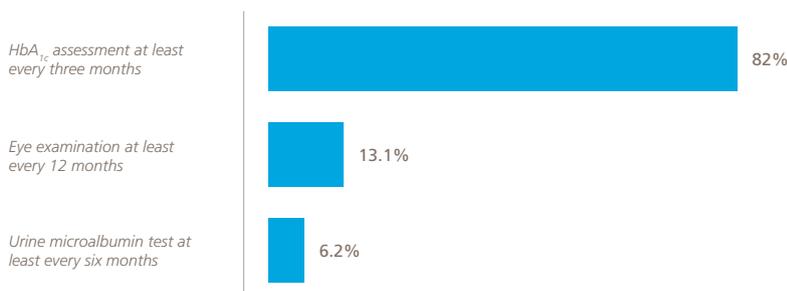
Elevated HbA_{1c} is associated with an increased risk of complications



Note — Examples of potential diabetes-related complications.

FIGURE 7 — COMPLICATION SCREENING

13.1% of patients in Japan received routine eye examinations in a primary care setting¹¹



Note — Urine microalbumin test is performed to detect early signs of kidney damage.

Reducing diabetes complications may curb the overall cost of diabetes

Diabetes-related complications account for a major part of the overall costs related to diabetes. Focusing on reducing the rate of complications may help reduce overall health expenditure on diabetes in Japan.

Complications drive up the cost of diabetes

Direct national medical costs in Japan totalled 40.8071 trillion yen (390 billion US dollars) in 2014, accounting for 8.33% of GDP.^{53,A}



2–2.5 times

greater medical costs for a person with two to four diabetes-related complications compared with diabetes patients without complications⁵⁴

Diabetes medical costs in Japan have been stable from 2002 to 2012, rising by 0.8% annually.^{55,56} This is relatively low when compared with the growth in the number of people with diabetes, which was 2.5% annually from 2002 to 2012.^{4,5}

Diabetes accounted for approximately 3% of national medical costs in 2014,^{53,57} totalling 1.2196 trillion yen (11.6 billion dollars)^{57,A}. These trends, however, do not show the full impact of diabetes-related costs to society.

Diabetes care has a substantial impact on overall health expenditure due, primarily, to the cost of diabetes complications (Figure 8).⁵⁸

Once a patient develops complications such as kidney disease, the cost of treating those complications becomes associated with that disease rather than with diabetes. Thus the total financial burden of diabetes is likely to be underestimated.

The isolated cost of diabetes complications is not fully known, but the Japanese Ministry of Health, Labour and Welfare (MHLW) has estimated that medical costs for a person with diabetes-related

complications can be as high as 2.5 times greater than for a person without complications.⁵⁴



17 times higher

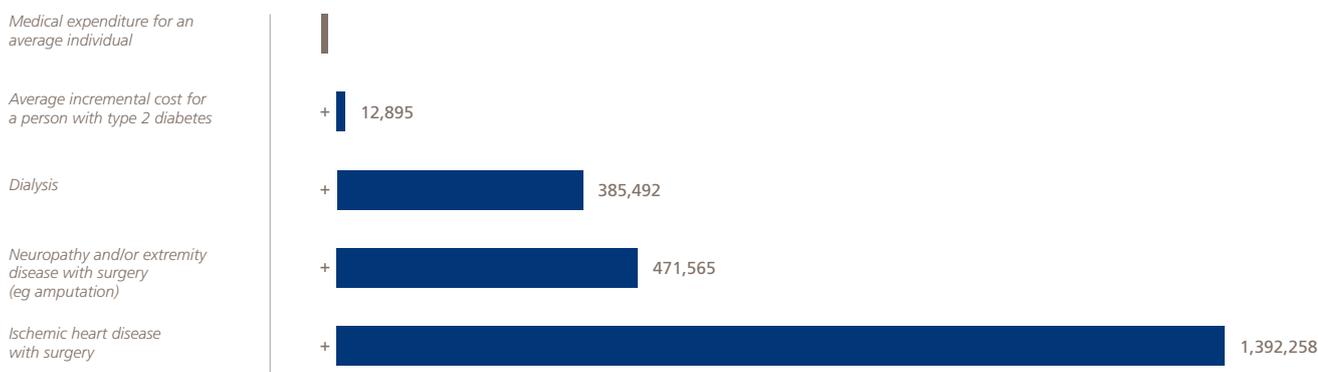
medical costs for a person undergoing dialysis compared with an average individual^{53,59}

Other studies have examined the cost burden of diabetes in different ways. For example, the Japanese Society of Nephrology estimated that the cost of a patient on dialysis is 17 times higher than that of an average individual.^{53,59} As the Japanese population ages over the next three decades,³ fewer working people will be available to shoulder the societal burden of rising healthcare expenditures.

