

VICKI MOONEY AND HER DAUGHTER MIA  
Vicki is living with obesity  
Spain



# **novo nordisk** – a focused healthcare company

Investor presentation  
Full year 2018



# Agenda

**Highlights and key events**

**Sales update**

**R&D update**

**Financials and outlook**

# Forward-looking statements

Novo Nordisk's reports filed with or furnished to the US Securities and Exchange Commission (SEC), including this presentation as well as the company's statutory Annual Report 2018 and Form 20-F, which are both filed with the SEC in February 2019 in continuation of the publication of the Annual Report 2018, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as 'believe', 'expect', 'may', 'will', 'plan', 'strategy', 'prospect', 'foresee', 'estimate', 'project', 'anticipate', 'can', 'intend', 'target' and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

- Statements of targets, plans, objectives or goals for future operations, including those related to Novo Nordisk's products, product research, product development, product introductions and product approvals as well as cooperation in relation thereto,
- Statements containing projections of or targets for revenues, costs, income (or loss), earnings per share, capital expenditures, dividends, capital structure, net financials and other financial measures,
- Statements regarding future economic performance, future actions and outcome of contingencies such as legal proceedings, and
- Statements regarding the assumptions underlying or relating to such statements.

These statements are based on current plans, estimates and projections. By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and specific. Novo Nordisk cautions that a number of important factors, including those described in this presentation, could cause actual results to differ materially from those contemplated in any forward-looking statements.

Factors that may affect future results include, but are not limited to, global as well as local political and economic conditions, including interest rate and currency exchange rate fluctuations, delay or failure of projects related to research and/or development, unplanned loss of patents, interruptions of supplies and production, product recalls, unexpected contract breaches or terminations, government-mandated or market-driven price decreases for Novo Nordisk's products, introduction of competing products, reliance on information technology, Novo Nordisk's ability to successfully market current and new products, exposure to product liability and legal proceedings and investigations, changes in governmental laws and related interpretation thereof, including on reimbursement, intellectual property protection and regulatory controls on testing, approval, manufacturing and marketing, perceived or actual failure to adhere to ethical marketing practices, investments in and divestitures of domestic and foreign companies, unexpected growth in costs and expenses, failure to recruit and retain the right employees, and failure to maintain a culture of compliance.

For an overview of some, but not all, of the risks that could adversely affect our results or the accuracy of forward-looking statements in this presentation, reference is made to 'Risk management enables better decision-making' on p 41 and the overview of risk factors in 'Novo Nordisk's key risks' on pp 42-43 of the Annual Report 2018.

Unless required by law, Novo Nordisk is under no duty and undertakes no obligation to update or revise any forward-looking statement after the distribution of this presentation, whether as a result of new information, future events or otherwise.

## Important drug information

- Victoza® (liraglutide 1.2 mg and 1.8 mg) is approved for the management of type 2 diabetes only
- Saxenda® (liraglutide 3 mg) is approved in the USA and the EU for the treatment of obesity only

# Highlights – Full year 2018

## Sales development

- Sales were broadly unchanged in Danish kroner and increased by 5% in local currencies to DKK 111.8 billion
  - International Operations sales increased by 2% in Danish kroner and by 7% in local currencies
  - North America Operations sales decreased by 2% in Danish kroner and increased by 3% in local currencies
  - The GLP-1 diabetes franchise increased by 18% in local currencies and accounted for 78% share of growth

## Research and Development

- Completion of the phase 3a PIONEER programme for oral semaglutide, following successful completion of PIONEER 6 and 9
- Oral semaglutide ready for regulatory filing. Filing expected in the USA around end-Q1 2019 with use of priority review voucher
- Completion of phase 2 trials for concizumab (explorer4) and somapacitan (extension, REAL 3)
- Phase 2 trial for LAI287, a once-weekly insulin, initiated to evaluate safety and efficacy
- Phase 1 trial for LAIsema, a once-weekly combination of LAI287 and semaglutide, initiated

## Financials

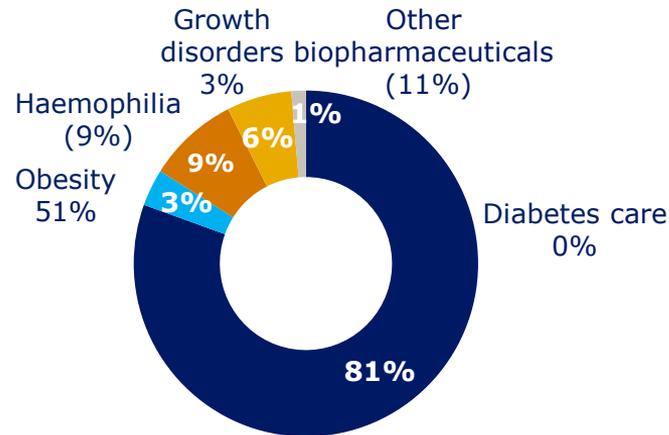
- Operating profit decreased by 4% in Danish kroner and increased by 3% in local currencies to DKK 47.2 billion
- Operating profit increased by 6% in local currencies adjusted for severance costs and the priority review voucher
- Net profit increased by 1% to DKK 38.6 billion and diluted earnings per share increased by 4% to 15.93 DKK per share
- 4% increase in total dividend to DKK 8.15 per share of DKK 0.20 proposed (interim dividend of DKK 3.00 paid in August 2018)
- New 12-months share repurchase programme of up to DKK 15 billion to be initiated in February

## 2019 financial outlook and target updates

- Sales growth is expected to be 2-5% measured in local currencies (around 2%-points higher reported)
- Operating profit growth is expected to be 2-6% measured in local currencies (around 4%-points higher reported)
- Long term financial targets for OPAT/NOA adjusted from 125% to 80%. Cash to earnings target adjusted from 90% to 85%
- Long term financial target for operating profit growth remains unchanged

# Sales growth of 5% mainly driven by Victoza<sup>®</sup>, Ozempic<sup>®</sup> and Saxenda<sup>®</sup>

## Sales as reported – full year 2018



Sales of DKK 111.8 billion (0%)

## Growth break down – full year 2018

Local currencies	Growth	Share of growth
Long-acting insulin <sup>1</sup>	(2%)	(7%)
Premix insulin <sup>2</sup>	0%	0%
Fast-acting insulin <sup>3</sup>	1%	3%
Human insulin	(1%)	(3%)
<b>Total insulin</b>	<b>(1%)</b>	<b>(7%)</b>
GLP-1 <sup>4</sup>	18%	78%
Other diabetes care <sup>5</sup>	3%	2%
<b>Total diabetes care</b>	<b>4%</b>	<b>73%</b>
Obesity (Saxenda <sup>®</sup> )	60%	30%
<b>Diabetes care and obesity total</b>	<b>6%</b>	<b>103%</b>
Haemophilia <sup>6</sup>	(5%)	(10%)
Growth disorders (Norditropin <sup>®</sup> )	7%	9%
Other biopharmaceuticals <sup>7</sup>	(8%)	(2%)
<b>Biopharmaceuticals</b>	<b>(1%)</b>	<b>(3%)</b>
<b>Total</b>	<b>5%</b>	<b>100%</b>

<sup>1</sup> Comprises Tresiba<sup>®</sup>, Xultophy<sup>®</sup> and Levemir<sup>®</sup>; <sup>2</sup> Comprises Ryzodeg<sup>®</sup> and NovoMix<sup>®</sup>

<sup>3</sup> Comprises Fiasp<sup>®</sup> and NovoRapid<sup>®</sup>; <sup>4</sup> Comprises Victoza<sup>®</sup> and Ozempic<sup>®</sup>

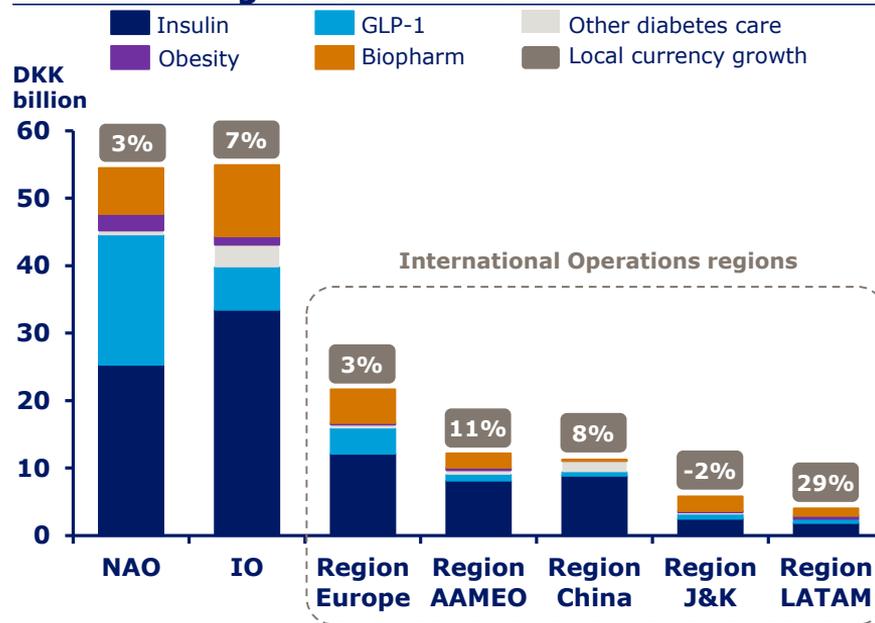
<sup>5</sup> Primarily NovoNorm<sup>®</sup> and needles; <sup>6</sup> Comprises NovoSeven<sup>®</sup>, NovoEight<sup>®</sup>, NovoThirteen<sup>®</sup> and Refixia<sup>®</sup>;

<sup>7</sup> Primarily Vagifem<sup>®</sup> and ActiVelle<sup>®</sup>

Note: Refixia<sup>®</sup> and NovoThirteen<sup>®</sup> are launched as Rebinyn<sup>®</sup> and TRETEN<sup>®</sup>, respectively, in the USA

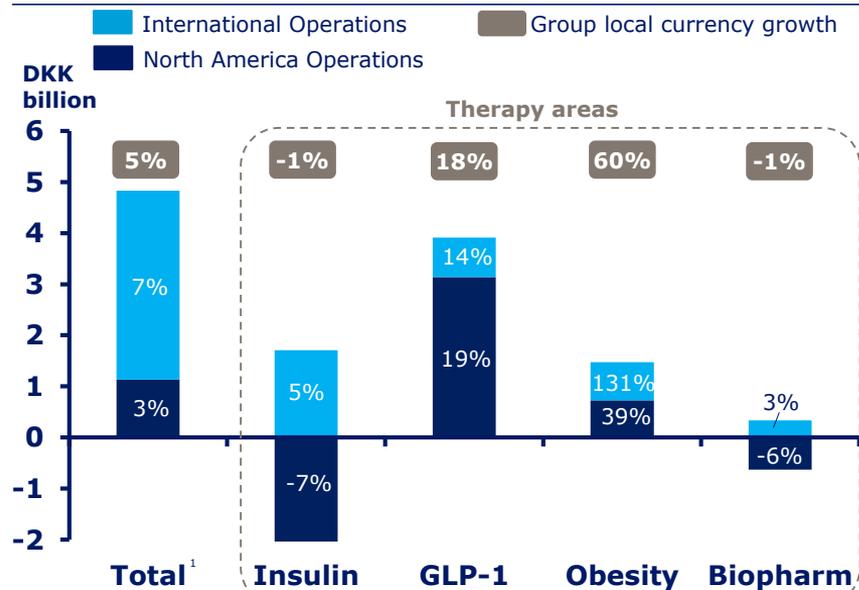
# Sales growth is primarily driven by 18% growth in GLP-1 sales, while global insulin sales are broadly unchanged

## 2018 reported sales split and local currency growth for NAO and IO



NAO: North America Operations; IO: International Operations; LATAM: Latin America; AAMEO: Africa, Asia, Middle East & Oceania; J&K: Japan & Korea

## 2018 added sales and local currency growth for NAO and IO

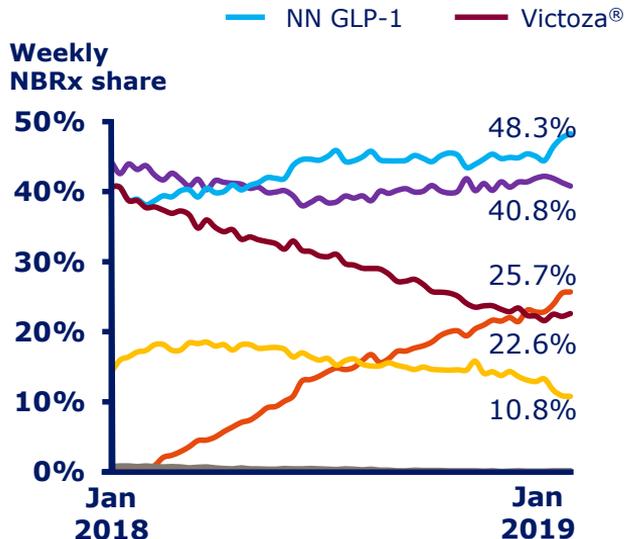


<sup>1</sup> "Other diabetes care" is included in Total

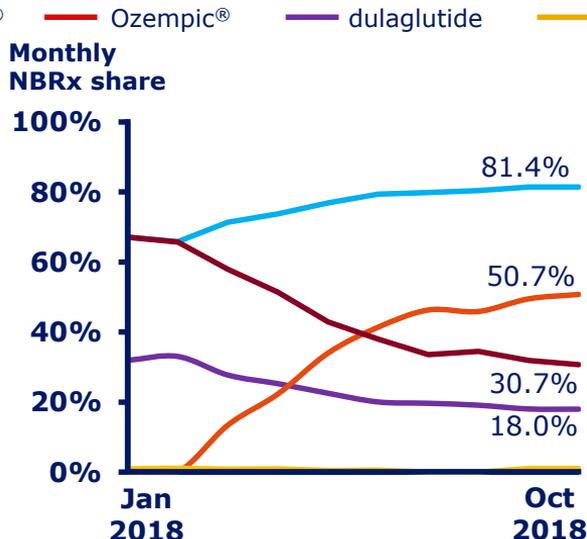
# Ozempic<sup>®</sup> gains market share and is now launched in 11 countries



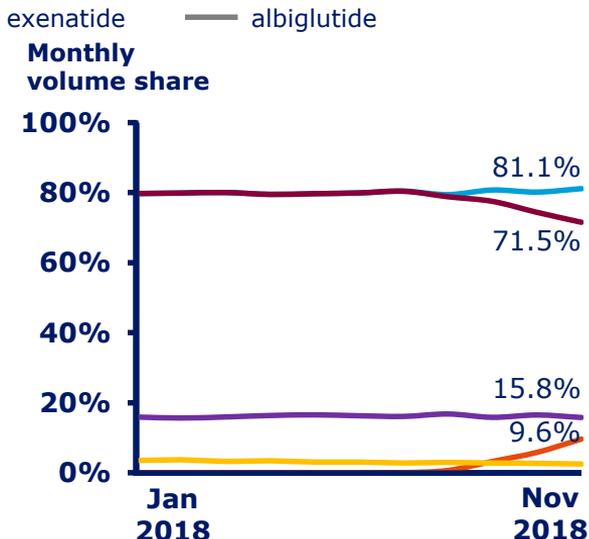
## USA GLP-1 NBRx market share



## Canada GLP-1 NBRx market share



## European<sup>1</sup> GLP-1 volume market share



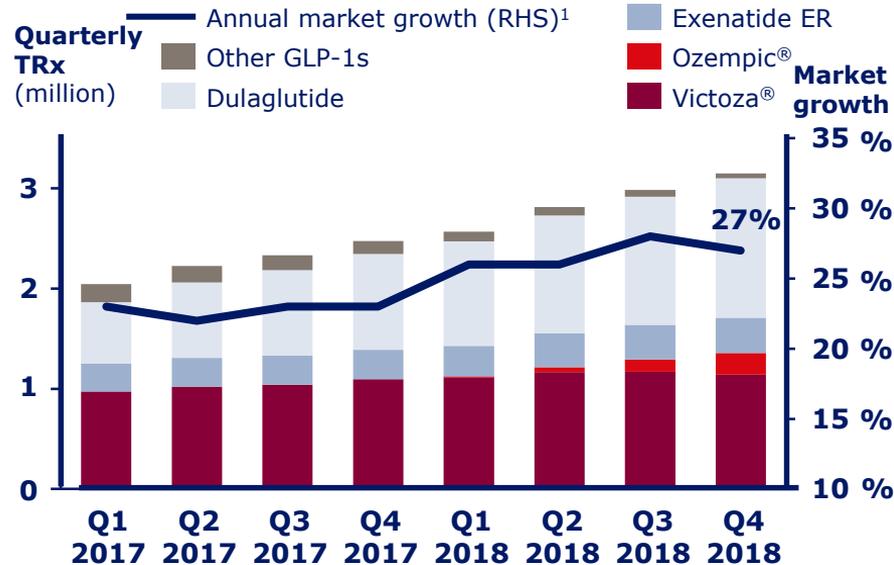
Source: NBRx-IQVIA LRx Weekly, week ending 13 Jan 2019  
 Ozempic<sup>®</sup> has been launched in: the USA, Canada, Denmark, Switzerland, Ireland, Sweden, the Netherlands, Iceland, the UK, Norway and Finland

Source: NBRx-IQVIA monthly, Oct 2018

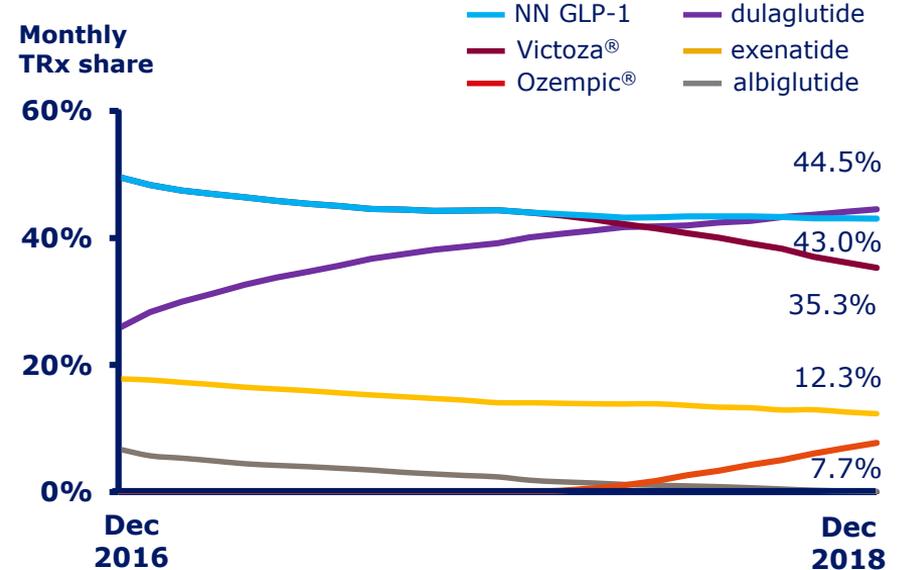
Source: IQVIA monthly, Nov 2018  
<sup>1</sup> Markets include: Denmark, Switzerland, Ireland, Sweden and the Netherlands

# In the USA, Victoza® CV indication and Ozempic® launch contribute to the 27% GLP-1 market growth

## USA GLP-1 TRx market development



## USA GLP-1 volume market share



Source: IQVIA weekly NPA, week ending 4 Jan 2019 for Q4 2018; monthly NPA dated Nov 2018 TRx Script Count for prior quarters

CV: Cardiovascular

<sup>1</sup> Growth rate three months year over year

RHS: Right hand side

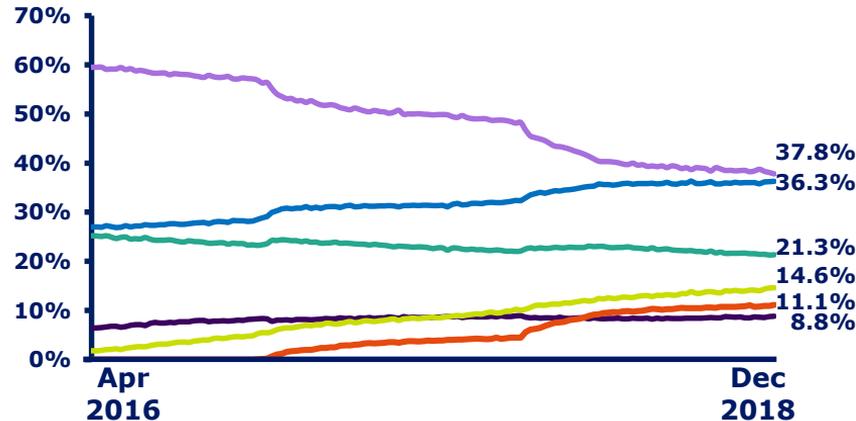
Source: IQVIA monthly NPA, Nov 2018; weekly NPA for Dec, week ending 4 Jan 2019

# Tresiba® has since launch gained around 15% market share in the USA

## Weekly TRx volume market shares<sup>1</sup> in the USA

— glargine U100    — NN total basal<sup>2</sup>    — Levemir®  
— Tresiba®    — glargine U300  
— biosimilar glargine U100

**Basal volume TRx MS<sup>1</sup>**



Note: The graph does not show NPH, which accounts for the residual market share

Source: IQVIA weekly Xponent Plantrak (\*excludes Medicaid), 28 Dec 2018

TRx volume: Insulin volume in mega units (MU) associated with total number of prescriptions;

VANTAGE FingerTip Formulary bridge, Dec 2018

MS: Market share

<sup>1</sup> Excluding Medicaid, Medicaid represents ~12% of retail basal market volume, <sup>2</sup> Includes Xultophy®

## Tresiba® in the USA

- Novo Nordisk basal insulin volume market share is now 36.3%, which is a 9%-points increase since the launch of Tresiba® in 2016
- Tresiba® volume market share is at 14.6%
- Tresiba® formulary access is above 80% for Commercial and Medicare Part D combined
- In April 2018, promotional activities were initiated for the updated Tresiba® label<sup>3</sup>

<sup>3</sup> Tresiba® label was updated in March 2018 to include a 40% reduction of severe hypoglycaemic events compared to insulin glargine U100



# Saxenda® sales increased by 60% in 2018 and continues to gain market share in the global anti-obesity market

## Solid Saxenda® sales growth since launch



Note: Numbers in the graph are reported quarterly sales

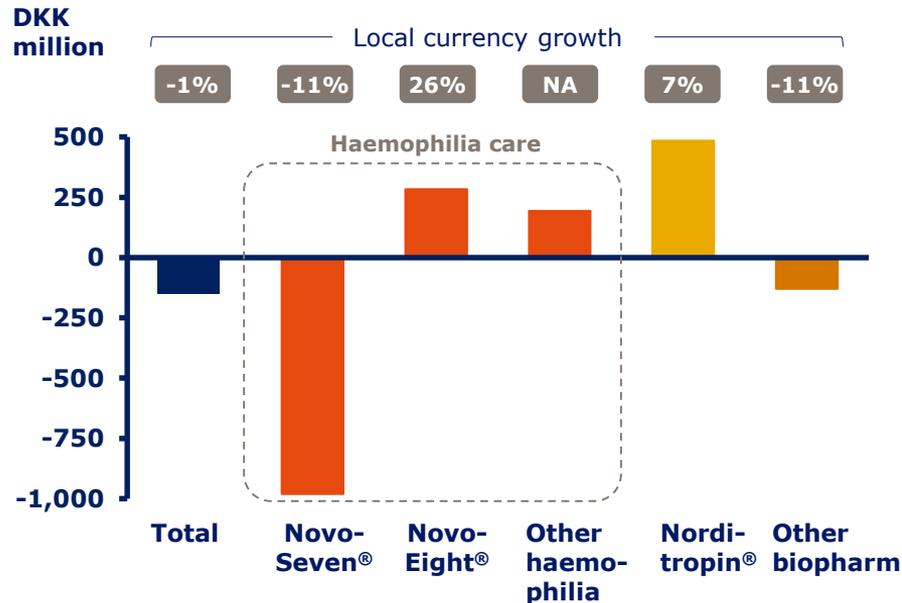
## Continued global roll-out of Saxenda®

- Novo Nordisk is the value market leader in the global anti-obesity market with 45% market share. Value market share in North America Operations is 65.5% and in International Operations 32.5%
- Saxenda® sales grew by 60% in 2018 measured in local currencies driven by both North America Operations (sales growth of 39%) and International Operations (sales growth of 131%)
- Saxenda® is now launched in North America and in 39 countries in four regions in International Operations
- Continued efforts focusing on expanding the obesity segment. Novo Nordisk invests in progressing its innovative obesity pipeline and market development activities such as patient support and educator programmes

Source: IQVIA monthly from Nov 2018

# Biopharm strategy focus on in-market execution as well as internal and external innovation

## Broadly unchanged biopharm sales driven by Norditropin® and NovoEight®



Other haemophilia comprises NovoThirteen® and Refixia®, 'Other biopharm' comprises primarily Vagifem® and Activelle®

## 'Return to growth' strategy on track

**Succeeded in-market** despite competition in the inhibitor segment: Updated NovoSeven® label for surgical use and global focus on acquired haemophilia treatment as well as solid sales growth for Norditropin® and NovoEight®

**Progressing pipeline** with global launch of Refixia®; expected approval of N8-GP; expected filing of NovoEight® in China; and pipeline advancement with concizumab and with somapacitan in both GHD and AGHD

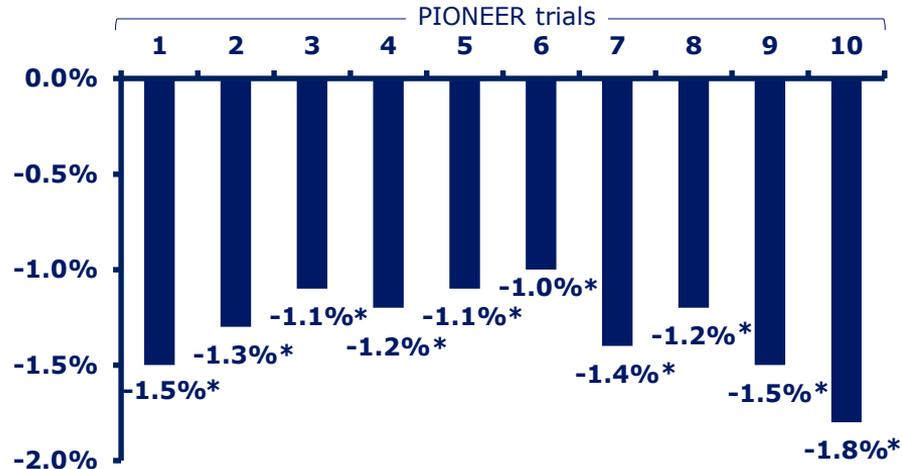
**Adding complementary assets** with the in-licensing of EpiDestiny's product for sickle cell disease and acquisition of the North American rights to Macrilien™, the first oral product for diagnosis of AGHD

GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency  
Note: Refixia® is the global brand name and Rebinyn® is the brand name in North America

# Completed PIONEER programme showed consistent statistically significant reductions in HbA<sub>1c</sub> and body weight

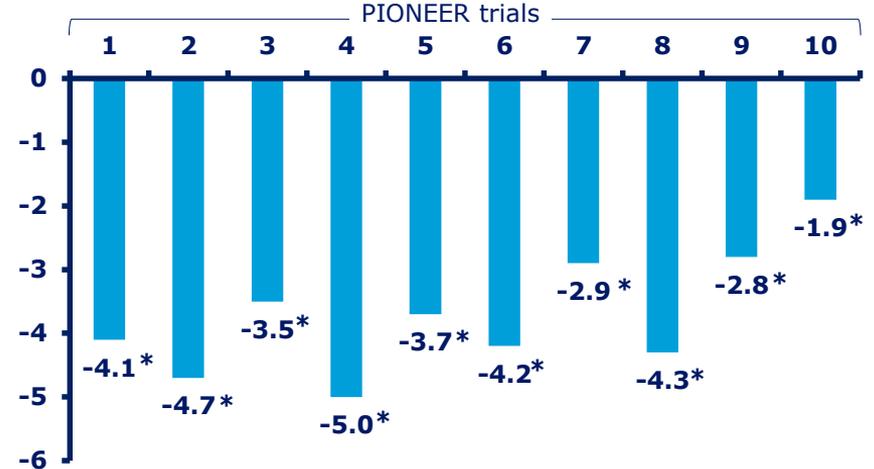
Oral semaglutide lowered HbA<sub>1c</sub> by 1.0–1.8%  
points by end of trial<sup>1</sup>

Mean change in HbA<sub>1c</sub> (%-points)



Oral semaglutide lowered body weight by  
~2–5 kg by end of trial<sup>1</sup>

Mean change in weight (kg)



<sup>1</sup> Hypothetical estimand, Mixed Model for Repeated Measurement (MMRM)

\* Statistically significant vs comparator (vs placebo in PIONEER 1; vs empagliflozin 25 mg in PIONEER 2; vs sitagliptin 100 mg in PIONEER 3; vs Victoza® 1.8 mg in PIONEER 4; vs placebo in PIONEER 5; vs placebo in PIONEER 6; vs sitagliptin 100 mg in PIONEER 7; vs placebo in PIONEER 8; vs Victoza® 0.9 mg and placebo in PIONEER 9; vs 0.75 mg dulaglutide in PIONEER 10)

Note: Results shown are: PIONEER 1 and 5 for 26 weeks with 14 mg oral semaglutide, PIONEER 2, 4, 8, 9 and 10 for 52 weeks with 14 mg oral semaglutide; PIONEER 3 for 78 weeks with 14 mg oral semaglutide; PIONEER 7 for 52 weeks with a mixed dose; PIONEER 6 following occurrence of 137 MACE with a median follow-up time of 16 months.

MACE: major adverse cardiovascular events; FDA: The US Food and Drug Administration

# Oral semaglutide ready for regulatory filing following the successful completion of the CV safety trial, PIONEER 6

## Headline results for PIONEER 6

- The trial met the primary endpoint<sup>1</sup> by demonstrating **non-inferiority** of MACE with oral semaglutide compared to placebo
- Efficacy and safety profile of oral semaglutide was consistent with the previous PIONEER trials

Headline results	HR
MACE	0.79
CV death	0.49*
<i>All cause mortality</i>	0.51*
Myocardial infarction, non-fatal	1.18
Stroke, non-fatal	0.74

<sup>1</sup> The primary endpoint was defined as the MACE composite outcome of the first occurrence of CV death, non-fatal myocardial infarction or non-fatal stroke

Note: \* indicates statistical significance

CV: Cardiovascular, MACE: major adverse cardiovascular events, HR: hazard ratio

## Regulatory update for oral semaglutide

- Oral semaglutide is expected to be filed around the end of the first quarter 2019 by notifying the FDA that Novo Nordisk will request priority review based on a priority review voucher
- Oral semaglutide is expected to be filed in the EU in first half of 2019 and subsequently filed in Japan
- Novo Nordisk is currently in a constructive dialogue with the FDA to potentially obtain a CV indication for Ozempic® based on the CVOTs SUSTAIN 6 and PIONEER 6 results

FDA: the Food and Drug Administration; CV: cardiovascular; CVOT: cardiovascular outcomes trial

# Key development milestones

## Diabetes

- Completion of the phase 3a PIONEER programme for oral semaglutide, following successful completion of PIONEER 6 and 9
- Oral semaglutide ready for regulatory filing. Filing expected in the USA around end-Q1 2019 with use of priority review voucher
- Phase 2 trial initiated for LAI287, a once-weekly insulin, to assess safety and efficacy
- Phase 1 trial initiated for LAIsema, a fixed ratio combination of LAI287 and semaglutide

## Obesity

- Embark Biotech and Novo Nordisk entered into a research collaboration on the discovery of novel treatments for obesity and metabolic diseases

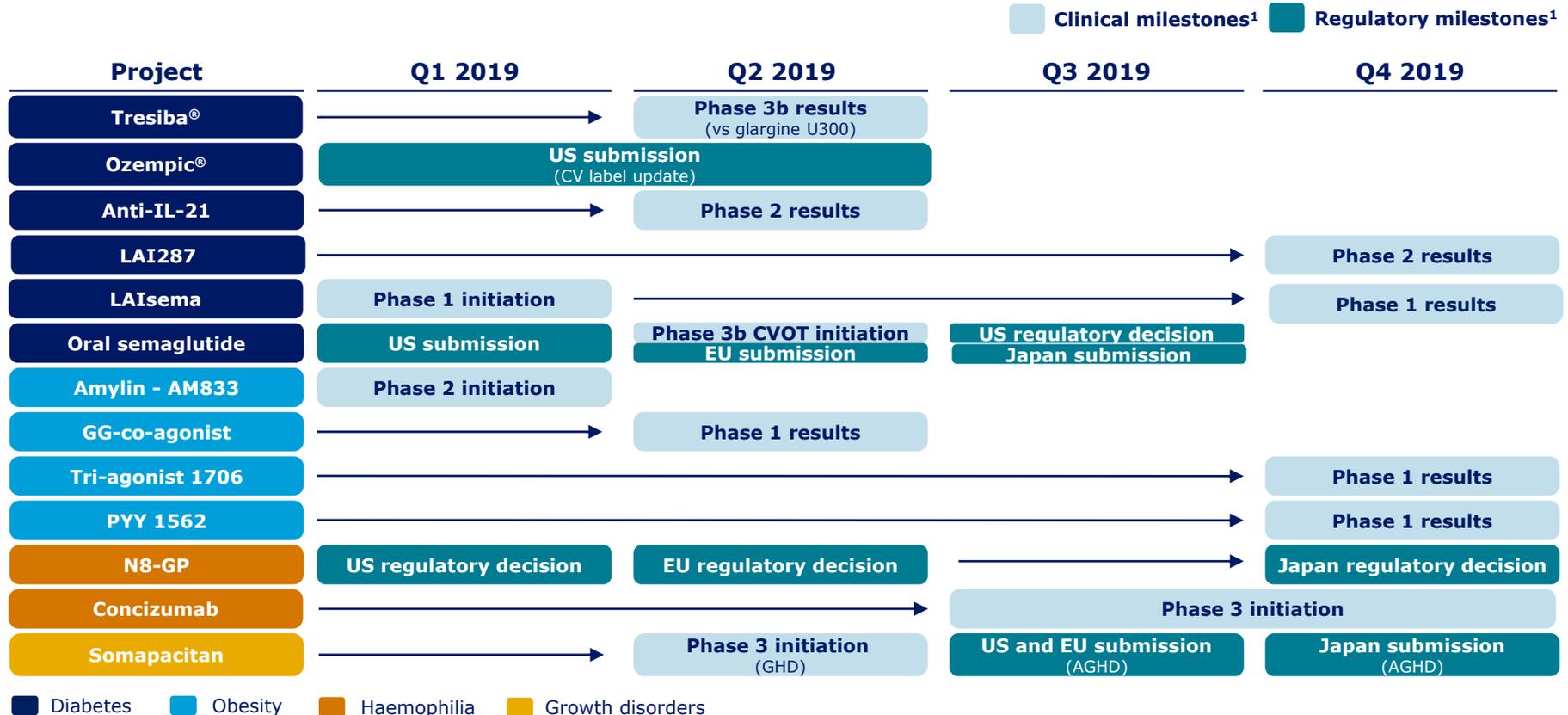
## Biopharm

- Successful completion of the phase 2 trial explorer4 with concizumab, which together with explorer5 data confirmed clinical proof of concept of concizumab and phase 3 preparation is initiated
- Completion of the phase 2 trial REAL 3 (extension period) for long-acting growth hormone somapacitan in GHD
- Development of sc N8-GP has been discontinued

## Other serious chronic diseases

- Staten Biotechnology and Novo Nordisk to collaborate on developing novel treatment for dyslipidaemia

# R&D milestones in 2019



<sup>1</sup> Expected to be published in the given quarter or in the subsequent quarterly company announcement  
 GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency; CVOT: cardiovascular outcomes trial

# Financial results – Full year 2018

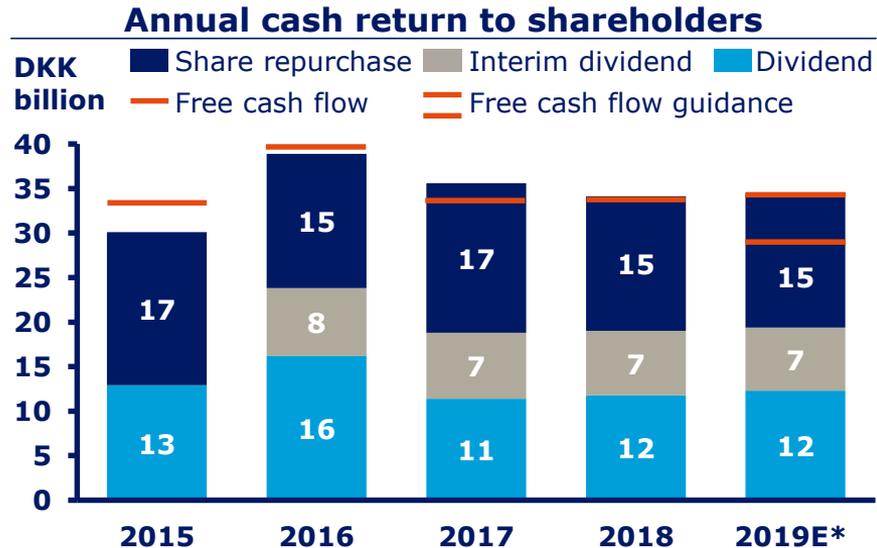
In DKK million

	2018	2017	Change (reported)	Change (local currency)
<b>Sales</b>	111,831	111,696	0%	5%
<b>Gross profit</b>	94,214	94,064	0%	
<i>Gross margin</i>	84.2%	84.2%		
Sales and distribution costs	29,397	28,340	4%	7%
<i>Percentage of sales</i>	26.3%	25.4%		
Research and development costs	14,805	14,014	6%	8%
<i>Percentage of sales</i>	13.2%	12.5%		
Administration costs	3,916	3,784	4%	7%
<i>Percentage of sales</i>	3.5%	3.4%		
Other operating income, net	1,152	1,041	11%	
<b>Operating profit</b>	47,248	48,967	(4%)	3%
<i>Operating margin</i>	42.2%	43.8%		
Financial items (net)	367	(287)		
<b>Profit before income tax</b>	47,615	48,680	(2%)	
Income taxes	8,987	10,550	(15%)	
<i>Effective tax rate</i>	18.9%	21.7%		
<b>Net profit</b>	38,628	38,130	1%	
<b>Diluted earnings per share (DKK)</b>	15.93	15.39	4%	

# Financial outlook for 2019 including adjusted LTFTs

	<b>Expectations 1 Feb 2019</b>
Sales growth - local currencies	2% to 5%
Sales growth - reported	Around 2 percentage points higher
Operating profit growth - local currencies	2% to 6%
Operating profit growth - reported	Around 4 percentage points higher
Financial items (net)	Loss of around DKK 2.4 billion
Effective tax rate	20% to 22%
Capital expenditure	Around DKK 9.0 billion
Depreciation, amortisation and impairment losses	Around DKK 4.5 billion
Free cash flow	Around DKK 29 to 34 billion
OPAT/NOA target	<b>Adjusted to 80%</b> (previously 125%)
Cash to earnings target	<b>Adjusted to 85%</b> (previously 90%)
Operating profit growth target	5% (unchanged)

# Cash return to shareholders in 2019



## Cash return priorities

- New share repurchase programme of up to DKK 15 billion to be executed during the coming 12 months
- Total programme may be reduced in size if significant bolt-on acquisition opportunities arise during 2019
- For 2018, the proposed total dividend increased 4% to DKK 8.15 per share of DKK 0.20 (including interim dividend of DKK 3.00 per share paid in August 2018), resulting in a total pay-out ratio of 50.6%.

Note: For 2019 expected free cash flow is DKK 29-34 billion. Share repurchase programmes run for 12 months starting Feb until end-Jan of the following year.

# Key take-aways – Full year 2018



Diabetes

**Diabetes franchise grew 4%** and Novo Nordisk retains world leader position with a market share of 27.9% (27.4% in 2017)

- **Insulin sales** were flat and Novo Nordisk has expanded its volume market leader position to 46.4% insulin market share (45.9% in 2017)
- **GLP-1 sales** grew 18% and Novo Nordisk holds the market leader position with 46% value market share
- **Oral semaglutide** submission is expected in the USA around the end of Q1 2019, priority review voucher to be used



Obesity

**Obesity sales** increased by 60% and accounted for 30% share of Novo Nordisk's sales growth. Saxenda® is now launched in 41 countries



Biopharm

**Biopharm strategy** execution on track: Biopharm sales broadly unchanged, progression of pipeline and complementary assets added to the product portfolio



Financials

**Sales growth of 5%** driven by both International Operations (7% sales growth) and North America Operations (3% sales growth). Sales growth driven by 18% GLP-1 sales growth and 60% obesity sales growth

**Operating profit growth of 6%** when adjusting for the severance costs and the priority review voucher



Outlook

**Sales growth in 2019** expected to be 2-5% with a positive currency impact of 2 percentage points

**Operating profit growth in 2019** expected to be 2-6% with a positive currency impact of 4 percentage points

**Long-term financial targets adjusted** for OPAT/NOA from 125% to 80% and Cash to earnings from 90% to 85%

# Investor contact information

## Share information

---

Novo Nordisk's B shares are listed on the stock exchange in Copenhagen under the symbol 'NOVO B'. Its ADRs are listed on the New York Stock Exchange under the symbol 'NVO'.

For further company information, visit Novo Nordisk on:  
[www.novonordisk.com](http://www.novonordisk.com)

## Upcoming events

---

21 Mar 2019	Annual General Meeting
03 May 2019	Financial statement for the first three months of 2019
09 Aug 2019	Financial statement for the first six months of 2019
01 Nov 2019	Financial statement for the first nine months of 2019

## Investor Relations contacts

---

Novo Nordisk A/S  
Investor Relations  
Novo Allé  
DK-2880 Bagsværd

Peter Hugrefte Ankersen	+45 3075 9085	<a href="mailto:phak@novonordisk.com">phak@novonordisk.com</a>
Anders Mikkelsen	+45 3079 4461	<a href="mailto:armk@novonordisk.com">armk@novonordisk.com</a>
Valdemar Borum Svarrer	+45 3079 0301	<a href="mailto:jvls@novonordisk.com">jvls@novonordisk.com</a>
Kristoffer Due Berg	+45 3079 2849	<a href="mailto:krdb@novonordisk.com">krdb@novonordisk.com</a>
Ann Søndermølle Rendbæk	+45 3075 2253	<a href="mailto:arnd@novonordisk.com">arnd@novonordisk.com</a>

# Appendix

<b>1. Novo Nordisk at a glance</b>	<b>22</b>
<b>2. Insulin</b>	<b>42</b>
<b>3. GLP-1 diabetes</b>	<b>67</b>
<b>4. Obesity</b>	<b>84</b>
<b>5. Biopharmaceuticals &amp; Other serious chronic diseases</b>	<b>93</b>
<b>6. Financials</b>	<b>105</b>
<b>7. Sustainable business</b>	<b>117</b>

# Novo Nordisk at a glance

## Global leader in diabetes care and obesity

- A focused pharmaceutical company with leading positions in diabetes, obesity, haemophilia and growth hormone
- Significant growth opportunities driven by the diabetes pandemic, fuelled by global presence and strong research and development pipeline
- High barriers to entry in biologics
- Operating profit growth targeting 5% yearly on average (measured in local currencies)
- Earnings conversion to cash targeting 85%
- Cash generated returned to shareholders

## Global insulin market leadership

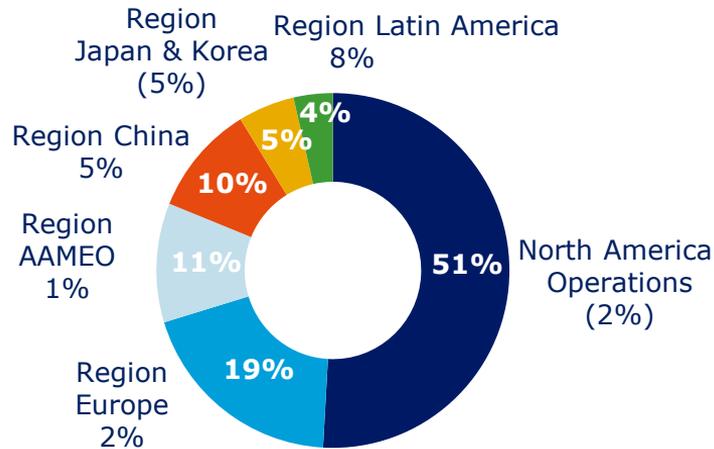
Global insulin market share: 46%



Source: IQVIA MAT Nov 2018 volume figures  
 AAMEO: Africa, Asia, the Middle East & Oceania