FIGURE 8 — COST OF DIABETES

Diabetes complications increase costs substantially

Monthly average incremental costs for diabetes-related complications (JPY)⁵⁸



A Novo Nordisk standard currency exchange rate 2016 applied.

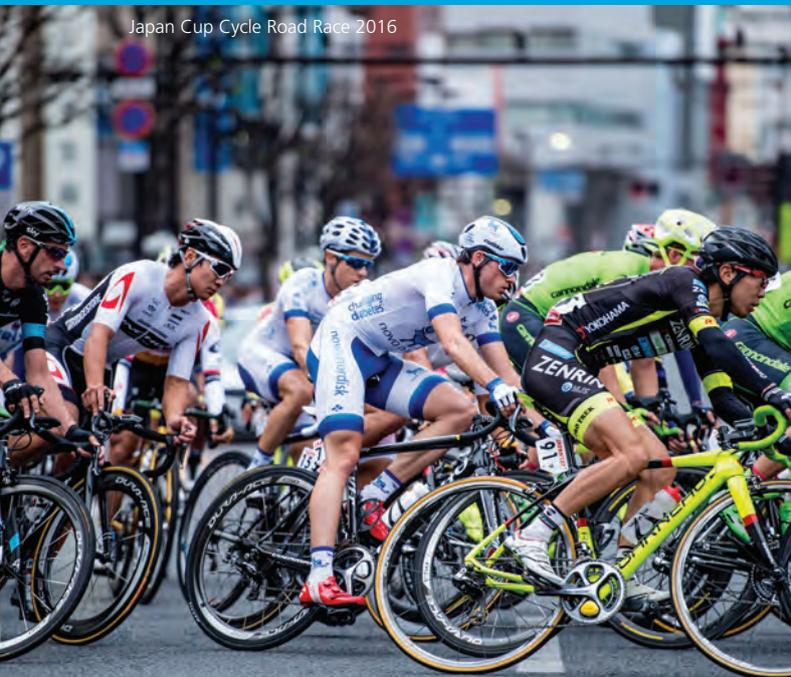


World Diabetes Day 2016, Japan



MANATO OHARA and PHIL SOUTHERLAND
Manato and Phil live with type 1 diabetes

Going beyond medicine



Japan Cup Cycle Road Race 2016



Novo Nordisk booth at the Japan Cup
Cycle Road Race, 2016



Children sketch contest, Tokyo, 2016



Novo Nordisk Koriyama factory, Japan

We always go for what is best for the patient, and we always consider how our actions may impact people, communities and the environment. And strive to make a positive impact.



All-employee meeting, Tokyo, 2016



HIDESHI HOFUKU
Japan
Hideshi has type 2 diabetes

We encourage people with diabetes to make healthy living a habit

Through public events and in collaboration with partners, Novo Nordisk works to raise awareness about diabetes and the importance of physical activity and healthy living.

Walk Rally events inspire people to lead active lives

We organise Walk Rally (see Infobox 4) jointly with the Japan Association for Diabetes Education and Care (JADEC), which drives participation through local chapters. With 44 walks, games and lectures nationwide in 2016, Walk Rally has become a model of collaboration between local governments, healthcare professionals (HCPs) and private companies.



25 years

is how long Walk Rally has been taking place in Japan¹⁶

More than 6,000 people participated in Walk Rally events in 2016, and since the programme's inception in 1992, approximately 125,000 people have participated in 800 events.¹⁶ Over the years, participants have walked a total of 436,000 km – the equivalent of 10 times around the Earth.¹⁶

Participants find Walk Rally to be a valuable experience. Nearly all of the 114 respondents who answered our survey at 2016's Walk Rally said the event gave them a better understanding of diabetes, healthy diet and exercise. Furthermore, everyone said the event inspired them to lead a more healthy and active lifestyle.¹⁶ The Japanese Ministry of Health, Labour and Welfare (MHLW) estimates that walking reduces the medical costs associated with lifestyle-related diseases.⁶⁰

External stakeholders also recognise the value of these efforts. Walk Rally received the Japanese Ministry of Health, Labour and Welfare's 'Let's Extend Healthy Life Expectancy!' award of excellence on World Diabetes Day 2016.¹⁶

We believe that our efforts may help reduce the number of people developing diabetes and related complications, while improving the health of people living with diabetes.