# Sales growth driven by 7% growth in International Operations and 3% growth in North America Operations

## Sales as reported – full year 2018



**Sales of DKK 111.8 billion (0%)**

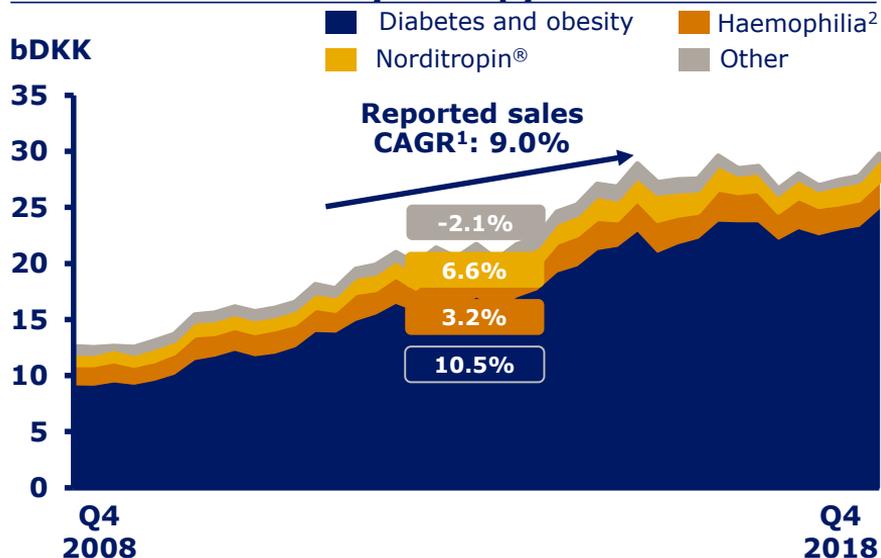
AAMEO: Africa, Asia, Middle East & Oceania

## Growth break down – full year 2018

Local currencies	Growth	Share of growth
<b>North America Operations</b>	<b>3%</b>	<b>29%</b>
Hereof USA	2%	22%
<b>International Operations</b>	<b>7%</b>	<b>71%</b>
Region Europe	3%	11%
Region AAMEO	11%	26%
Region China	8%	16%
Region Japan & Korea	(2%)	(2%)
Region Latin America	29%	20%
<b>Total sales</b>	<b>5%</b>	<b>100%</b>

# Sales growth driven by the diabetes and obesity franchise

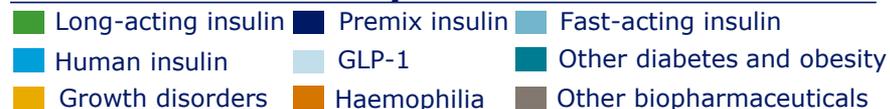
## Novo Nordisk reported quarterly sales by therapy



<sup>1</sup> CAGR for 10-year period

<sup>2</sup> Haemophilia comprises NovoSeven®, NovoThirteen®, NovoEight® and Refixia®

## Reported sales split by product segments for full year 2018

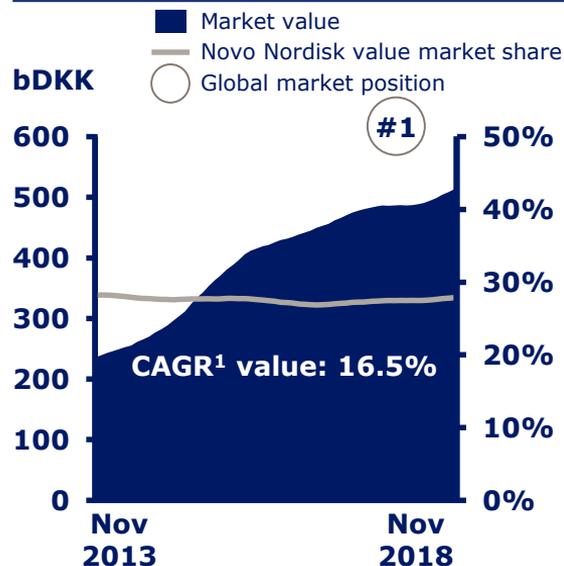


Sales of DKK 111.8 billion (0%)

Note: Numbers do not add up to 100 due to rounding

# Novo Nordisk has leading positions in diabetes, obesity and haemophilia

## Diabetes



<sup>1</sup> CAGR for 5-year period  
Source: IQVIA MAT Nov, 2018 value figures

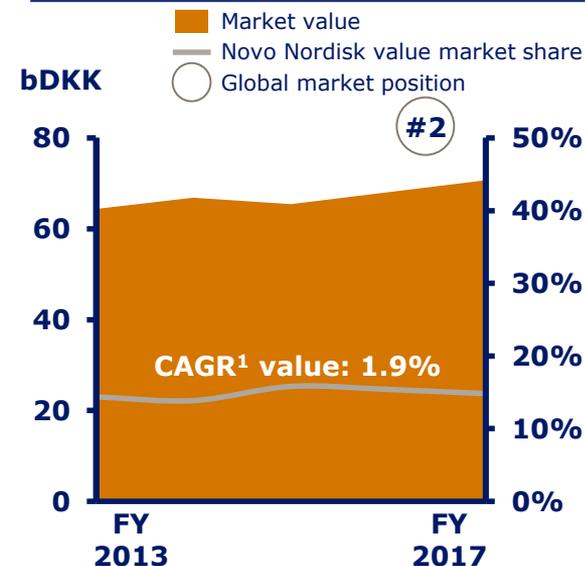
changing  
diabetes®

## Obesity



Note: Global value data  
<sup>2</sup> CAGR for 2-year period  
Source: IQVIA MAT Nov, 2018 value figures

## Haemophilia

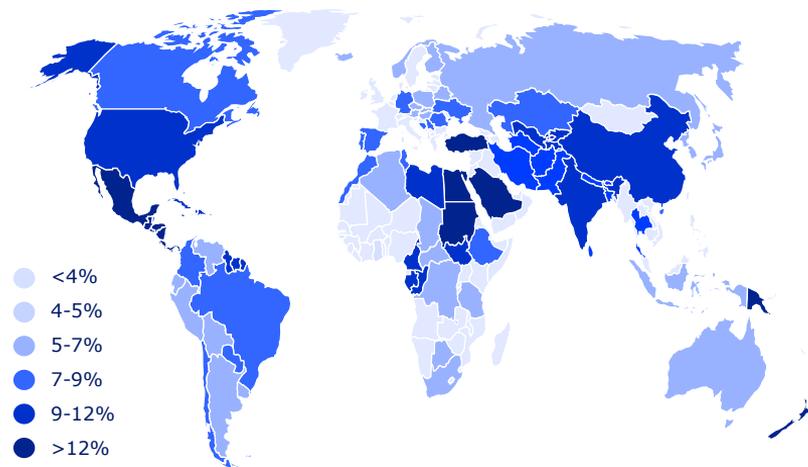


<sup>3</sup> CAGR for 5-year period  
Note: Annual sales figures for Haemophilia A, B and bypassing agents segment. Recombinant and plasma derived products  
Source: Company reports



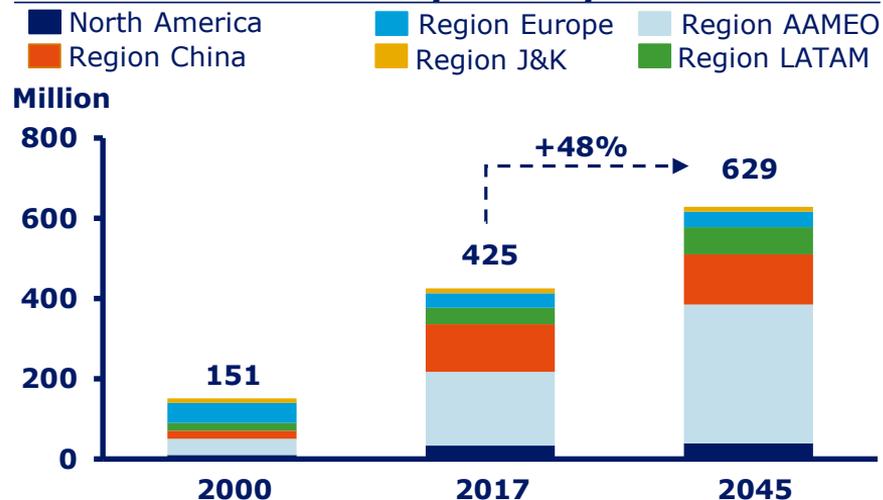
# Global diabetes prevalence is increasing and 629 million people are expected to have diabetes by 2045

Around 10% of all adults globally have diabetes



Source: Adapted from International Diabetes Federation: Diabetes Atlas 8<sup>th</sup> Edition 2017

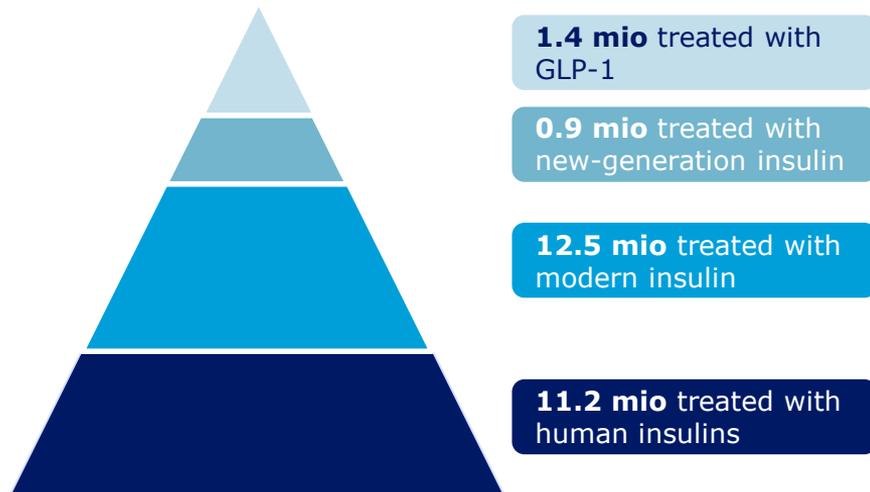
The number of people with diabetes is expected to increase by 48% by 2045



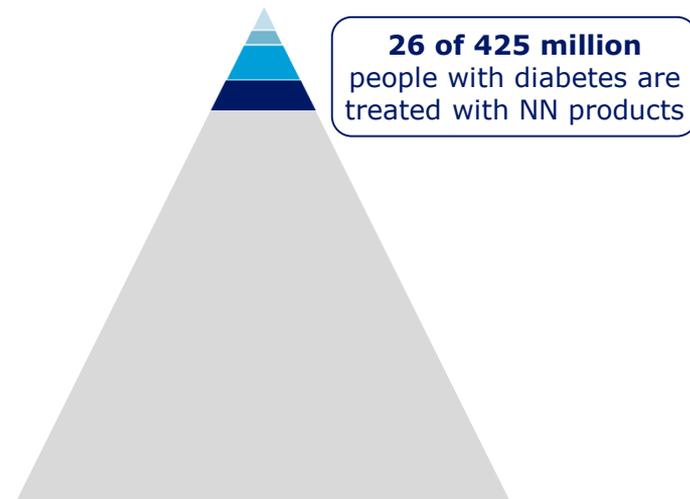
J&K: Japan & Korea; AAMEO: Africa, Asia, the Middle-East and Oceania; LATAM: Latin America  
Source: International Diabetes Federation: Diabetes Atlas 1<sup>th</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

# Focus on driving global insulin growth by increasing the number of people benefitting from Novo Nordisk products

Around 29 million people are currently treated with Novo Nordisk insulin and GLP-1 products



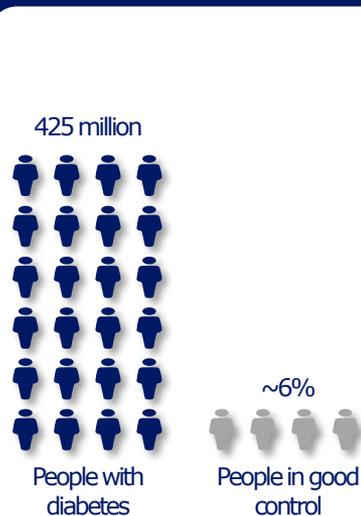
Only 6% of all people with diabetes are treated with Novo Nordisk products



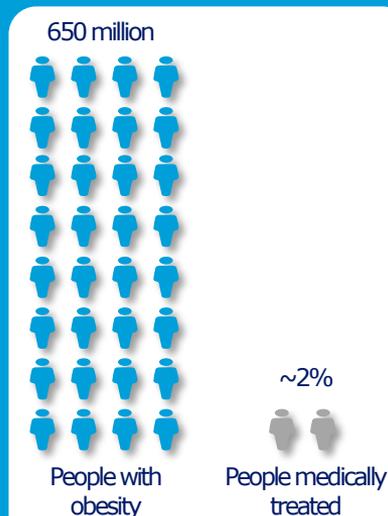
NN: Novo Nordisk  
Source: International Diabetes Federation: Diabetes Atlas 8<sup>th</sup> Edition 2017

# Novo Nordisk's opportunity is in the large unmet needs across all therapy areas in scope

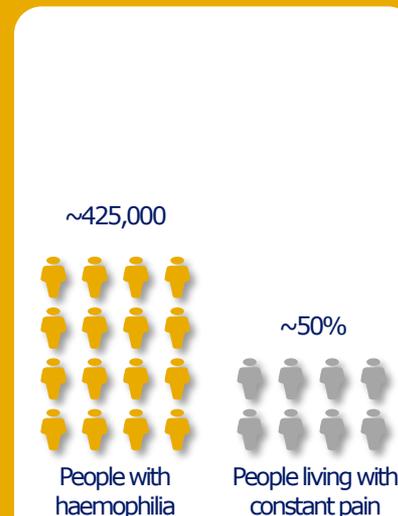
## DIABETES



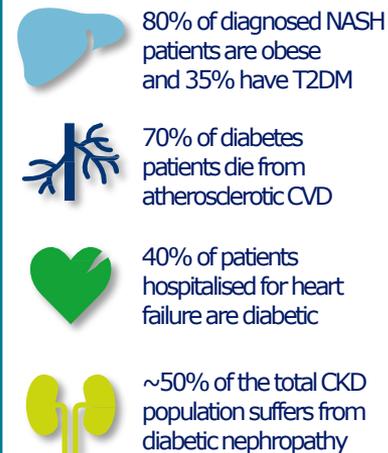
## OBESITY



## HAEMOPHILIA



## OTHER SERIOUS CHRONIC DISEASES



# Six strategic priorities



**EXPAND THE  
GLP-1 MARKET  
AND WIN WITH  
SEMAGLUTIDE**



**DRIVE  
INSULIN  
VOLUME AND  
VALUE SHARE**



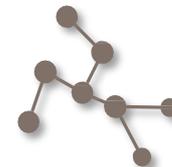
**BUILD THE  
GLOBAL  
OBESITY  
MARKET**



**RETURN TO  
GROWTH IN  
BIOPHARM**



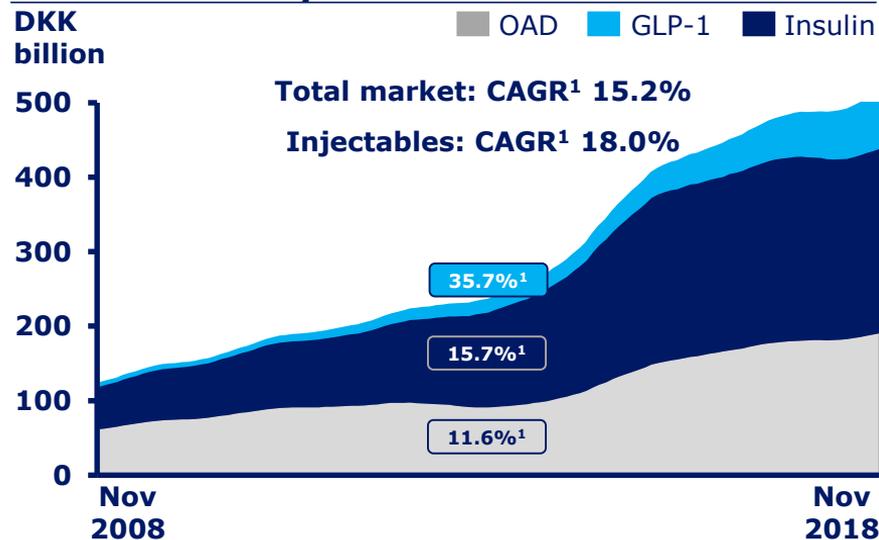
**DRIVE  
COMMERCIAL  
INNOVATION**



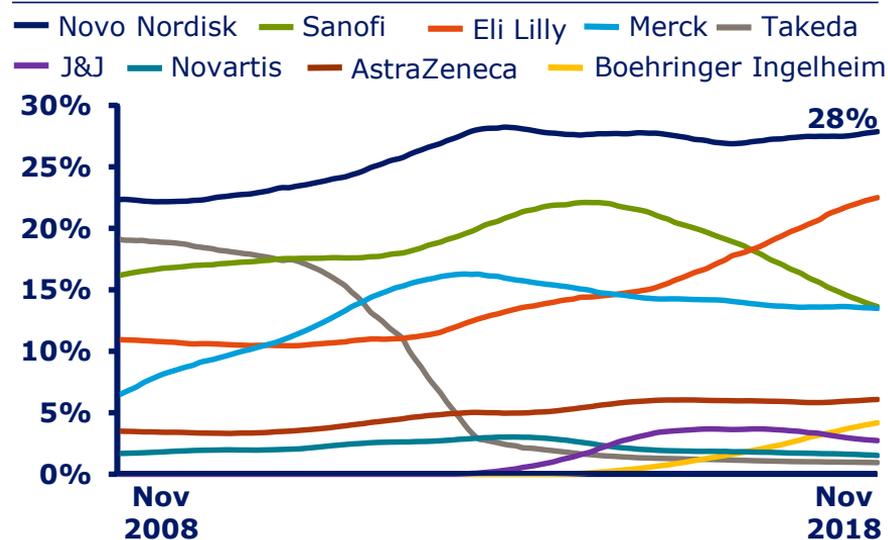
**INNOVATE  
AND EXPAND  
PATIENT BASE**

# Novo Nordisk has a strong leadership position within the growing diabetes care market

## Global diabetes care market by treatment class



## Global diabetes care value market share



<sup>1</sup> CAGR for 10-year period  
OAD: Oral anti-diabetic  
Source: IQVIA MAT Nov, 2018 value figures

changing  
diabetes®

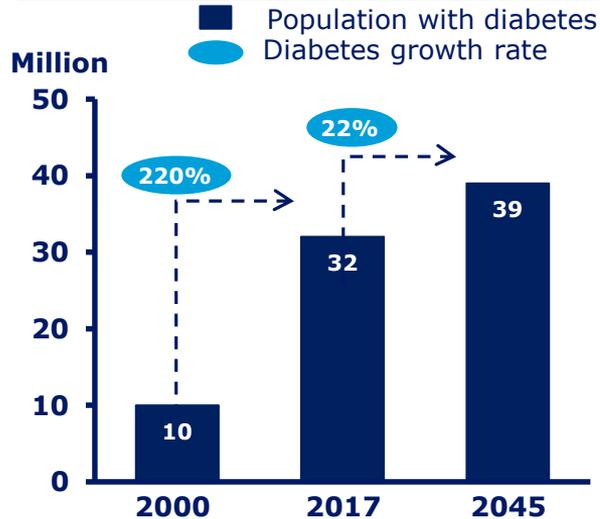
Source: IQVIA MAT Nov, 2018 value figures



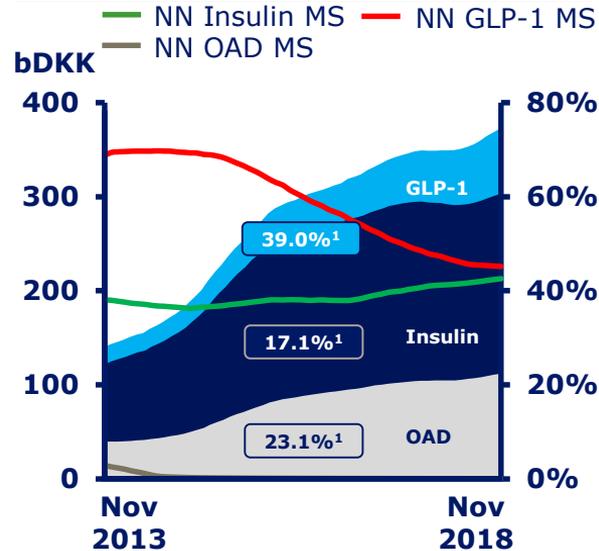


# North America Operations at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

Full Year 2018	Sales (mDKK)	Growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	12,902	(9%)
Premix insulin <sup>4</sup>	1,332	(22%)
Fast-acting insulin <sup>5</sup>	10,021	(4%)
Human insulin	1,917	3%
<b>Total insulin</b>	<b>26,172</b>	<b>(7%)</b>
GLP-1 <sup>6</sup>	19,850	19%
Other diabetes care <sup>7</sup>	890	(1%)
<b>Diabetes care</b>	<b>46,911</b>	<b>2%</b>
Obesity (Saxenda <sup>®</sup> )	2,658	39%
<b>Biopharm<sup>8</sup></b>	<b>7,338</b>	<b>(6%)</b>
<b>Total</b>	<b>56,908</b>	<b>5%</b>

North America Population 2018: ~0.4 billion people and diabetes prevalence ~11%

Source: International Diabetes Federation: Diabetes Atlas 1<sup>th</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

<sup>1</sup> CAGR calculated for 5-year period

Competitor value market share comparison for insulin as of Nov 2018: Novo Nordisk 43%, Eli Lilly 31% and Sanofi 27%

Competitor value market share comparison for GLP-1 as of Nov 2018: Novo Nordisk 45%, Eli Lilly 42% and AstraZeneca 12%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Nov, 2018 value figures

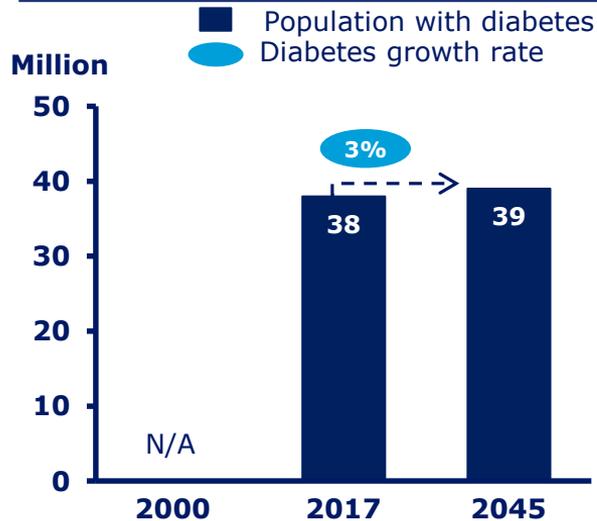
<sup>2</sup> Percentage change in local currency from full year 2017 to full year 2018

<sup>3</sup> Comprises Tresiba<sup>®</sup>, Xultophy<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup>; <sup>5</sup> Comprises Fiasp<sup>®</sup> and NovoRapid<sup>®</sup>; <sup>6</sup> Comprises Victoza<sup>®</sup> and Ozempic<sup>®</sup>; <sup>7</sup> Comprises NovoNorm<sup>®</sup> and needles; <sup>8</sup> Comprises primarily NovoSeven<sup>®</sup>, NovoEight<sup>®</sup>, NovoThirteen<sup>®</sup>, Refixia<sup>®</sup>, Norditropin<sup>®</sup>, Vagifem<sup>®</sup> and Activelle<sup>®</sup>

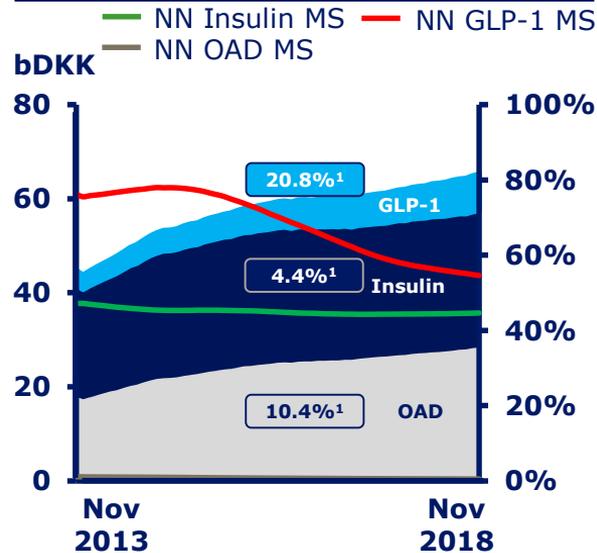


# Region Europe at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

Full year 2018	Sales (mDKK)	Growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	4,282	10%
Premix insulin <sup>4</sup>	1,701	(9%)
Fast-acting insulin <sup>5</sup>	4,558	5%
Human insulin	1,580	(11%)
<b>Total insulin</b>	<b>12,121</b>	<b>2%</b>
GLP-1 <sup>6</sup>	3,759	9%
Other diabetes care <sup>7</sup>	579	(4%)
<b>Diabetes care</b>	<b>16,459</b>	<b>3%</b>
Obesity (Saxenda <sup>®</sup> )	207	104%
<b>Biopharm<sup>8</sup></b>	<b>5,013</b>	<b>(2%)</b>
<b>Total</b>	<b>21,679</b>	<b>3%</b>

Europe Population 2018: ~0.6 billion people and diabetes prevalence ~8.8%

Source: International Diabetes Federation: Diabetes Atlas 1<sup>th</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

<sup>1</sup> CAGR calculated for last 5-year period

Competitor value market share comparison for Insulin as of Nov 2018: Novo Nordisk 45%, Sanofi 35% and Eli Lilly 18%

Competitor value market share comparison for GLP-1 as of Nov 2018: Novo Nordisk 55%, Eli Lilly 34% and AstraZeneca 10%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Nov, 2018 value figures

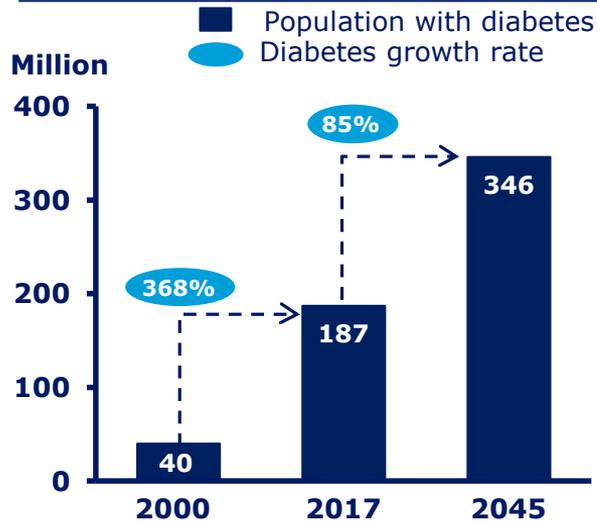
<sup>2</sup> Percentage change in local currency from full year 2017 to full year 2018

<sup>3</sup> Comprises Tresiba<sup>®</sup>, Xultophy<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup> and Ryzodeg<sup>®</sup>; <sup>5</sup> Comprises Fiasp<sup>®</sup> and NovoRapid<sup>®</sup>; <sup>6</sup> Comprises Victoza<sup>®</sup> and Ozempic<sup>®</sup>; <sup>7</sup> Comprises NovoNorm<sup>®</sup> and needles; <sup>8</sup> Comprises primarily NovoSeven<sup>®</sup>, NovoEight<sup>®</sup>, NovoThirteen<sup>®</sup>, Refixia<sup>®</sup>, Norditropin<sup>®</sup>, Vagifem<sup>®</sup> and Activelle<sup>®</sup>



# Region AAMEO at a glance

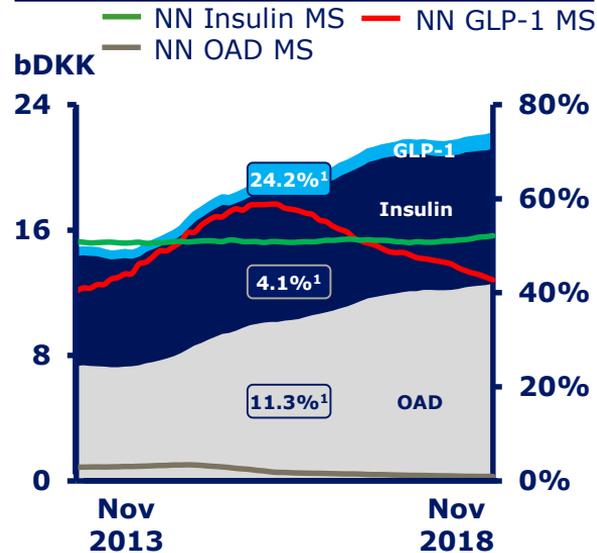
## Diabetes trend in population



AAMEO: Africa, Asia, the Middle-East and Oceania  
AAMEO population 2018: ~4.3 billion people and diabetes prevalence ~7.5%

Source: International Diabetes Federation: Diabetes Atlas 1<sup>st</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

## Diabetes market by value and Novo Nordisk market share



<sup>1</sup> CAGR calculated for last 5-year period  
Competitor value market share comparison for insulin as of Nov 2018: Novo Nordisk 52%, Sanofi 31% and Eli Lilly 11%  
Competitor value market share comparison for GLP-1 as of Nov 2018: Novo Nordisk 43%, AstraZeneca 30% and Eli Lilly 27%  
OAD: Oral anti-diabetic; MS: Market share  
Source: IQVIA MAT Nov, 2018 value figures

## Novo Nordisk reported sales

Full year 2018	Sales (mDKK)	Growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	1,281	16%
Premix insulin <sup>4</sup>	2,606	9%
Fast-acting insulin <sup>5</sup>	2,194	10%
Human insulin	2,065	14%
<b>Total insulin</b>	<b>8,146</b>	<b>11%</b>
GLP-1 <sup>6</sup>	841	6%
Other diabetes care <sup>7</sup>	675	(3%)
<b>Diabetes care</b>	<b>9,662</b>	<b>10%</b>
Obesity (Saxenda <sup>®</sup> )	418	136%
<b>Biopharm<sup>8</sup></b>	<b>2,073</b>	<b>6%</b>
<b>Total</b>	<b>12,153</b>	<b>11%</b>

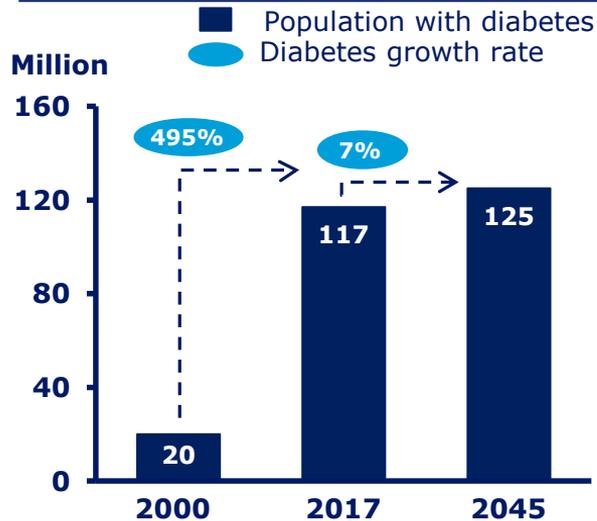
<sup>2</sup> Percentage change in local currency from full year 2017 to full year 2018

<sup>3</sup> Comprises Tresiba<sup>®</sup>, Xultophy<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup> and Ryzodeg<sup>®</sup>; <sup>5</sup> Comprises NovoRapid<sup>®</sup>; <sup>6</sup> Comprises Victoza<sup>®</sup>; <sup>7</sup> Comprises NovoNorm<sup>®</sup> and needles; <sup>8</sup> Comprises primarily NovoSeven<sup>®</sup>, NovoEight<sup>®</sup>, NovoThirteen<sup>®</sup>, Norditropin<sup>®</sup>, Vagifem<sup>®</sup> and Activelle<sup>®</sup>

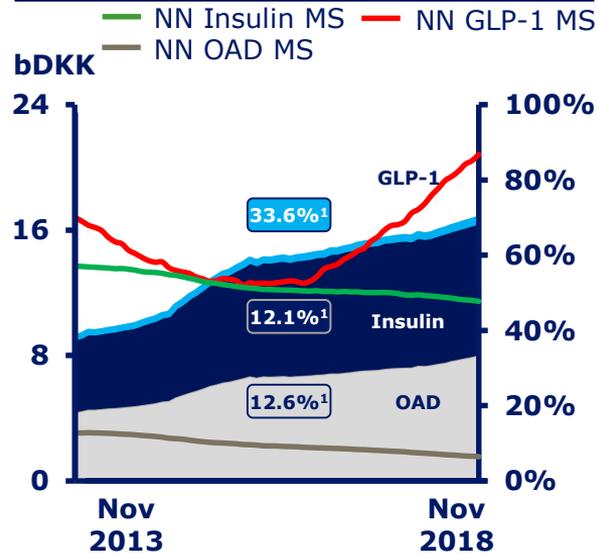


# Region China at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

Full year 2018	Sales (mDKK)	Growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	814	20%
Premix insulin <sup>4</sup>	3,783	9%
Fast-acting insulin <sup>5</sup>	1,450	18%
Human insulin	2,821	(7%)
<b>Total insulin</b>	<b>8,868</b>	<b>6%</b>
GLP-1 <sup>6</sup>	521	73%
Other diabetes care <sup>7</sup>	1,672	10%
<b>Diabetes care</b>	<b>11,061</b>	<b>8%</b>
Obesity (Saxenda <sup>®</sup> )	1	-
<b>Biopharm<sup>8</sup></b>	<b>223</b>	<b>(2%)</b>
<b>Total</b>	<b>11,285</b>	<b>8%</b>

China population 2018: ~1.4 billion people and diabetes prevalence ~10.9%

Source: International Diabetes Federation: Diabetes Atlas 1<sup>th</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

<sup>1</sup> CAGR calculated for last 5-year period

Competitor value market share comparison for insulin as of Nov 2018: Novo Nordisk 48%, Sanofi 18%, GanLi 12% and Eli Lilly 11%

Competitor value market share comparison for GLP-1 as of Nov 2018: Novo Nordisk 87% and AstraZeneca 12%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Nov, 2018 value figures

<sup>2</sup> Percentage change in local currency from full year 2017 to full year 2018

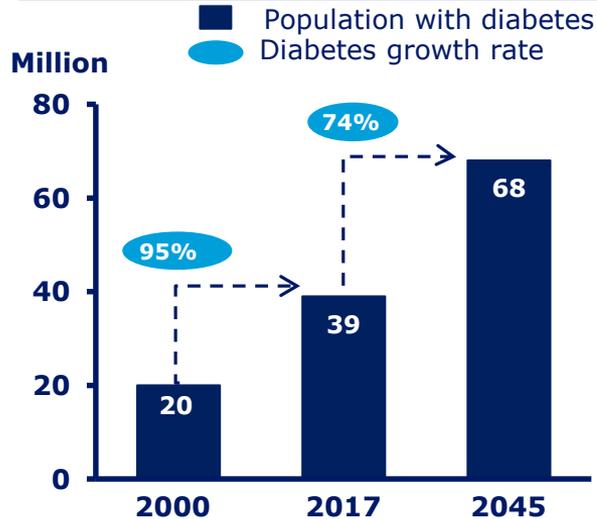
<sup>3</sup> Comprises Tresiba<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup>;

<sup>5</sup> Comprises NovoRapid<sup>®</sup>; <sup>6</sup> Comprises Victoza<sup>®</sup>; <sup>7</sup> Comprises NovoNorm<sup>®</sup> and needles; <sup>8</sup> Comprises primarily NovoSeven<sup>®</sup>, NovoEight<sup>®</sup> and Norditropin<sup>®</sup>

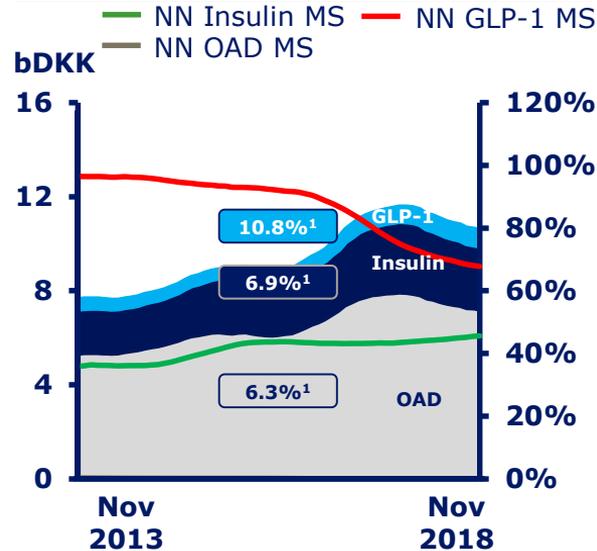


# Region Latin America at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

Full year 2018	Sales (mDKK)	Growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	708	13%
Premix insulin <sup>4</sup>	122	8%
Fast-acting insulin <sup>5</sup>	351	38%
Human insulin	695	(4%)
<b>Total insulin</b>	<b>1,876</b>	<b>13%</b>
GLP-1 <sup>6</sup>	544	27%
Other diabetes care <sup>7</sup>	66	37%
<b>Diabetes care</b>	<b>2,486</b>	<b>16%</b>
Obesity (Saxenda <sup>®</sup> )	410	73%
<b>Biopharm<sup>8</sup></b>	<b>1,114</b>	<b>54%</b>
<b>Total</b>	<b>4,009</b>	<b>29%</b>

Latin America population 2018: ~0.6 billion people and diabetes prevalence ~9.3%

Source: International Diabetes Federation: Diabetes Atlas 1<sup>th</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

<sup>1</sup> CAGR calculated for last 5-year period

Competitor value market share comparison for insulin as of Nov 2018: Novo Nordisk 46%, Sanofi 31% and Eli Lilly 19%

Competitor value market share comparison for GLP-1 as of Nov 2018: Novo Nordisk 68%, Eli Lilly 31% and AstraZeneca 1%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Nov, 2018 value figures

<sup>2</sup> Percentage change in local currency from full year 2017 to full year 2018

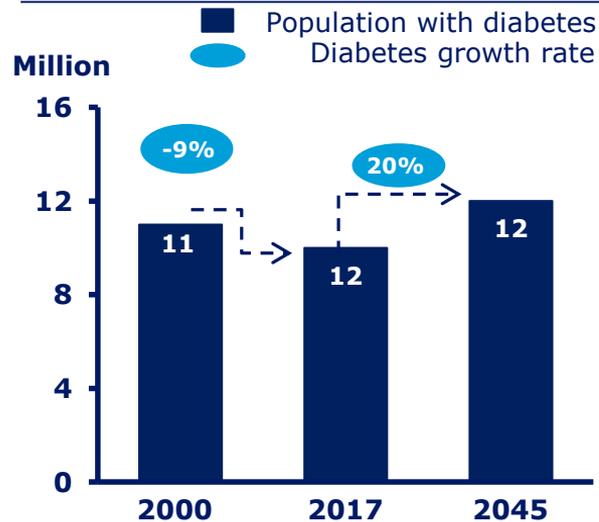
<sup>3</sup> Comprises Tresiba<sup>®</sup>, Xultophy<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup> and Ryzodeg<sup>®</sup>; <sup>5</sup> Comprises NovoRapid<sup>®</sup>; <sup>6</sup> Comprises Victoza<sup>®</sup>;

<sup>7</sup> Comprises NovoNorm<sup>®</sup> and needles; <sup>8</sup> Comprises primarily NovoSeven<sup>®</sup>, NovoEight<sup>®</sup> and Norditropin<sup>®</sup>



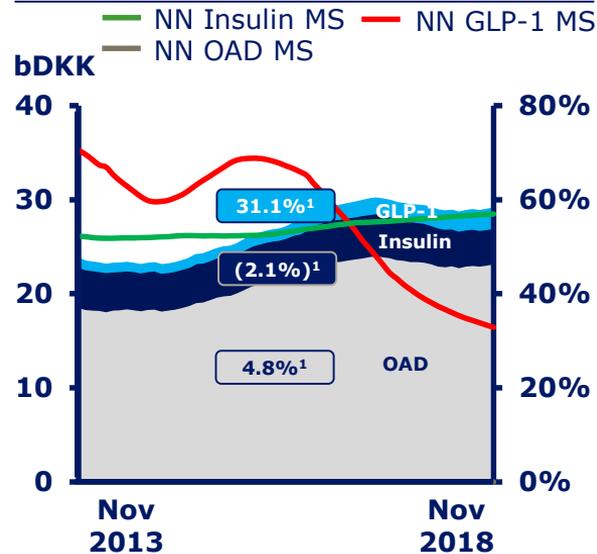
# Region Japan & Korea at a glance

## Diabetes trend in population



Japan & Korea population 2018: ~0.2 billion people and diabetes prevalence ~8.0%  
 Source: International Diabetes Federation: Diabetes Atlas 1<sup>th</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

## Diabetes market by value and Novo Nordisk market share



<sup>1</sup> CAGR calculated for last 5-year period  
 Competitor value market share comparison for insulin as of Nov 2018: Novo Nordisk 57%, Eli Lilly 22% and Sanofi 21%  
 Competitor value market share comparison for GLP-1 as of Nov 2018: Novo Nordisk 33%, Eli Lilly 61%, Sanofi 3% and AstraZeneca 3%  
 OAD: Oral anti-diabetic; MS: Market share  
 Source: IQVIA MAT Nov, 2018 value figures

## Novo Nordisk reported sales

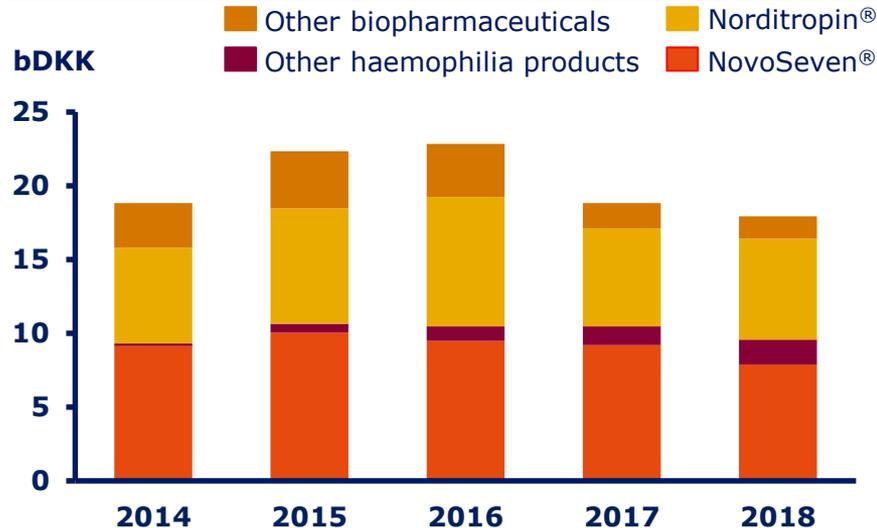
Full year 2018	Sales (mDKK)	Growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	857	1%
Premix insulin <sup>4</sup>	650	(4%)
Fast-acting insulin <sup>5</sup>	779	(15%)
Human insulin	187	(17%)
<b>Total insulin</b>	<b>2,473</b>	<b>(7%)</b>
GLP-1 <sup>6</sup>	614	7%
Other diabetes care <sup>7</sup>	368	1%
<b>Diabetes care</b>	<b>3,455</b>	<b>(4%)</b>
Obesity (Saxenda <sup>®</sup> )	175	-
<b>Biopharm<sup>8</sup></b>	<b>2,167</b>	<b>(6%)</b>
<b>Total</b>	<b>5,797</b>	<b>(2%)</b>

<sup>2</sup> Percentage change in local currency from full year 2017 to full year 2018

<sup>3</sup> Comprises Tresiba<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup> and Ryzodeg<sup>®</sup>; <sup>5</sup> Comprises NovoRapid<sup>®</sup>; <sup>6</sup> Comprises Victoza<sup>®</sup>; <sup>7</sup> Comprises NovoNorm<sup>®</sup> and needles; <sup>8</sup> Comprises primarily NovoSeven<sup>®</sup>, NovoEight<sup>®</sup>, NovoThirteen<sup>®</sup> and Norditropin<sup>®</sup>

# Biopharm constitutes 16% of Novo Nordisk sales and the 'return to growth' strategy is well on track

## NovoSeven® and Norditropin® account for 82% of Biopharm sales<sup>1</sup>



<sup>1</sup> Reported sales for 2018

## 'Return to Growth' strategy builds on organic, non-organic and organisational initiatives

Return to  
growth  
in Biopharm



Drive in-market brands and ensure successful pipeline launches



Pursue licensing or acquisition of complementary assets or companies



Strengthen the organisation to drive the Biopharm 'return to growth'-agenda

# Novo Nordisk R&D strategy and priorities

## STRATEGIC PRIORITIES

Strengthen leadership in  
**DIABETES CARE**

Strengthen leadership in  
**OBESITY CARE**

Pursue leadership in  
**HAEMOPHILIA**

Strengthen leadership in  
**GROWTH DISORDERS**

Expand into other  
**SERIOUS CHRONIC DISEASES**

## R&D PRIORITIES



- Develop disruptive insulin and GLP-1 based products with distinct clinical and/or delivery advantages
- Develop novel mechanisms that reverse the course of diabetes, act as insulin sensitisers and improve hard clinical endpoints



- Develop new biologics combined with GLP-1 to achieve >20% weight loss



- Pursue subcutaneous bypassing and mimicking agents



- Bring once-weekly growth hormone to market and expand indications



- Enter NASH, CVD and CKD by leveraging GLP-1 and other internal assets as well as licensing external opportunities

**Innovate to  
improve  
patient  
outcomes and  
drive growth**

CKD: Chronic kidney disease; CVD: Cardiovascular disease; NASH: Non-alcoholic steatohepatitis; R&D: Research and development

# Pipeline supports significant growth opportunities across all four strategic focus areas

## PHASE 1

NN1535 – LAIsema  
 NN9023 – OG2023SC  
 NN9838 – Amylin AM833  
 NN9747 – PYY 1562 analogue  
 NN9277 – GG-co-agonist  
 NN9423 – Tri-agonist 1706  
 NN9775 – PYY 1875 analogue  
 NN7533 - Eclipse