10 times

is the around-the-Earth equivalent that participants have walked since Walk Rally's inception¹⁶

INFOBOX 4 – LOCAL ACTIVITY IN JAPAN

Walk Rally events motivate people with diabetes to lead active lives

To create awareness about leading active lives with diabetes, we conduct a unique series of nationwide events called Walk Rally. Walk Rally offers an opportunity for people with diabetes to learn about the importance of exercise while they are involved in an actual physical activity.¹⁶



Walk Rally in Kyoto, Japan, 2016



Collaboration

with the Japan Association for Diabetes Education and Care (JADEC)¹⁶



125,000

people have participated in 800 events across the country since 1992¹⁶



14.6 yen

saved in healthcare costs for every 10,000 steps⁶⁰

Team Novo Nordisk inspires, educates and empowers

In December 2012, Novo Nordisk and professional cyclist Phil Southerland partnered to create Team Novo Nordisk, based on a shared goal to inspire, educate and empower people around the world affected by diabetes (Infobox 5).¹⁶

Since 2014, Team Novo Nordisk has competed in the Japan Cup Cycle Road Race in Utsunomiya – one of the biggest cycling road races in Asia. Since 2014, related activities and events for people with diabetes, their caregivers, HCPs and the public have been held to reflect Team Novo Nordisk's mission to show what can be achieved by people with diabetes.

Team Novo Nordisk competed in the 2016 Japan Cup. One of its riders, Javier Megias, placed eighth.⁶¹

Megias and other team members set an example that people with diabetes who

want to live an active and fulfilling life can do so when diabetes is well managed.

During Team Novo Nordisk's visit to Japan, riders travelled the country to share reflections with people with diabetes, HCPs and the public.



World's first

all-diabetes sports team⁶²

Visiting 10 cities across Japan, Team Novo Nordisk ambassadors Justin Morris and Scott Ambrose conducted 12 'Team Novo Nordisk Roadshow' talks in which they discussed their experiences as professional cyclists pursuing their dreams while living with diabetes.¹⁶

They took time to meet with people and cycled together with children with

diabetes. Around 300 people attended Roadshow events. All of those who attended and were questioned at the event said that they felt inspired and empowered by the team, and 88% said Team Novo Nordisk motivated them to lead a more active life.¹⁶

At our Japan Cup booth, Novo Nordisk spread Team Novo Nordisk messages aiming to empower people with diabetes to lead more active and healthy lives. Approximately 1,000 people visited our booth in 2016.¹⁶ At the booth we also conducted the 'Smile with Diabetes' campaign, which solicits 'smile' photos with positive messages about living with diabetes.

Recently, *Team Novo Nordisk Manga*, a Japanese-style graphic novel, reached out to tens of thousands of people in Japan, telling an inspiring story about a boy with type 1 diabetes and his journey to become a cyclist.

INFOBOX 5 – LOCAL ACTIVITY IN JAPAN

Team Novo Nordisk inspires, educates and empowers people with diabetes

The world's first all-diabetes sports team. Team Novo Nordisk athletes share their experiences and life stories [in the hope of inspiring, educating and empowering others](#) by showing what can be achieved.⁶² Team Novo Nordisk's cycling team is a Professional Continental Team of the International Cycling Union, the governing body of professional cycling, and competes in road races and tours throughout the year.^{63,64}



JAVIER MEGIAS
at the Japan Cup Cycle Road Race, 2016
Javier has type 1 diabetes



6.45 million

Facebook followers around the world¹⁶



22 million

people in Japan reached through events and media since 2014¹⁶



8.3 million

people reached through social media around the globe¹⁶

Note — Data as per August 2017.

We promote awareness and share information about diabetes

Novo Nordisk partners with healthcare leaders and others in the community to mark World Diabetes Day, an important and visible event for building diabetes awareness. Online, we support the informational, self-management and practical needs of people with diabetes through the patient website Club-DM.

World Diabetes Day is an opportunity to promote diabetes awareness

For 10 years, Novo Nordisk has marked World Diabetes Day (WDD; see Infobox 6) in partnership with the Japan Association for Diabetes Education and Care (JADEC).¹⁶

The key event at WDD in 2016 was the Sports Bike Experience. This event was conducted in cooperation with a number of bicycle manufacturers.