## PHASE 2

NN1436 – LAI287  
 Anti-IL-21 and liraglutide  
 Concizumab  
 Somapacitan – QW AGHD<sup>1</sup>  
 Semaglutide NASH

## PHASE 3

Oral semaglutide  
 Semaglutide obesity  
 Somapacitan – QW AGHD<sup>2</sup>

## SUBMITTED

N8-GP – Long-acting rFVIII

## APPROVED

Levemir®  
 NovoRapid®  
 NovoMix®  
 Tresiba®  
 Ryzodeg®  
 Xultophy®  
 Victoza®  
 Fiasp®  
 Ozempic®  
 Saxenda®  
 NovoSeven®  
 NovoEight®  
 NovoThirteen®  
 Rebinyn®/Refixia®<sup>3</sup>  
 Norditropin®

■ Diabetes   
 ■ Obesity   
 ■ Haemophilia   
 ■ Growth disorders   
 ■ Other serious chronic diseases

<sup>1</sup> Study conducted in growth hormone disorders; <sup>2</sup> Study conducted in adult growth hormone disorder; <sup>3</sup> Refixia® is the global brand name and Rebinyn® is the brand name in North America  
 QW: Once-weekly; GG: Glucagon GLP-1; Sc: Subcutaneous; QD: Once-daily

# Growth opportunities supported by strong global presence in both sales and manufacturing

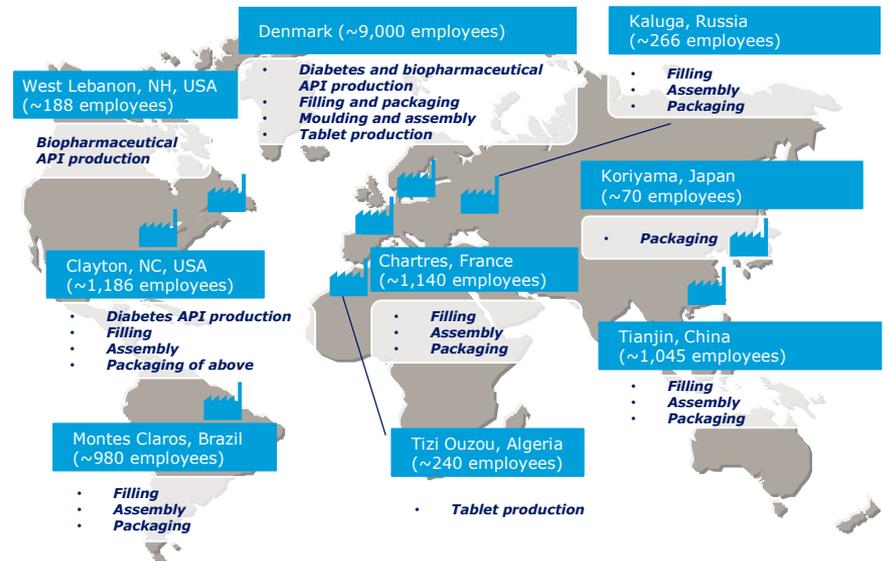
## Employees in sales regions<sup>1</sup>

North America Operations:	~4,100
Region AAMEO:	~4,700
Region China:	~3,300
Region Europe:	~2,900
Region Japan & Korea:	~900
Region Latin America:	~970

**Total non-HQ/manufacturing employees: ~18,000<sup>1</sup>**

<sup>1</sup> Employees represent full-time equivalents in Novo Nordisk's sales regions (excludes all other employees in headquarter, research sites and manufacturing sites) as of December 2018  
AAMEO: Africa, Asia, the Middle-East and Oceania.

## Global manufacturing setup



# Solid patent protection of innovative drugs

## Novo Nordisk's position is protected by patents and value chain setup

	EU patent protection <sup>1</sup>	US patent protection <sup>1</sup>
<b>OZEMPIC</b> semaglutide injection	2031	2031 <sup>3</sup>
<b>Fiasp</b> <sup>®</sup> fast-acting insulin aspart	2030	2030
<b>Xultophy</b> insulin degludec/liraglutide (DIA-aspart) injection	2028 <sup>2</sup>	2029 <sup>2</sup>
<b>TRESIBA</b> insulin degludec (DIA) injection	2028	2029
<b>RYZODEG</b> 70% insulin degludec and 30% insulin aspart (DIA-aspart) injection	2028	2029
<b>refixia</b> <sup>®</sup>	2028	2027
<b>VICTOZA</b>	2023 <sup>3</sup>	2023 <sup>3</sup>
<b>Levemir</b> <sup>®</sup> (insulin detemir)	2019	2019
<b>NovoMix</b> <sup>®</sup> (biphasic insulin aspart)	Expired <sup>4</sup>	Expired <sup>5</sup>
<b>NovoRapid</b> <sup>®</sup> (insulin aspart)	Expired <sup>6</sup>	Expired <sup>7</sup>
<b>norditropin</b> <sup>®</sup>	Expired <sup>8</sup>	Expired <sup>8</sup>

<sup>1</sup> List does not include all marketed products. <sup>2</sup> Protected by patents on the individual compounds insulin degludec and liraglutide as listed. <sup>3</sup> including six months paediatric extension <sup>4</sup> Expired in 2015. <sup>5</sup> Expired in 2014. <sup>6</sup> Expired in 2011. <sup>7</sup> Expired in 2014. <sup>8</sup> Expired in 2017  
Note: Saxenda<sup>®</sup> patent identical to Victoza<sup>®</sup> patent.

## Barriers to entry for biosimilar players

### Research & Development

- Need to show comparability in PK/PD trials
- Strict regulatory requirements in the EU and the USA
- Requirement for both drug and device offering

### Manufacturing

- Economies of scale for incumbents
- Up-front CAPEX requirements with slow return on investment

### Commercialisation

- Large and fragmented target audience
- Cost pressure from payers
- On-going conversion to next generation drugs and slow market dynamics

PK: Pharmacokinetic, PD: Pharmacodynamic; CAPEX: Capital expenditure



# Insulin



1. Diabetes at a glance	43
2. Diabetes treatment classes	46
3. Branded diabetes market	47
4. Diabetes market segments	48
5. Novo Nordisk Diabetes product portfolio	50
6. Insulin market and NN market share	51
7. US Healthcare and NN	55
8. Regional insulin markets	60
9. Tresiba®	66

# Diabetes – the inability to manage blood sugar levels appropriately

## Facts about diabetes

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin produced by the pancreas

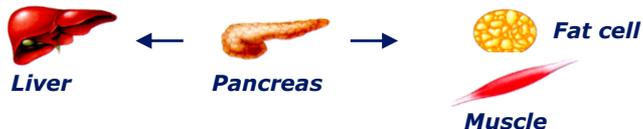
### Primary classifications:

**Type 1 diabetes:** Complete insulin deficiency due to destruction of beta-cells in the pancreas

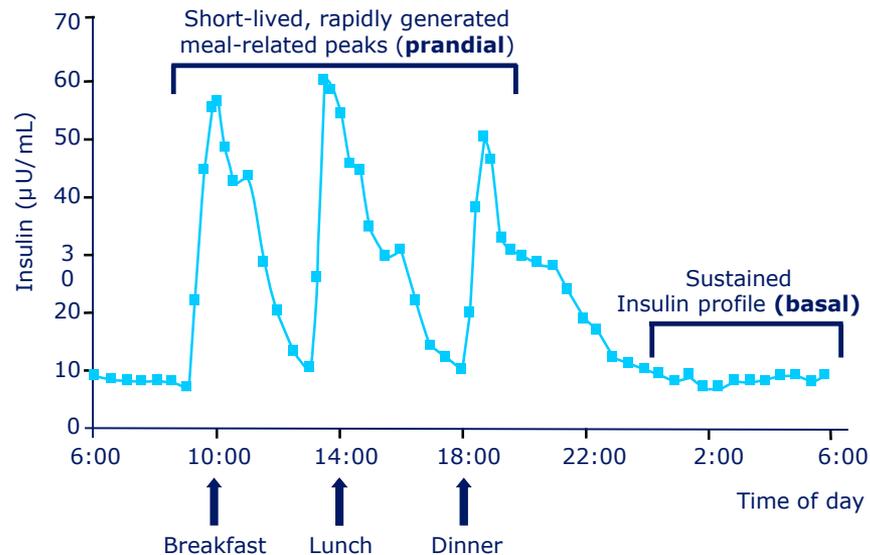
**Type 2 diabetes:** Characterised by some degree of insulin resistance and insulin deficiency

### Insulin:

- Facilitates uptake of blood sugar into cells
- Inhibits glucose release from the liver



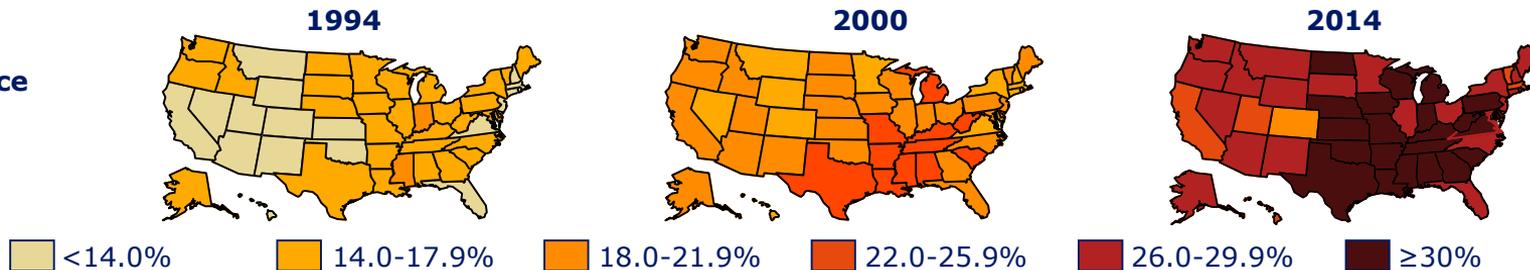
## The aim of insulin therapy is to recreate normal blood insulin profile



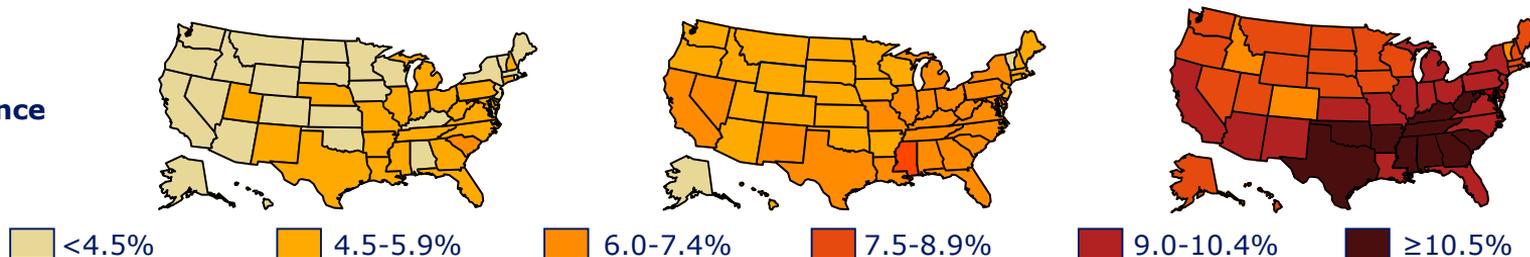
# Diabetes pandemic is fuelled by growing rates of obesity

## USA CDC data on obesity and diabetes prevalence among adults

### Obesity prevalence (BMI $\geq 30$ kg/m<sup>2</sup>)



### Diabetes prevalence

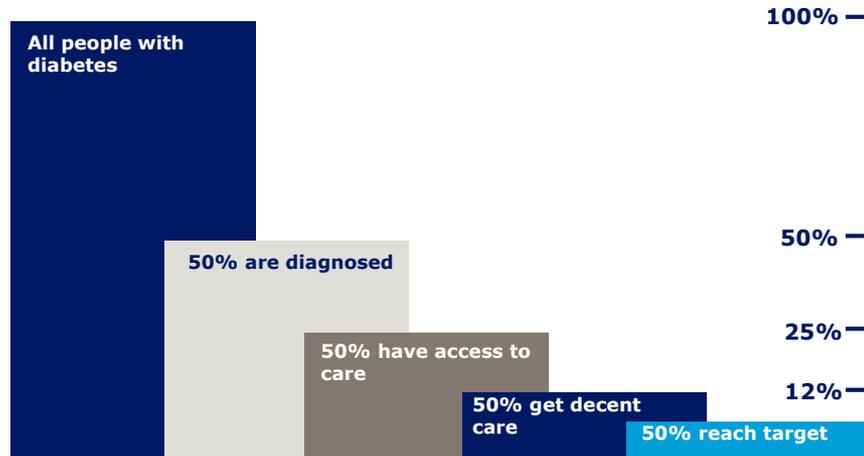


CDC: Centers for Disease Control and Prevention

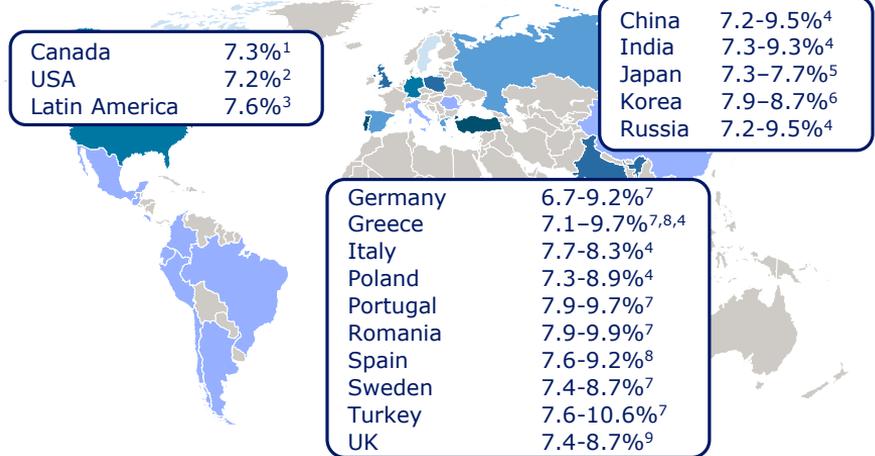
Source: CDC's Division of Diabetes Translation. National Diabetes Surveillance System available at <http://www.cdc.gov/diabetes>

# Poor diagnosis rates, lack of access to optimal treatment and poor glycaemic control remain global problems

## Diagnosis and optimal treatment remains a challenge – the rule of halves



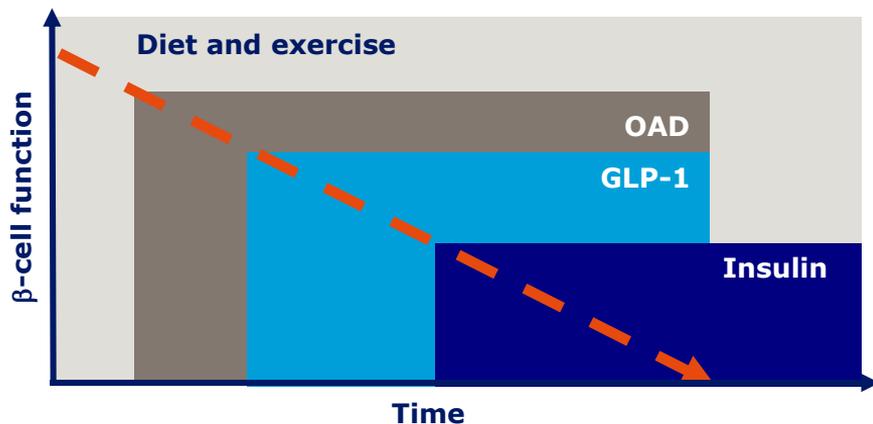
## The worldwide challenge of glycaemic control: Mean HbA<sub>1c</sub> in type 2 diabetes



<sup>1</sup> Harris et al. Diabetes Res Clin Pract 2005;70:90-7; <sup>2</sup> Hoerger et al. Diabetes Care 2008;31:81-6; <sup>3</sup> Lopez Stewart et al. Rev Panam Salud Publica 2007;22:12-20; <sup>4</sup> Valensi et al. Int J Clin Pract 2009;63(3):522-31; <sup>5</sup> Arai et al. J Diabetes Investig. 2012 Aug 20;3(4):396-401; <sup>6</sup> Ko et al. Diab Med 2007;24:55-62; <sup>7</sup> Oguz et al. Curr Med Res Opin 2013;29:911-20; <sup>8</sup> Liebl et al. Diab Ther 2012;3:e1-10; <sup>9</sup> Blak et al. Diab Med 2012;29:e13-20

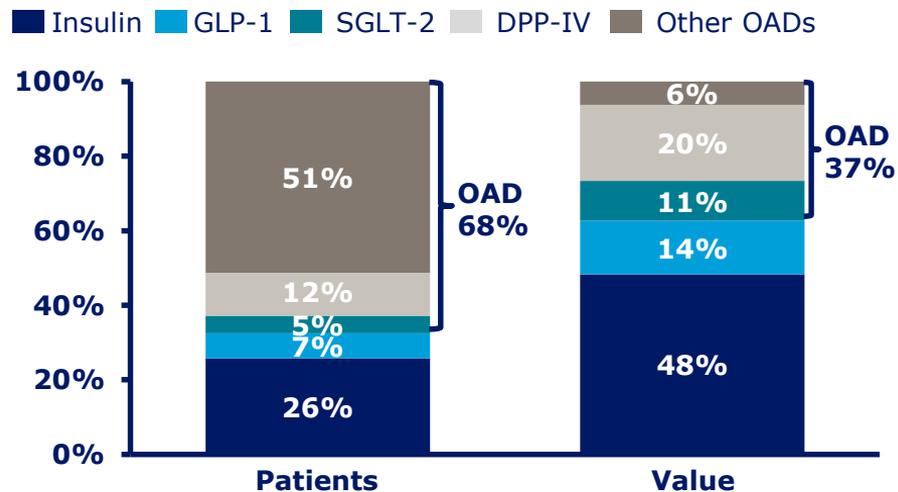
# Insulin is the ultimate care for people with diabetes

## Progression of type 2 diabetes and treatment intensification



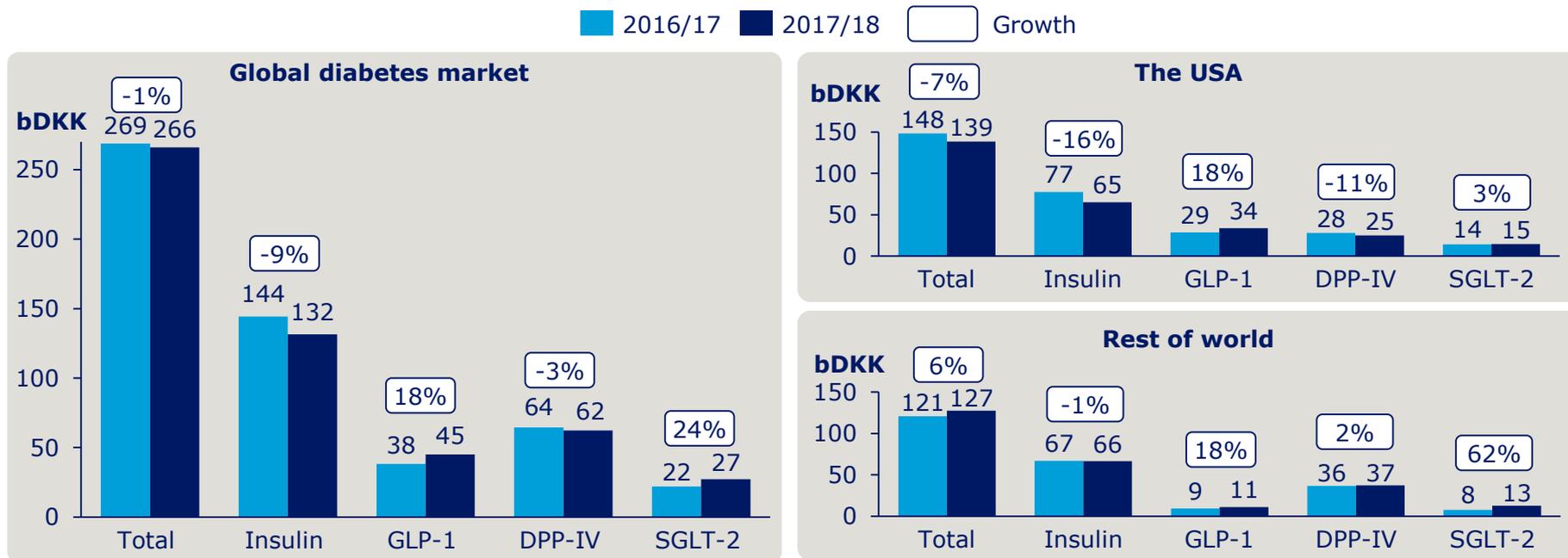
OAD: Oral anti-diabetic

## Distribution of patients and value across treatment classes



Note: Patient distribution across treatment classes is indicative and based on data for the USA, the UK, Germany and France. Value figures based on IQVIA MAT Nov, 2018  
Source: IQVIA PharMetrix claims data, IQVIA disease analyser, IQVIA MIDAS  
Other OADs covers: Metformin, SU, TZDs  
Numbers do not add up to 100% due to rounding

# The total branded diabetes market has a global value of DKK ~270 billion annually



2016/17: Covers the four quarters from Q3 2016 to Q2 2017, except for Boehringer Ingelheim share of Trajenta which covers full year 2016

2017/18: Covers the four quarters from Q3 2017 to Q2 2018, except for Boehringer Ingelheim share of Trajenta which covers full year 2017

Note: Constant exchange rates between periods and Boehringer Ingelheim's regional split is based on regional split from 2017 Annual report for prescription medicine

Source: Company reported sales



# Medications used for treatment of type 2 diabetes

## Commonly prescribed product classes for the treatment of type 2 diabetes

Class	HbA <sub>1c</sub> change	Hypoglycaemia risk	Weight change	CVD risk	Dosing (per day)	Contraindication/undesired effects
Metformin	1.5	No	Neutral	Minimal	2 OADs	Kidney, liver
Sulfonylurea	1.5	Yes	Gain	None	1 OAD	Essentially none
TZDs	0.5 - 1.4	No	Gain	Varies	1 OAD	CHF, liver
DPP-IV inhibitors	0.6 - 0.8	No	Neutral	TBD	1-2 OADs	None
SGLT-2 inhibitors	0.5 - 0.9	No	Loss	Varies	1 OAD	Genital infections, urinary tract infections
GLP-1	1.0 - 2.0	No	Loss	Varies	Varies	GI side effects, MTC
Long-acting insulin	1.5 - 2.5	Yes	Gain	TG and HDL	1 injection	Hypoglycaemia
Fast-acting insulin	1.5 - 2.5	Yes	Gain	TG and HDL	1-4 injections	Hypoglycaemia

Note: TG and HDL: Beneficial effect on triglycerides and high-density lipoprotein cholesterol; CHF: Congestive heart failure; GI: Gastrointestinal; MTC: Medullary thyroid cancer; TZD: thiazolidinediones; OAD: Oral anti-diabetic; TBD: to be defined.

Sources: Adapted from: Nathan DM, et al. Diabetes Care. 2006; 29:1963-1972; Nathan DM, et al. Diabetes Care. 2007;30:753-759; Nathan DM, et al. Diabetes Care. 2008;31:173-175. ADA. Diabetes Care. 2008;31:S12-S54. WelChol PI. 1/2008.

# Novo Nordisk's current and future product portfolio covers the type 2 diabetes treatment cascade<sup>1</sup>

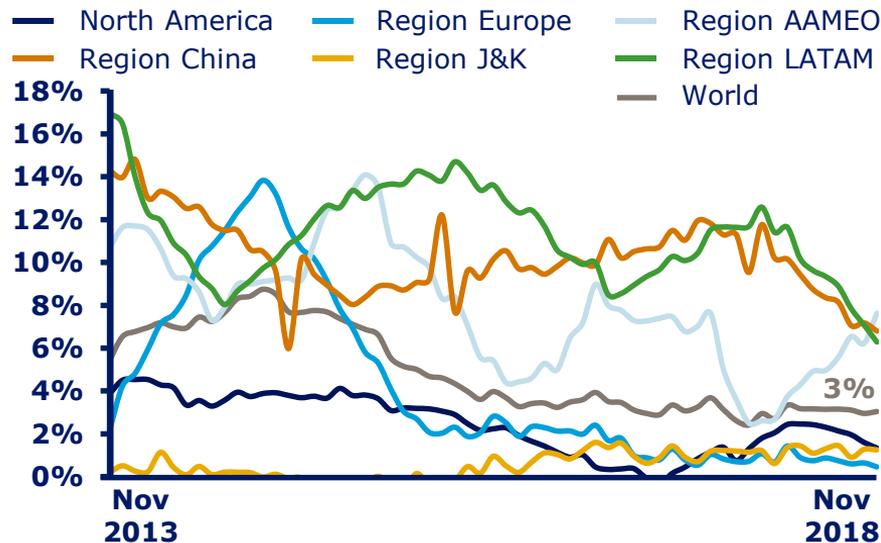
## Overview of current and future products in Novo Nordisk's diabetes portfolio



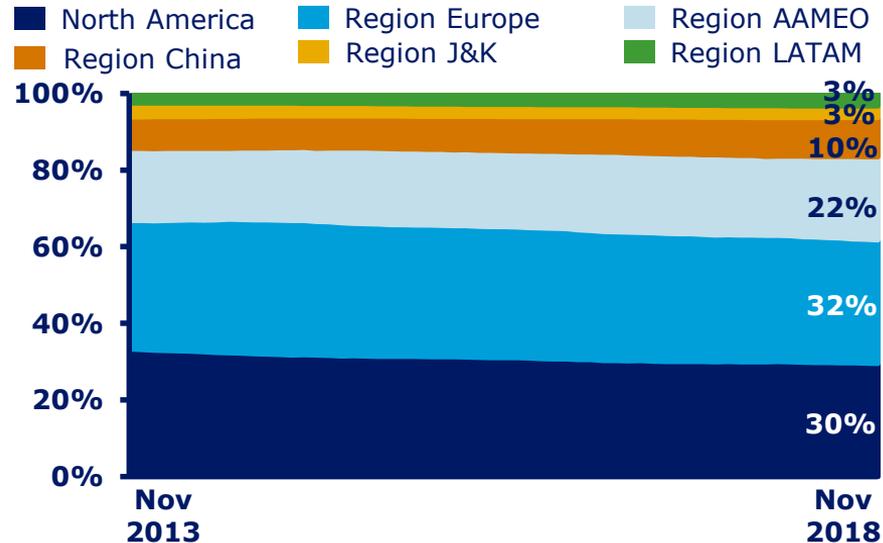
<sup>1</sup> Pending clinical development programmes and regulatory processes for oral semaglutide

# Stable global insulin volume growth

## Regional insulin volume growth



## Regional insulin volume market split

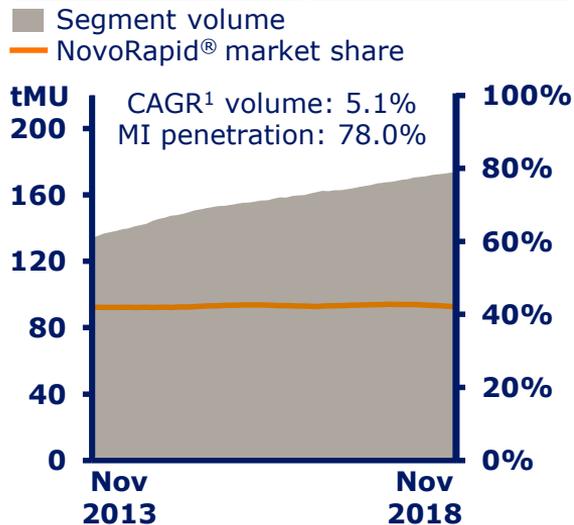


Reg: Region; J&K: Japan & Korea; AAMEO: Africa, Asia, the Middle-East and Oceania; LATAM: Latin America  
 Note: Data is sensitive to changes in IQVIA data collection and reporting methodology  
 Source: IQVIA monthly MAT Nov, 2018 volume figures

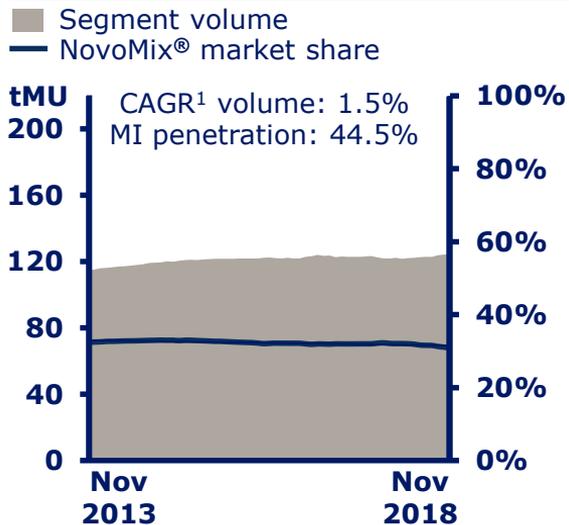
Note: Data is sensitive to changes in IQVIA data collection and reporting methodology  
 Source: IQVIA monthly MAT Nov, 2018 volume figures

# Continued single digit volume growth within the insulin segments globally

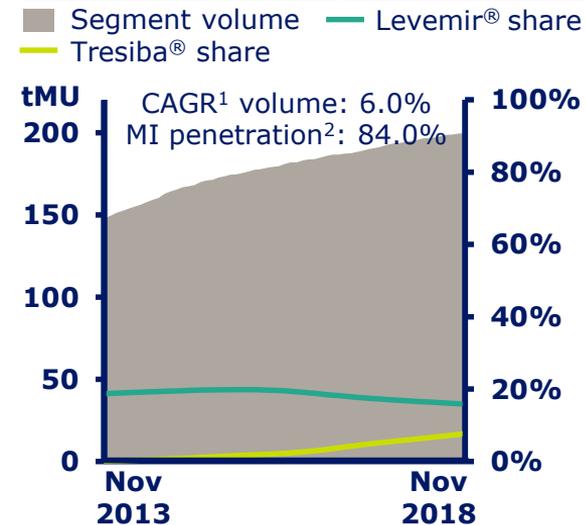
## Fast-acting insulin



## Premix insulin



## Long-acting insulin



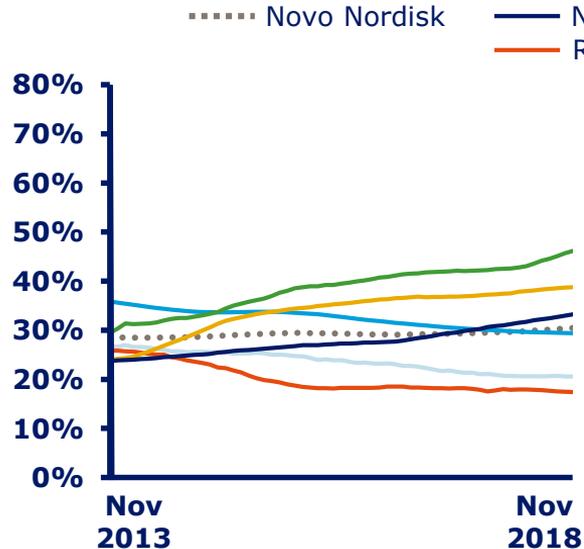
<sup>1</sup> CAGR for 5-year period; <sup>2</sup> Includes new-generation insulin. tMU: Thousand mega units

Note: Modern insulin (MI) penetration is of total segment, i.e. including animal and human insulin; Data is sensitive to changes in IQVIA data collection and reporting methodology

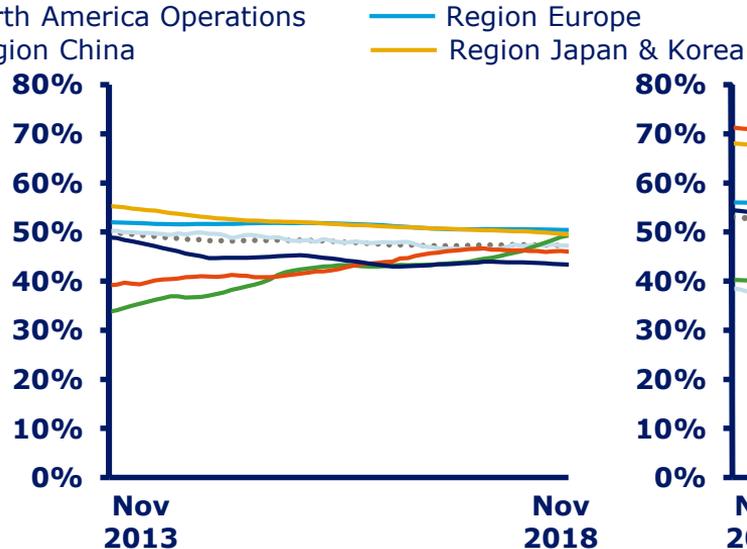
Source: IQVIA MAT Nov, 2018 volume figures

# Novo Nordisk increased market share in long-acting insulin and sustained leadership in fast-acting and premix insulin

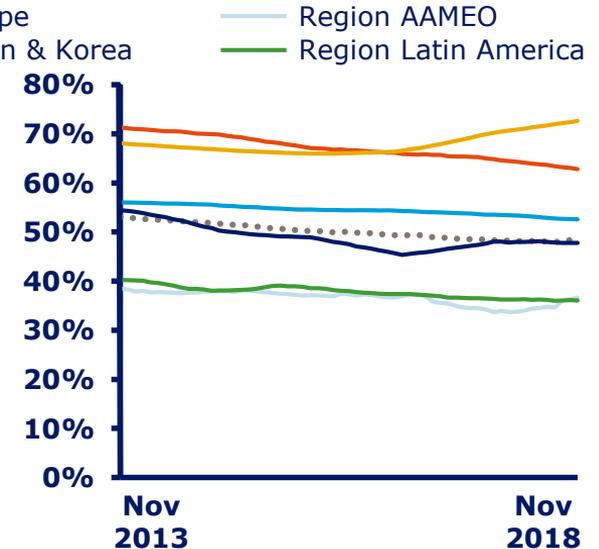
## Long-acting insulin<sup>1</sup> volume market share across regions



## Fast-acting insulin<sup>2</sup> volume market share across regions



## Premix insulin<sup>3</sup> volume market share across regions



<sup>1</sup> Long-acting insulin comprises: Tresiba®, Levemir®, Xultophy® and Insulatard® (basal human insulin). Please note that not all products are launched in all markets

<sup>2</sup> Short-acting insulin includes: Fiasp®, NovoLog® and Actrapid® (bolus human insulin). Please note that not all products are launched in all markets

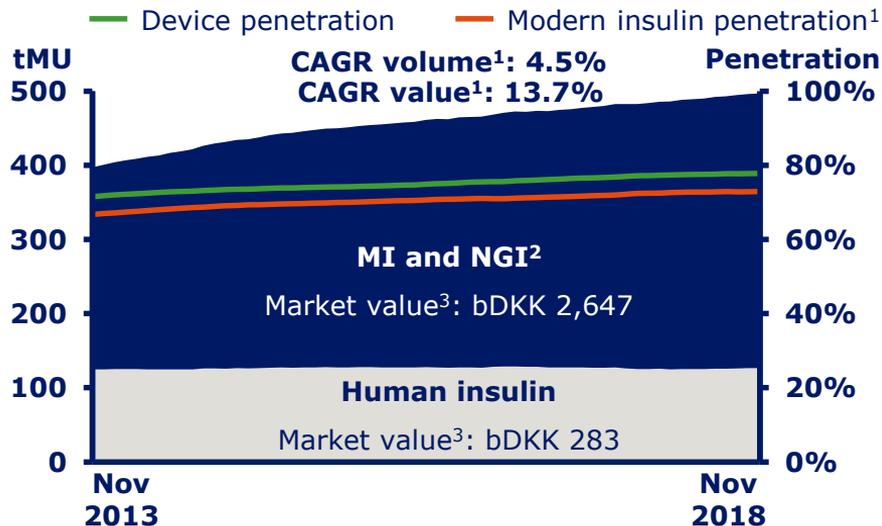
<sup>3</sup> Premix insulin includes: Ryzodeg®, NovoMix® and Mixtard® 30 (premix human insulin). Please note that not all products are launched in all markets

Source: IQVIA monthly MAT Nov, 2018 volume figures

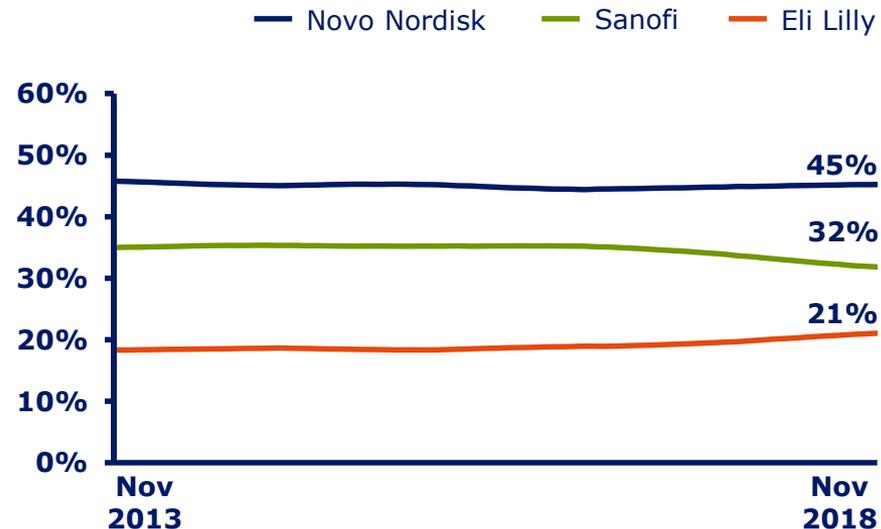
AAMEO: Africa, Asia, Middle-East and Oceania

# Stable global insulin market growth and Novo Nordisk sustains global volume market share leadership

## Global insulin market



## Global modern and new-generation insulin volume market shares



<sup>1</sup> CAGR for 5-year period; <sup>2</sup> MI: Modern insulin; NGI: New-generation insulin

<sup>3</sup> Annual gross value of total insulin class

Note: Data is sensitive to changes in IQVIA data collection and reporting methodology

Source: IQVIA monthly MAT Nov, 2018 volume and value figures

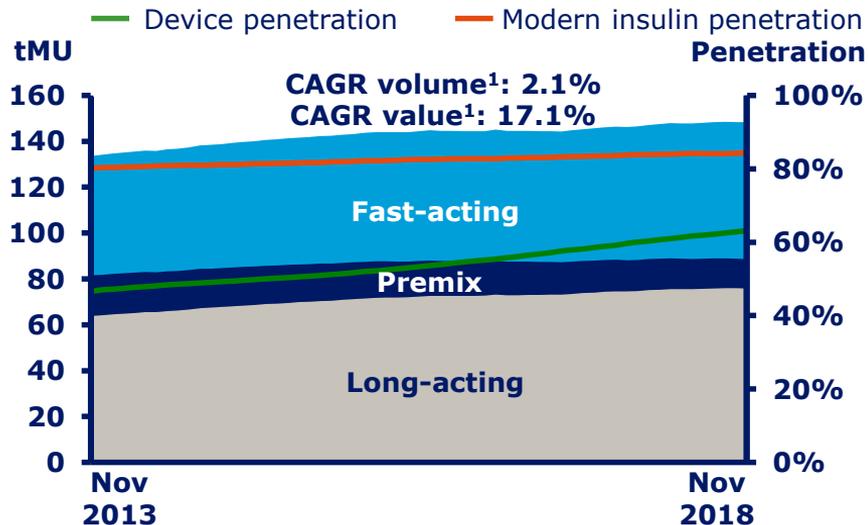
Note: Data is sensitive to changes in IQVIA data collection and reporting methodology, does not add up to 100% as only selected pharmaceutical companies are included

Source: IQVIA monthly MAT Nov, 2018 volume figures

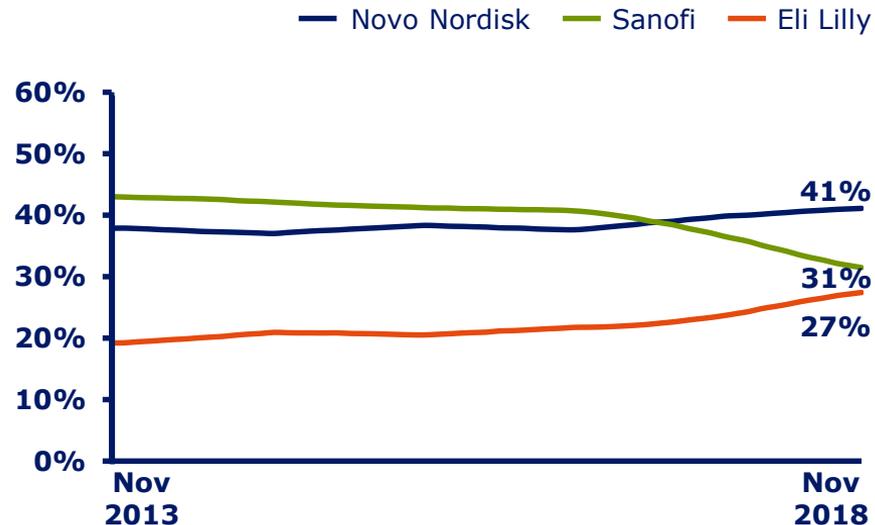
# Novo Nordisk is the market leader in the USA within the modern and new-generation insulin segment



## USA insulin market by segment



## Modern insulin and new-generation insulin volume market shares in the USA



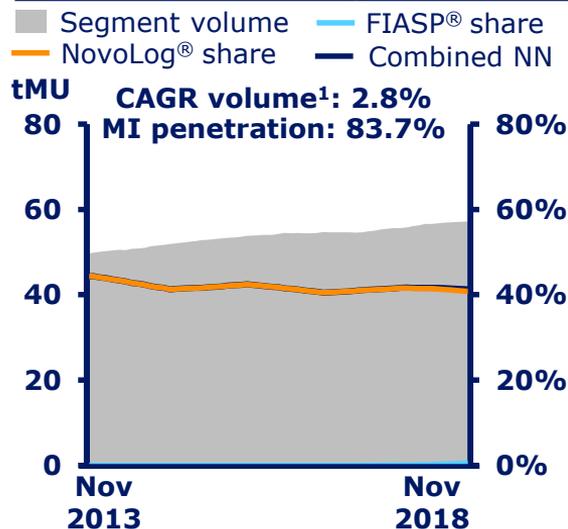
<sup>1</sup> CAGR for 5-year period  
Source: IQVIA monthly MAT Nov, 2018 volume and value figures

Note: Data is sensitive to changes in IQVIA data collection and reporting methodology, does not add up to 100% as only selected pharmaceutical companies are included  
Source: IQVIA monthly MAT Nov, 2018 volume figures

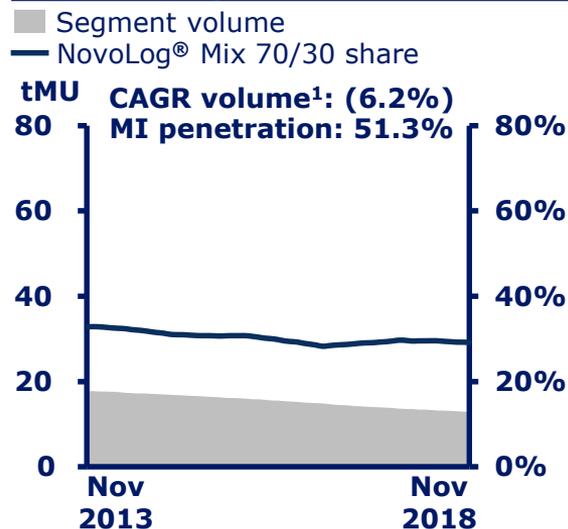
# Novo Nordisk increases its market share in the long-acting insulin segment



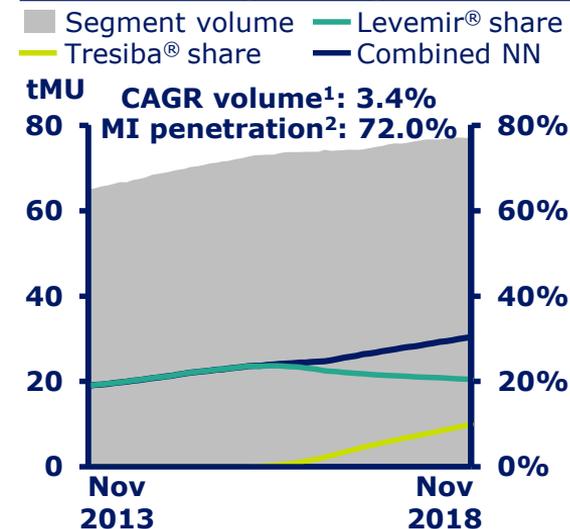
## USA fast-acting insulin



## USA premix insulin



## USA long-acting insulin



<sup>1</sup> CAGR for 5-year period; <sup>2</sup> Includes new-generation insulin. tMU: Thousand mega units

Note: The USA trend data reflect changes to IQVIA data collection coverage and methodology as of January 2012. Modern insulin (MI) penetration is of total segment, i.e. including human insulin

Source: IQVIA monthly MAT Nov, 2018 volume figures

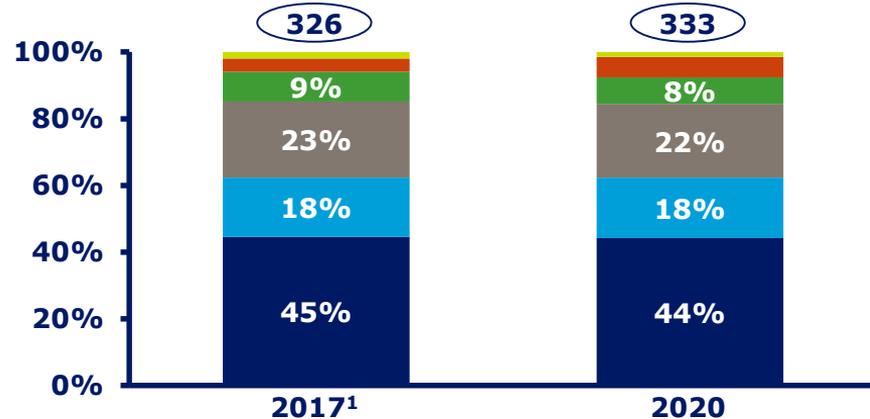
NN: Novo Nordisk

# US health insurance is dominated by few large commercial payers with slow expansion of public insurance coverage

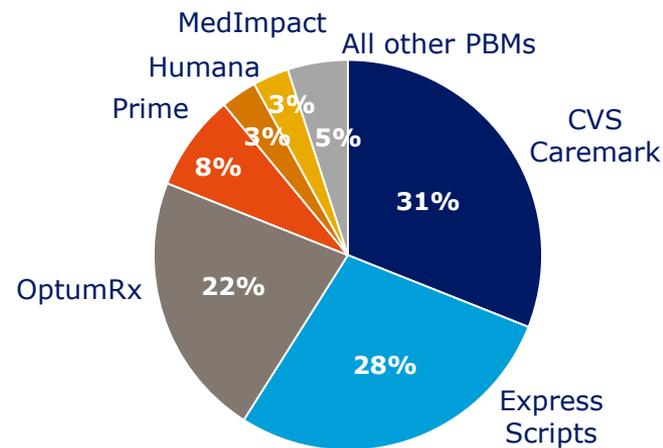


## The US population by health insurance status expected to remain stable in coming years

■ Managed care<sup>2</sup>
■ Medicare
 ■ Medicaid
 ■ Uninsured  
■ Public exchanges
 ■ Other
 ○ US population (million)



## In 2018, PBMs covered 288 million lives and the market has consolidated



<sup>1</sup> 2017 data reflect historical data through Oct 2017

<sup>2</sup> Managed care population is slightly underestimated as only population under the age 65 is captured to avoid double counting with those eligible for Medicare.