The day also included a cycle tour of Tokyo, talks from Team Novo Nordisk riders about cycling, exercise and healthy living, and blood sugar tests.¹⁶

In all, 2,800 people participated in the event, and the day's message reached another 1.8 million people through the media.¹⁶

Club-DM supports people in managing their diabetes

When Club-DM website (see Infobox 7) was launched in 2002, it was quite innovative for its time. Since then, millions have used Club-DM. After 15 years, Club-DM continues to be valuable and useful for people with diabetes.¹⁶

Recently, we asked visitors to the site to share opinions about the value and relevance of the information provided on the site.

The answers were positive; more than 80% of respondents said the information on Club-DM is relevant, easy to understand and trustworthy (Infobox 7).¹⁶

When asked which information they found most valuable on the site, the most common replies were advanced information about diabetes (cited by 21% of respondents) and patients' voices (19%). In all, 83% of those who answered our survey said they would recommend the site to other people with diabetes.¹⁶

Our hope is that this service will translate to healthy lifestyles and prevent patients from discontinuing their treatment.

INFOBOX 6 – LOCAL ACTIVITY IN JAPAN

World Diabetes Day is an opportunity to promote diabetes awareness

14 November is World Diabetes Day (WDD), an annual event designed to drive global awareness of diabetes.⁶⁵ In 2016, our focus was on creating awareness about healthy living and the importance of exercise.¹⁶



Collaboration with the Japan Association for Diabetes Education and Care (JADEC)¹⁶



> 1.8m people reached through the media¹⁶



2,800 people participated in the event in 2016¹⁶



88% of respondents said Club-DM information is relevant to them¹⁶



74% of respondents said it is one of their key sources of diabetes information¹⁶



83% of respondents said they would recommend Club-DM to others¹⁶

INFOBOX 7 – LOCAL ACTIVITY IN JAPAN

Club-DM website provides important information to people with diabetes

Club-DM was launched in 2002. It is a website that provides beneficial information to people with diabetes about their condition and how to live with it, along with basic information about diabetes, complications and self-management. Club-DM is also a source of practical information, such as recipes that help people living with diabetes to eat healthier.¹⁶

Note — Data are based on an online survey conducted in January 2017 on the Club-DM website. No. of respondents = 43.

Globally, we invest in addressing current issues in diabetes care

Worldwide, we invest in some of the most pressing diabetes challenges of our day, including access to medication and the rise in diabetes prevalence in an increasingly urbanised world.

Today, 415 million people worldwide are living with diabetes. It is estimated that this number will grow to 642 million people by 2040.⁹

Diabetes and its complications impose a large burden on people and societies worldwide. Diabetes is the seventh-leading cause of disability in the world. Five million people died from diabetes in 2015.⁹

Globally, three out of four people with diabetes are living in low- and middle-income countries, and of all the people with diabetes in the world,⁹ nine out of 10 people do not achieve treatment targets,³³ negatively affecting their health and quality of life.

Examples of how we help people with diabetes outside of Japan are described in the infoboxes on this page.

INFOBOX 8 – GLOBAL ACTIVITY

Cities Changing Diabetes: addressing risk factors of diabetes in urban settings

In response to the dramatic rise in urban diabetes, this partnership programme aims to [understand the root causes, share that knowledge and apply it to real-world actions](#) to improve health outcomes for people with diabetes. Today, we have 100+ local partners in the programme.⁶⁶



8 partner cities⁶⁶
covering more than 70 million people¹⁶

INFOBOX 9 – GLOBAL ACTIVITY

Access to Insulin Commitment: affordable insulin in low-income countries

We provide human insulin in Least Developed Countries (LDCs) at a [guaranteed ceiling price that does not exceed 20% of the list prices for human insulin in the Western world](#).⁶⁷

In 2016, Novo Nordisk sold human insulin in 22 of the world's 48 LDCs. 6.5 million patients were treated with insulin for 0.18 dollars or less per day.¹²



6.5 million patients
were treated with insulin for USD 0.18 or less per day in 2016¹²



USD 4/vial
is the price at which we provide human insulin in some of the world's most impoverished countries¹²

INFOBOX 10 – GLOBAL ACTIVITY

Novo Nordisk Research Centre Oxford: tapping the potential of shared research

In 2017, Novo Nordisk and the University of Oxford in the UK announced a [partnership for discovering innovative treatments for type 2 diabetes](#). Novo Nordisk will invest in a new diabetes research centre on the campus of the University of Oxford. When the centre opens, 100 Novo Nordisk researchers will collaborate with leading scientists at Oxford to unlock clues that may lead to the next generation of treatments.¹⁹



GBP 115 million
to be invested in the partnership over a period of 10 years¹⁹



100 researchers
to work at the Novo Nordisk Research Centre Oxford¹⁹

We optimise our operations to reduce our environmental footprint

Environmental responsibility begins with being mindful that we do not waste nature’s precious resources but use, reuse or recycle them effectively. We support international efforts to combat climate change, set goals as part of how we do business and meet those goals – globally and in Japan.