Source: Census.gov; Congressional Budget Office Health Insurance Coverage 2016-2026; Medicare Enrollment Dashboard; CMS Health Insurance Enrollment Projection 2015-2025; Medicaid and CHIP Enrollment Report Oct 2017; CMS Insurance Marketplace Fact sheet 2017; CDC.gov

PBM: Pharmacy Benefit Manager

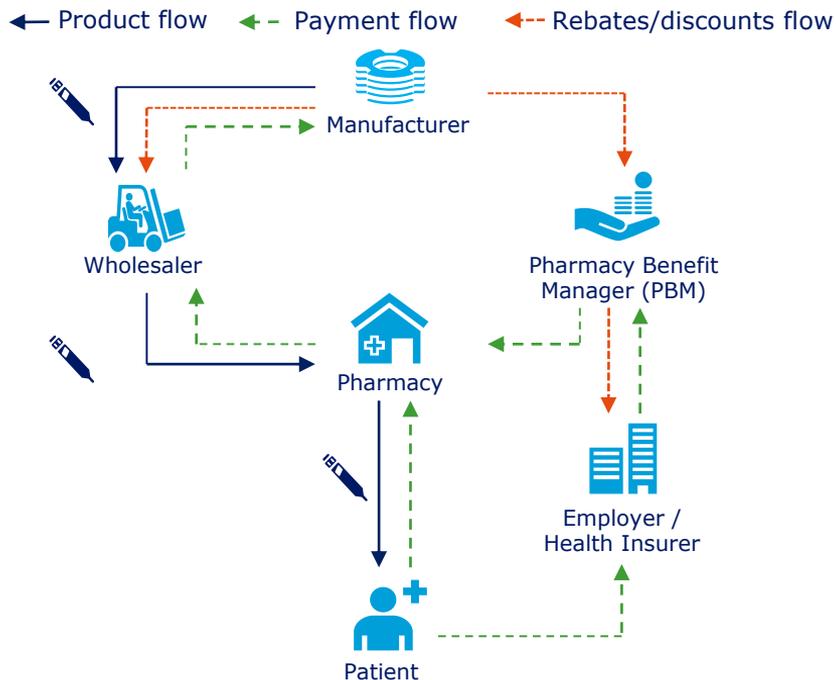
Note: Covers all main channels (Managed Care, Medicare Part D, and Medicaid); market share based on claim adjudication coverage, i.e. not on formulary/rebate decision power  
Sources: Cleveland Research



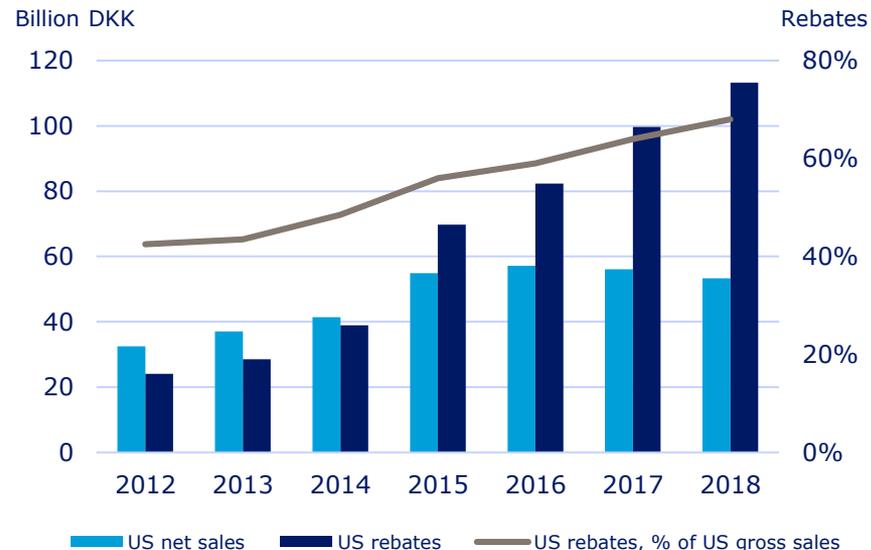
# The US healthcare system is complex and rebates paid by Novo Nordisk have increased significantly in recent years



## Illustrative example of the US healthcare system



## Development of Novo Nordisk rebates and net sales in the US

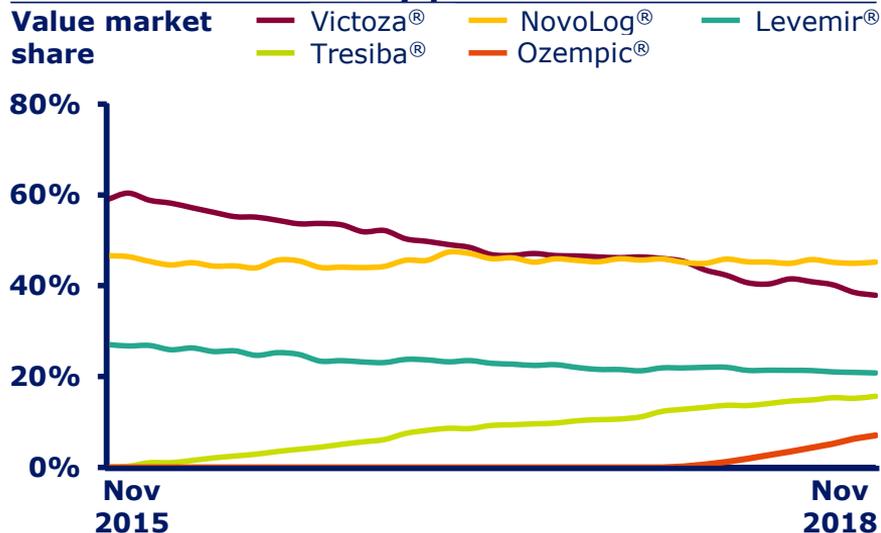


Note: Based on reported sales

# Novo Nordisk's key diabetes care products remain broadly available in the USA

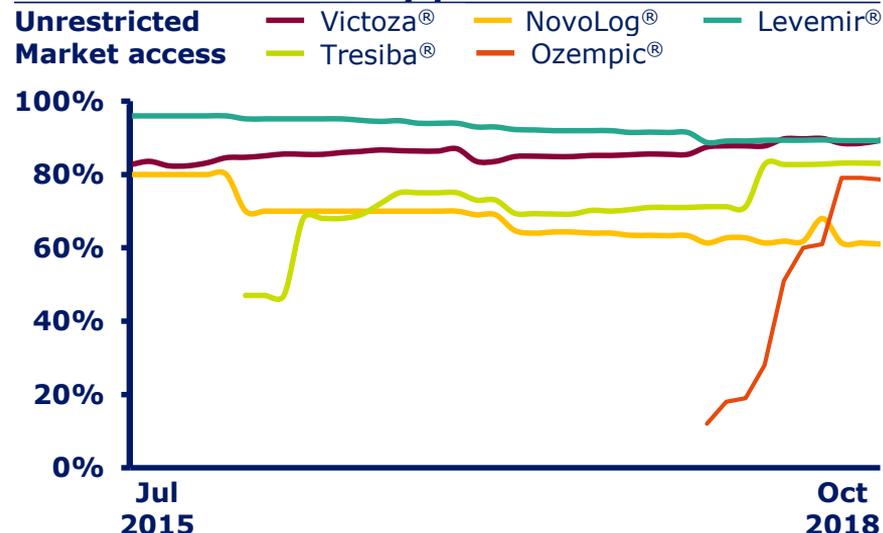


## Value market shares of Novo Nordisk key products in the USA



Source: IQVIA NSP Nov 2018;  
Note: Market shares: NovoLog®: share of rapid acting insulin segment; Levemir®: share of basal insulin segment; Tresiba® share of basal insulin segment; Victoza®: share of GLP-1 segment, Ozempic®: share of GLP-1 segment

## Share of unrestricted market access of Novo Nordisk key products in the USA

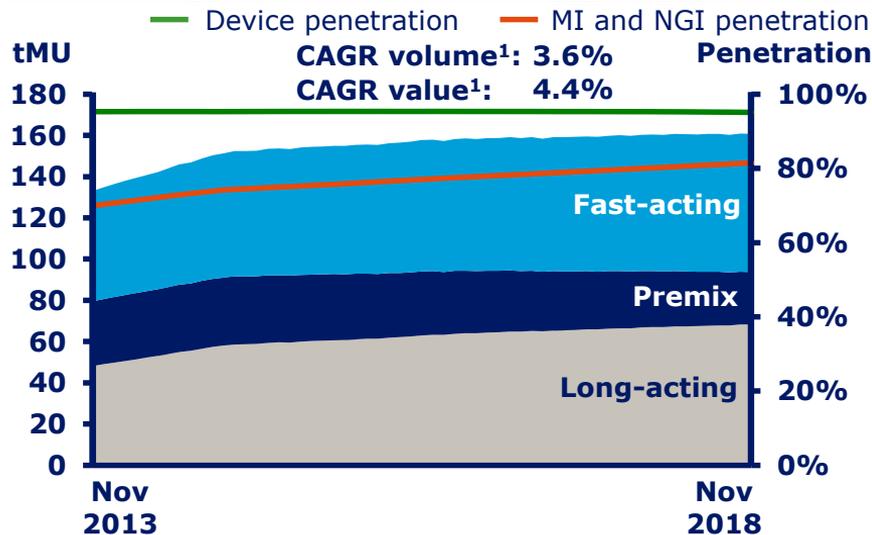


Source: FingerTip Formulary bridge, Oct 2018 Nomenclature and Xponent PlanTrak; only considers bridged volume; excludes cash and mail order data;  
Note: Unrestricted access excludes prior authorisation, step edits and other restrictions  
Levemir® access based on FlexTouch® Pen; NovoLog® access based on FlexPen®; only considers bridged volume; Tresiba® launched in Jan 2016, Ozempic® launched in Feb 2018

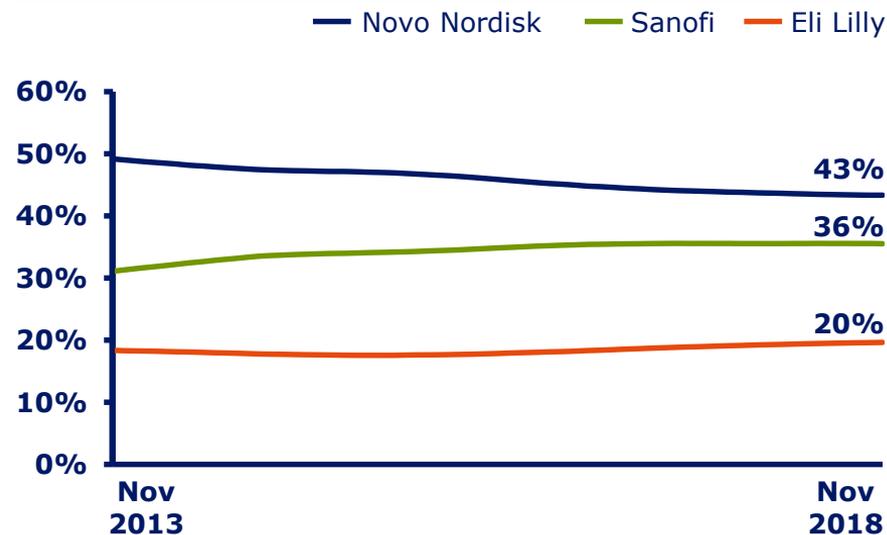
# Sustained leadership position in the European modern and new-generation insulin market



## European insulin market by segment



## European modern insulin and new-generation insulin volume market shares



<sup>1</sup> CAGR for 5-year period

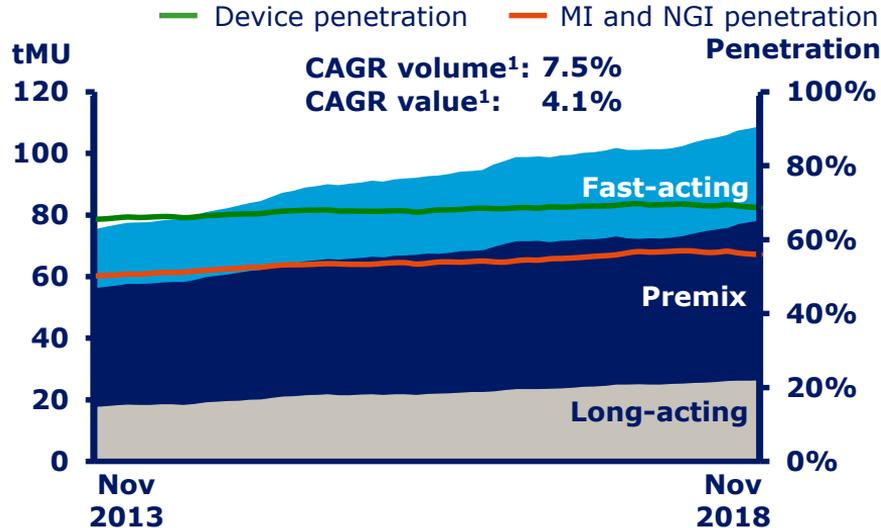
<sup>2</sup> MI: Modern insulin; NGI: New-generation insulin

Source: IQVIA monthly MAT Nov, 2018 volume and value figures

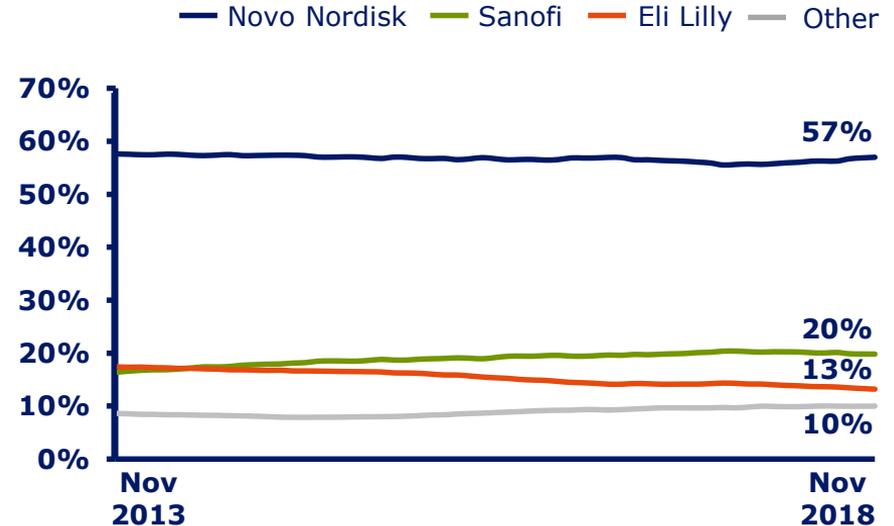
# Stable insulin leadership position in Region AAMEO



## Region AAMEO insulin market by segment



## Region AAMEO modern and new-generation insulin volume market shares



<sup>1</sup> CAGR for 5-year period.

Note: IQVIA only covers the following 8 markets in AAMEO (retail data): Algeria, Egypt, India, New Zealand, Russia, Saudi Arabia, South Africa and Turkey, which together accounts for 82% of Novo Nordisk insulin sales in region AAMEO

Source: IQVIA monthly MAT Nov, 2018 volume and value figures

AAMEO: Africa, Asia, the Middle-East and Oceania; MI: Modern insulin; NGI: New-generation insulin

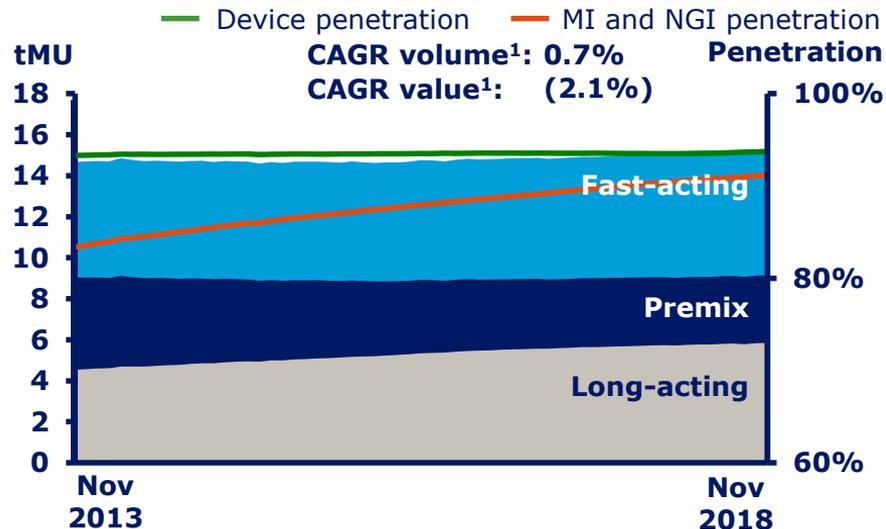
Source: IQVIA monthly MAT Nov, 2018 volume figures



# Solid insulin market leadership position in Region Japan & Korea

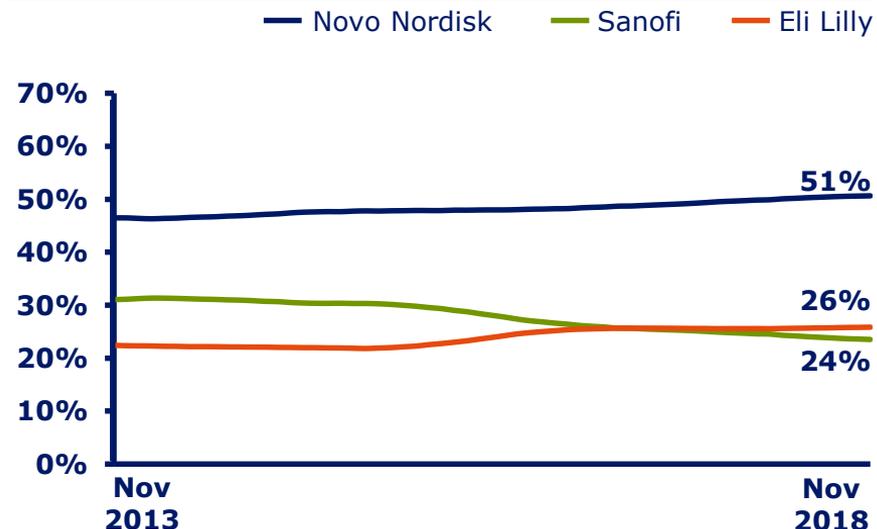


## Region Japan & Korea insulin market by segment



<sup>1</sup> CAGR for 5-year period  
 MI: Modern insulin; NGI: New-generation insulin  
 Source: IQVIA monthly MAT Nov, 2018 volume and value figures

## Region Japan & Korea modern and new-generation insulin volume market shares



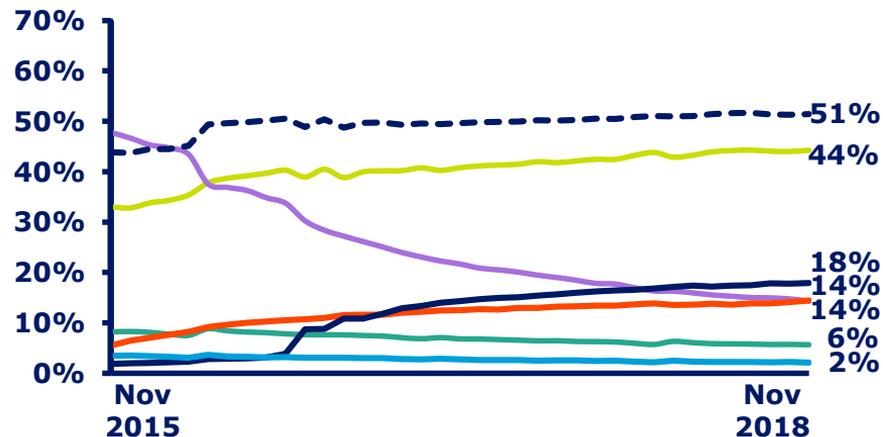
Source: IQVIA monthly MAT Nov, 2018 volume figures, numbers do not add up to 100% due to rounding