As our business grows, Novo Nordisk seeks to reduce the consumption of natural resources across the value chain. In addition, we also focus on minimising the output of waste and CO₂ emissions (Infobox 11). To help us achieve these aims and to share best practices in sustainability, Novo Nordisk is a member of or supports a number of initiatives globally. Some examples include:⁶⁸

- International Chamber of Commerce’s Business Charter for Sustainable Development, which helps companies contribute to the implementation of the Universal Goals for Sustainable Development (SDGs). Novo Nordisk is a subscribing member.
- UN Global Compact Caring for Climate – an initiative that aims to advance the role of business in addressing climate change.

- RE100 – a collaborative initiative of influential businesses committed to 100% renewable electricity. Working to increase corporate demand for renewable energy, RE100 is led by the Climate Group in partnership with CDP, a not-for-profit charity that runs the global disclosure system for investors, companies, and local and regional governments to manage their environmental impacts.

Setting and meeting global and local emission goals

Novo Nordisk’s environmental strategy includes a strong focus on reducing CO₂ emissions. Our global ambition for all of our production sites across the world to be powered entirely by electricity generated from renewable sources by 2020.¹²

Globally, 78% of the power used at our manufacturing sites was generated by renewable sources in 2016.¹²

Through the participation in the Japanese Green Power Certificate scheme, our Japanese factory in Koriyama has been a leader in this effort. It achieved the 100% renewable power threshold in 2016 – four years before our 2020 target.¹⁶

We recognise that higher reliance



ZERO CO₂

emissions from electricity at our Koriyama factory¹⁶

on renewable resources for power generation is not the same as reducing energy use. At Koriyama, we are working towards reducing total energy consumption.

Even though our manufacturing output at Koriyama has risen, energy use has dropped by 23% over the past decade.¹⁶

INFOBOX 11

Tracking carbon emissions at each step in the value chain

78% of all power for production came from renewable sources in 2016 globally¹²

12% decrease in CO₂ from product distribution in 2016 compared to 2015 globally¹²

100% renewable energy in our production facilities in Japan¹⁶

19.6% reduction in CO₂ from sales cars in Japan since 2008¹⁶



RAW MATERIALS

Efficient use and reuse of raw materials, eg glucose, ethanol, plastic and glass



PRODUCTION

Novo Nordisk’s target is to use 100% power from renewable sources at its production facilities by 2020



DISTRIBUTION

Distributing as many products as possible by sea vs air is a priority for Novo Nordisk



LOCAL PRODUCTION

Participating in the Japanese Green Power Certificate scheme to reduce CO₂ emissions



SERVICES

Encouraging use of IT solutions, virtual meetings and environmentally friendly cars

Our focus on the environment has enabled us to decouple business growth from its potential negative impact on the environment. As business has grown in Japan, we have reduced total CO₂ emissions, including from operations at Koriyama, by more than 80% (Figure 9).¹⁶ This is consistent with the environmental responsibility in our Triple Bottom Line principle.

We meet growing productivity demands through cLEAN® projects. cLEAN®, the Novo Nordisk version of the LEAN philosophy – which has its roots in Japanese manufacturing processes – is our way of continuously improving quality, cost, delivery and the manufacturing environment. cLEAN® also builds staff competences at our manufacturing facilities for creating stable processes and eliminating waste. At Koriyama, cLEAN® engages employees in Kaizen to promote creative problem-solving that improves quality and efficiency.¹⁶

Reducing emissions through new distribution practices

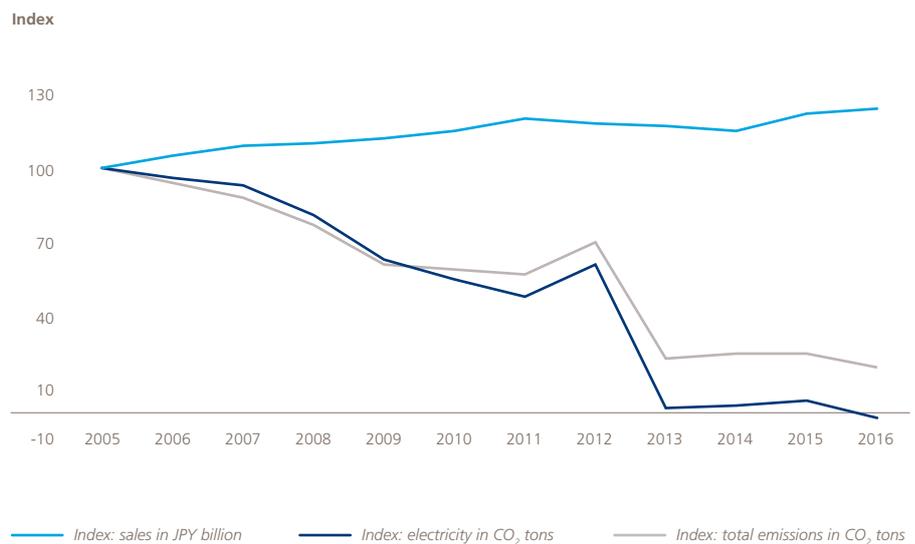
Internationally, our efforts to promote environmental sustainability began with a focus on reducing CO₂ emissions from our own operations. More recently, we have come to embrace a broader environmental mindset whereby we address our environmental footprint throughout the value chain. Our focus now extends beyond carbon emissions to include indirect emissions from relevant business activities.

Our first aim in this regard is to reduce emissions from our supply chain, product distribution and business travel. In 2016, Novo Nordisk continued to collaborate with strategic suppliers to increase its energy efficiency and share of energy consumption that is renewable.⁶⁸

In 2016, global CO₂ emissions from transport (product distribution) decreased

FIGURE 9 — GROWING OUR BUSINESS CLEANLY IN JAPAN

80.6% reduction in CO₂ emissions in the past 10 years (between 2005 and 2016)¹⁶



significantly to 38,000 tons, a 12% decrease compared with 2015. This was due mainly to an increase in the volume of products being distributed by sea rather than by air.⁶⁸

The balance between environmental stewardship and business growth is delicate. In Japan, it is our responsibility to meet the needs of people living with diabetes. Mindful of the potential effects of business expansion on our environmental footprint, Novo Nordisk partners with local wholesalers to provide its products through an extensive national distribution network. With our Koriyama manufacturing plant, this network ensures rapid delivery and efficient use of resources for product distribution,

resulting in no stock-out at the Koriyama factory since 2008.¹⁶

Reducing emissions through service activities

We also focus on the environmental impacts of our sales activities. Since 2008, we have reduced per unit CO₂ emissions from our sales fleet in Japan by more than 19.6% as a result of purchasing environmentally friendly hybrid cars.¹⁶

A good example of how we use IT solutions to reduce negative impact on the environment is our iSelling platform. iSelling helps us to engage face-to-face with healthcare professionals with the help of iPad-based sales materials.

Bringing environmental stewardship full circle

As part of our efforts to reduce our environmental impact, Novo Nordisk actively promotes and works in line with the principles of the circular economy. We consider resource efficiency and, ultimately, zero waste, as a way to promote innovation, reduce costs and minimise our environmental impact.

A commitment to environmental sustainability extends beyond efficient use of resources. It also requires effective reuse of resources.

The circular economy provides a model for keeping resources in use as long as possible. In the circular economy, resources are recovered, regenerated or reused, maximising their utility.⁶⁹

Novo Nordisk believes that the principles of the circular economy can strengthen our own efforts to reduce our environmental impact across our value chain and help us to adopt a full-lifecycle approach in decision-making.

One of the principles of the circular economy is to choose resources wisely, using those that lend themselves to reuse, and to use processes and technologies that facilitate reuse.⁷⁰

Novo Nordisk uses eco-design considerations when developing new products. We also collaborate with suppliers to promote the use of renewable sources, for example recycled materials in our packaging.⁷¹

Another principle of the circular economy involves maximising the use of bio-based materials, turning waste into resources.⁷⁰ Novo Nordisk has worked with waste management experts for several years to minimise resource waste from our operations. At various Novo Nordisk facilities, fermentation waste and food waste are converted into biogas, and residues from wastewater treatment are converted into fertiliser.⁷¹

In Japan, we also strive to recycle as much as possible. In 2015, 90% of our production waste at Koriyama was recycled.¹⁶

We collaborate with peers to encourage a circular economy

As its name implies, a circular economy is realised when companies work together to promote its principles. In this spirit, we build partnerships with companies and suppliers. As part of the Kalundborg Industrial Symbiosis, our Danish facilities exchange by-products and resources with other industries in the region.^{69,71}

As a member of the European Federation of Pharmaceutical Industries and Associations (EFPIA), we support and actively work towards fulfilment of EFPIA standards for achieving a circular economy.⁷¹

These efforts are consistent with our support of Universal Goal for Sustainable Development (SDG) number 12⁷¹ (read more on page 22).

INFOBOX 12

Our Koriyama factory at a glance



Novo Nordisk has 16 production sites on five continents,¹² including a facility in Japan. Our Japanese production facility is specially designed to meet local requirements and provide the highest-quality products for people living with diabetes in Japan.

In 1997, we transferred product supply operations to a new facility in Koriyama, where we inspect and package all Novo Nordisk products that are distributed in Japan. At our Koriyama facility, semi-finished products imported from our manufacturing sites in Denmark and France undergo qualification tests and strict manual inspection before leaving the factory.⁷²

Note — No. of employees as per end of 2016.

Success means caring for our employees and our communities

Our employees and their talents make us successful. We engage in employee development, promote diversity in the workforce and strive for employee satisfaction. These activities enable us to grow, create jobs and provide a steady supply of diabetes treatments for people with diabetes in Japan.

Our employees are a key resource for our success

To help patients lead healthier lives, we rely on the dedication and skills of our employees. To that end, we are committed to caring for our employees and to making Novo Nordisk a place where talented people want to work. This is how we ensure that we are sustainable in the long run.

One of the ways we do this is to establish a motivating workplace environment that promotes leadership development and that values diversity. Currently, we have a specific focus on building a robust pipeline of female leaders and enabling more flexible working conditions in Japan.

Workforce stability is an indicator of job satisfaction. In 2016, our employee retention rate in Japan was 93.4%.¹⁶

Our emphasis on creating a satisfying workplace is recognised by the Great

Place To Work® Institute of Japan. In 2016, Novo Nordisk was honoured to be named as one of the 15 best companies to work for in Japan,⁷³ based on responses from our own employees (Figure 10). The institute defines a great place to work as a company where "employees can trust [the] company and management team, [are] proud of their jobs and collaborate with colleagues".⁷³

According to the survey, 72% of our colleagues in Japan said that Novo Nordisk is a great place to work, while 64% said they are offered training or development to further themselves professionally.^{16,73}

We seek employee input on making a better workplace

High employee satisfaction fosters passion and engagement among employees – not just about diabetes, but also with regard to continual improvements in the way we work and the processes that we follow.

Our cClean® initiative is driven by a unified mission to help more people lead healthier lives with diabetes. We first implemented cClean® in production operations, and it has since been adopted throughout the organisation. All employees, regardless of where they work or their position, are encouraged to share ideas about what we can do better at Novo Nordisk. These ideas are taken seriously, and many have helped us to become more efficient and productive – for the benefit of patients, other key stakeholders and our company.

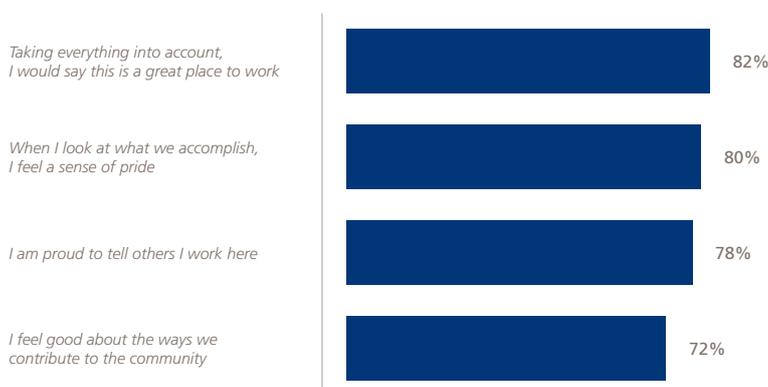


3.6

additional jobs are created in the surrounding economy for every Novo Nordisk employee working in production¹⁶

FIGURE 10 — GREAT PLACE TO WORK

80% of employees say they are proud to work for Novo Nordisk¹⁶



We create value for the communities where we work

Through our activities in Koriyama, we support the surrounding economy. The growth of our workforce, output and our investments in the factory result in job creation beyond our walls.¹⁶

Handling critical situations in the community

To live up to the mission of our Koriyama facility to supply high-quality products to patients, it is important to establish an adequate supply chain. We have secure stocks of finished goods in Japan and a business continuity plan to mitigate the effects of natural disasters or other disruptions to business operations. Because of this, we have been able to supply the market without product shortages for nine consecutive years.

We seek to create shared value as we address global issues

Guided by our Triple Bottom Line approach to doing business, Novo Nordisk seeks to act responsibly, integrate societal priorities into our business strategy and address global issues. This approach aims to create shared value and support the achievement of the UN Sustainable Development Goals in partnerships.

Novo Nordisk seeks to create shared value in the communities where we work

Increasingly, companies are recognising that shared value creation is a viable strategy for growth. The theory of shared value creation rests on the idea that societal needs define markets, and companies that do business in a way that benefits society create a virtuous cycle that can be profitable for both. The term 'shared value creation' was coined by Harvard professors Michael Porter and Mark Kramer,⁷⁴ but even before the existence of a label to describe it, Novo Nordisk practised its essence through the Novo Nordisk Way and by conducting business in accordance with the Triple Bottom Line principle.

Novo Nordisk welcomes and supports the SDGs

Novo Nordisk has been an active subscriber to the UN Global Compact since 2002 and is a co-founder and member of the UN Global Compact LEAD – a group of companies that tackle

sustainability issues – since its inception in 2011.⁶⁸

Novo Nordisk welcomes and supports the 17 Sustainable Development Goals (SDGs) agreed by the UN member states. We believe that achieving these goals requires an integrated approach through partnerships and in collaboration with the private sector. We consider all goals to be interdependent. Therefore, all goals are relevant and should be taken into account when doing business. Our assessment helped us not only to map out and address specific issues that will shape the future of the company, but was also instructive in that it promoted greater understanding of actions that may hinder the achievement of each of the goals.

In 2016, Novo Nordisk assessed the SDGs in the context of our business operations. We concluded that Novo Nordisk's key contribution mainly relates to Goal 3, Good Health and Well-being, and Goal 12, Responsible Consumption and Production (Infobox 13).⁶⁸

To change diabetes, cross-sector collaboration is essential

While our key contribution is to discover and develop biological medicines, to defeat diabetes we must do more. That is why we believe that effective cross-sector public-private partnerships can help to meet global and local diabetes challenges.

For people living with diabetes in Japan, improving quality of life goes beyond diabetes medicine. It requires more focus on the specific needs of elderly people with diabetes, effective communication among healthcare professionals and patients, and prevention and early detection of debilitating diabetes-related complications.

We all need to work together for a future in which people with diabetes live healthy and fulfilling lives, free from diabetes-related complications.

INFOBOX 13

Novo Nordisk welcomes and supports the 17 Sustainable Development Goals



Note — This graphic illustrates our priorities. The large icons represent goals about which we are confident that we can have a significant impact. For these goals, we have defined strategic priorities. The smaller icons represent other goals that we can support through the pursuit of our priority goals.⁶⁸ Read more about our efforts with regard to SDGs here: [novonordisk.com/investors/annual-report-2016/UN Global Compact Report](http://novonordisk.com/investors/annual-report-2016/UN%20Global%20Compact%20Report).

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THE STORY OF THE BOY WITH TYPE 1 DIABETES

When he was 10 years old, Manato Ohara experienced the first symptoms of type 1 diabetes. At first, he was very depressed and thought that he would not be able to live like others. However, he was encouraged when he learned about Team Novo Nordisk, a team of professional cyclists with type 1 diabetes. When his father learned about Team Novo Nordisk, he searched the Internet and sent an e-mail through the team's website, mentioning that his son also had type 1 diabetes and that he loved cycling. In 2014, when Team Novo Nordisk took part in the Japan Cup Cycle Road Race, in one of the biggest cycling road races in Asia that was being held in the city of Utsunomiya, Manato met with the team for the first time. After the meeting, Manato came to admire Team Novo Nordisk even more, and set himself the goal of becoming a professional road racer. He is now involved in cycle racing and aims to take part in the Talent ID Camps (those aged 15–18 with diabetes are eligible) designed for juniors by Team Novo Nordisk. The camps are held in Atlanta, USA, every year.

Read this document to find out more...

**Manato Ohara and Phil Southerland at the opening of the free cycling event in Japan in 2016.
Manato and Phil live with type 1 diabetes. Phil is the CEO and co-founder of Team Novo Nordisk.**