# Solid Tresiba® performance strengthens basal insulin market share in Japan

## Japanese basal value market shares

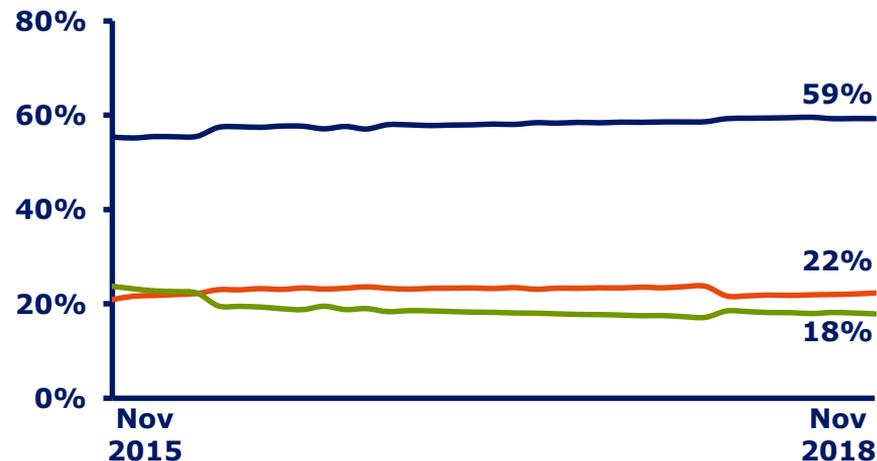
— Tresiba®   
 — Levemir®   
 — glargine U100   
 — glargine U300  
— NPH   
 — biosimilar glargine U100   
 - - - NN Total Basal



Source: IQVIA monthly MAT Nov, 2018 value figures  
 NPH: Novolin®

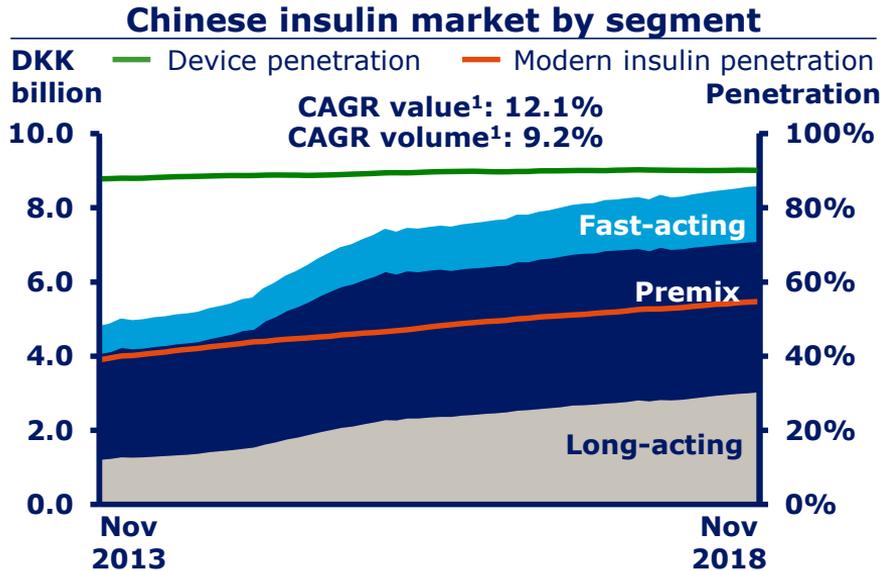
## Japanese total insulin value market shares

— Novo Nordisk   
 — Eli Lilly   
 — Sanofi

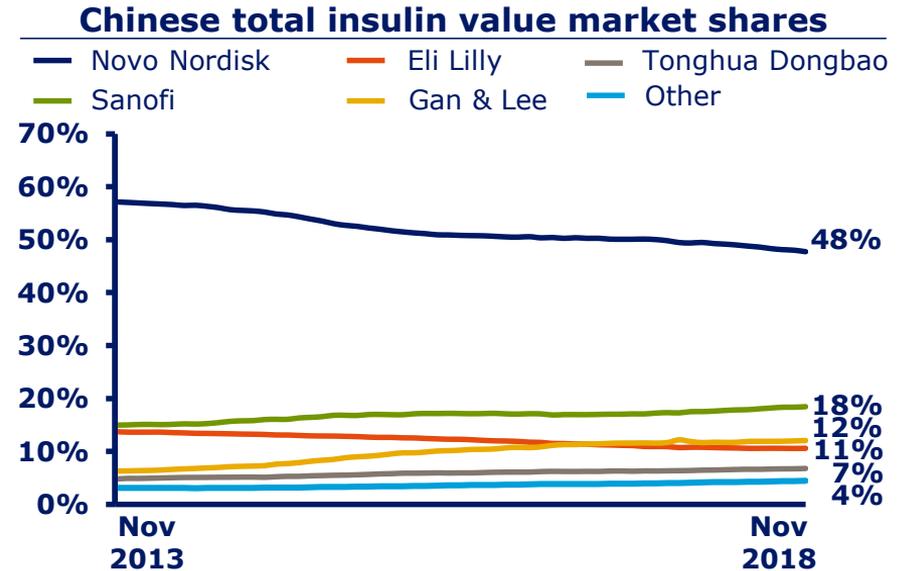


Source: IQVIA monthly MAT Nov, 2018 value figures , numbers do not add up to 100% due to smaller insulin manufacturers

# Continued value and volume growth in the Chinese insulin segments



<sup>1</sup> CAGR for 5-year period  
 Note: IQVIA covers around 50% of the total Chinese market (hospital data)  
 Source: IQVIA Rolling MAT Nov, 2018 value figures

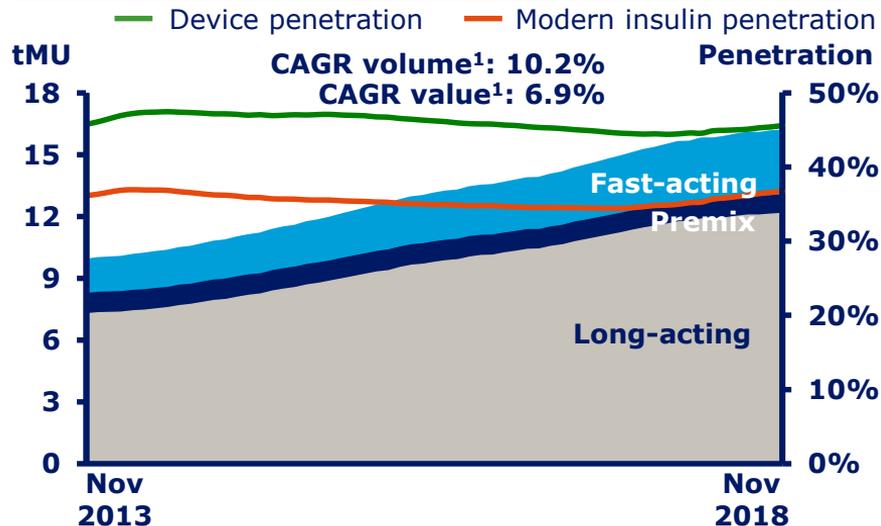


Note: Only selected competitors  
 Source: IQVIA Rolling MAT Nov, 2018 value figures

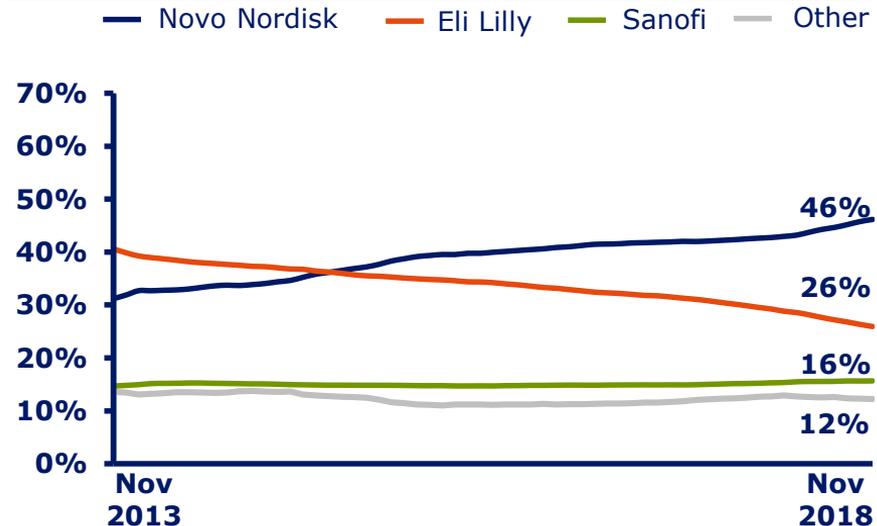
# Novo Nordisk has strengthened its insulin volume market share in Region Latin America



## Region Latin America insulin market by segment



## Region Latin America modern and new-generation insulin volume shares



<sup>1</sup> CAGR for 5-year period

Note: IQVIA covers the following 4 markets in Latin America (retail data): Argentina, Brazil, Colombia and Mexico

Source: IQVIA monthly MAT data Nov, 2018 volume and value figures

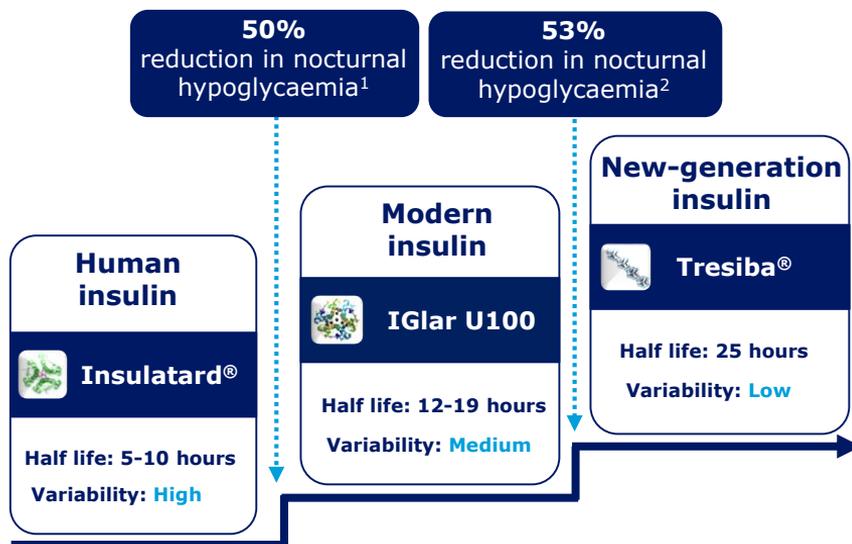
Note: Only top-3 shown

Source: IQVIA monthly MAT data Nov, 2018 volume figures



# Tresiba® sets a new standard for basal insulin initiation by lowering the risk of hypoglycaemia

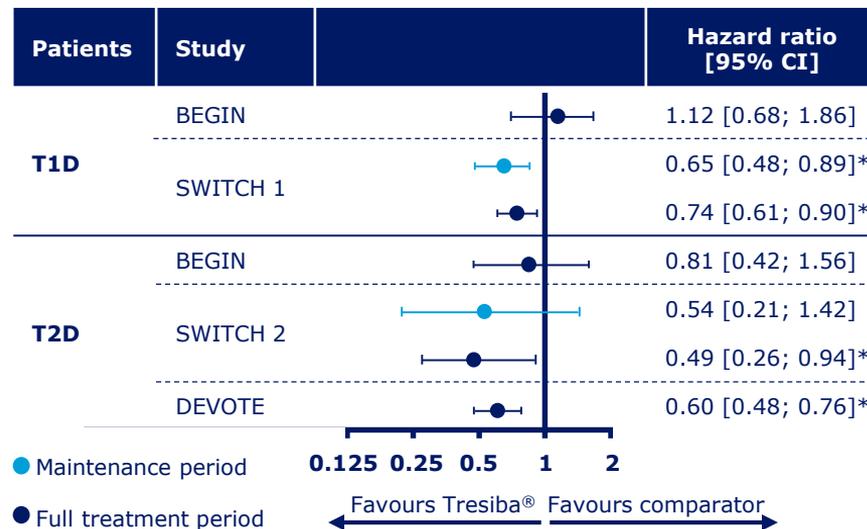
Tresiba® is a leap on the innovation ladder by further reducing nocturnal hypoglycaemia



<sup>1</sup> P. D. Home, A. Fritsche, S. Schinzel & M. Massi-Benedetti, Diabetes, Obesity and Metabolism 12: 772-779, 2010

<sup>2</sup> DEVOTE, American Diabetes Association 77<sup>th</sup> Scientific Sessions, 3-CT-SY22, Jun 12 2017  
IGlar U100: Insulin glargine U100

Tresiba® has consistently demonstrated relevant reductions in severe hypoglycaemia



\* Statistically significant difference

Note: Phase 3a BEGIN: Severe=third-party assistance; Phase 3b SWITCH: severe=third-party assistance and adjudicated; Phase 3b DEVOTE: severe=third-party assistance.

T1D: Type 1 diabetes; T2D: Type 2 diabetes; CI: Confidence interval

Source: Ratner et al. Diabetes Obes Metab 2013; Lane et al. Diabetologia 2016;59; Wysham et al. Diabetologia 2016; DEVOTE, American Diabetes Association 77<sup>th</sup> Scientific Sessions, 3-CT-SY22, Jun 12 2017

# GLP-1



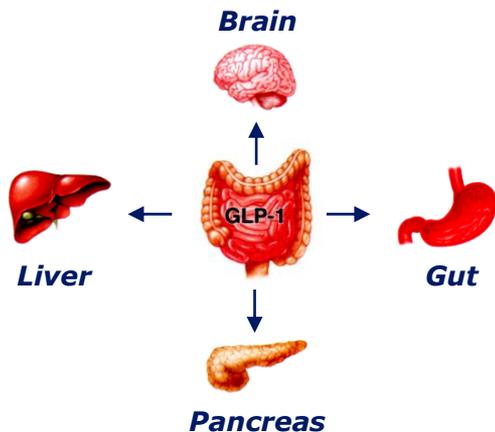
REN YANXIA  
Ren has type 2 diabetes  
China

- |  |    |
|--|----|
| 1. GLP-1 treatment                     | 68 |
| 2. GLP-1 market                        | 69 |
| 3. Regional GLP-1 growth               | 70 |
| 4. GLP-1 patient profile               | 71 |
| 5. Victoza®                            | 72 |
| 6. Ozempic®                            | 73 |
| 7. GLP-1 market value in Regions       | 75 |
| 8. Clinical trials (SUSTAIN & PIONEER) | 81 |

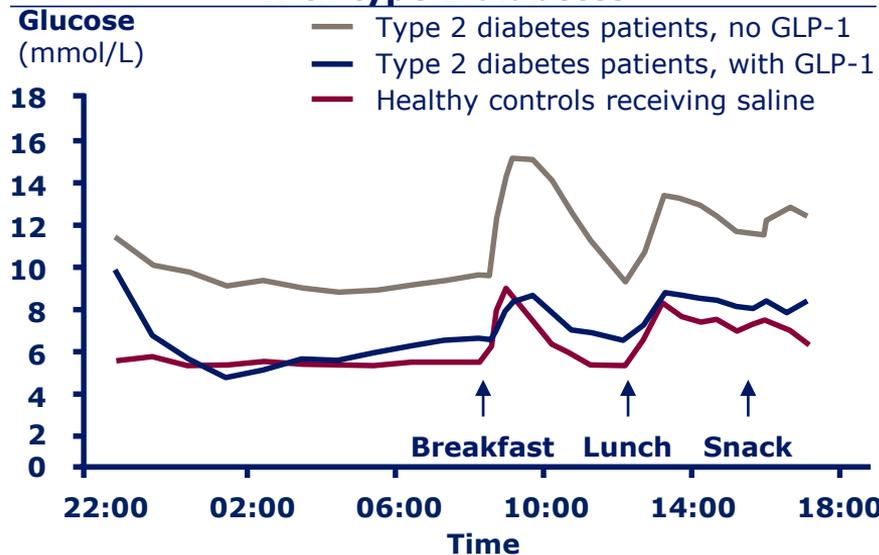
# GLP-1 effect dependent on level of blood glucose

## GLP-1 mechanism of action when blood sugar levels increase

- Increases insulin secretion in the pancreas
- Reduces glucagon secretion in the liver
- Slows gastric emptying in the gut
- Creates sense of satiety in the brain

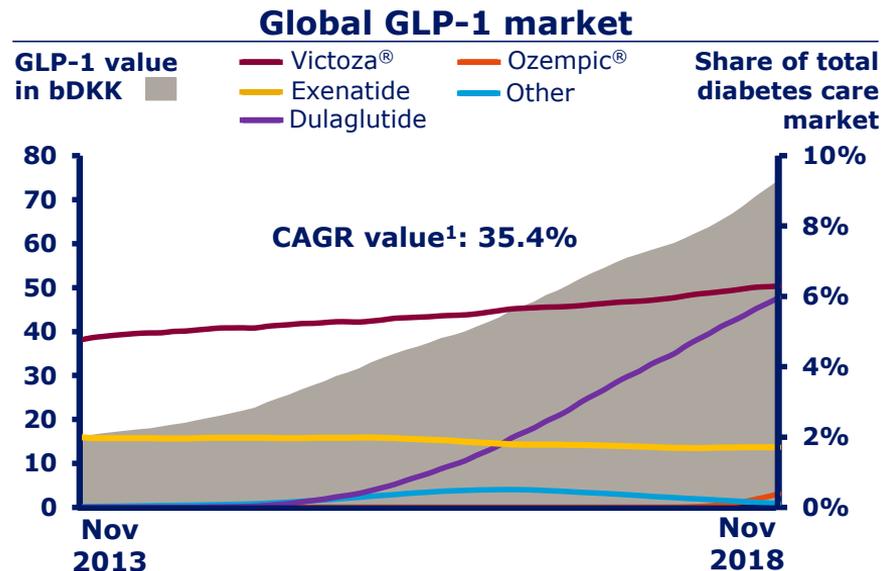


## GLP-1 lowers blood glucose in patients with type 2 diabetes

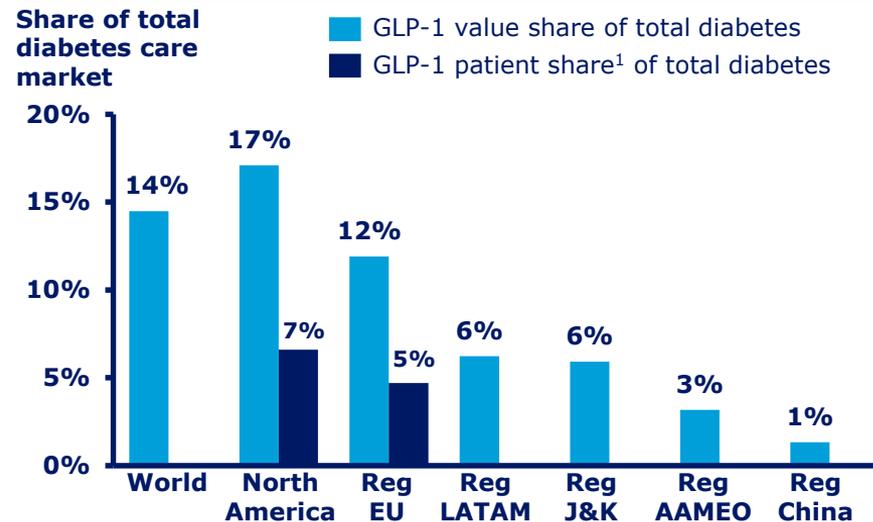


Source: Rachman et al. Diabetologia 1997;40:205-11

# The GLP-1 segment accounts for 14% of the global diabetes care market value



## GLP-1 value and patient share of the total diabetes care market



<sup>1</sup> CAGR for 5-year period

Source: IQVIA monthly MAT Nov, 2018 value figures

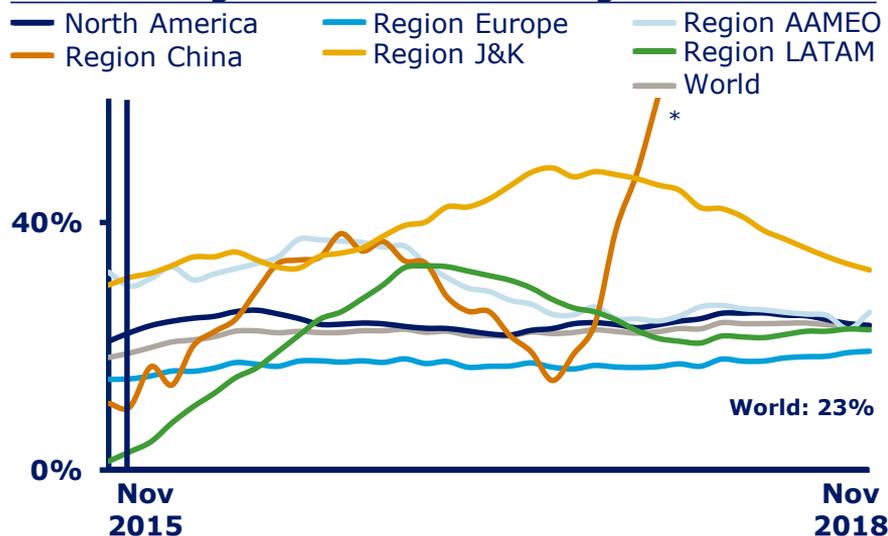
Reg: Region; AAMEO: Africa, Asia, the Middle-East and Oceania; J&K: Japan & Korea; LATAM: Latin America

<sup>1</sup> Patient share is indicative and based on data for the USA, the UK, Germany and France only.

Source: Value data; IQVIA monthly MAT Nov, 2018. Patient data; IQVIA Disease Analyser (DE, FR, UK), Quintiles IQVIA LRx (USA), Nov 2018

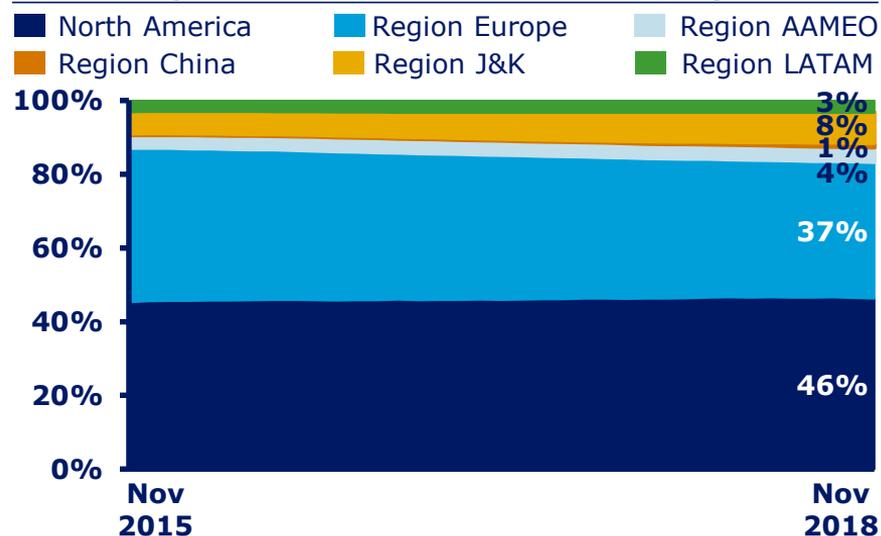
# Strong GLP-1 volume growth in all regions

## Regional GLP-1 volume growth



J&K: Japan & Korea; AAMEO: Africa, Asia, the Middle East and Oceania; LATAM: Latin America  
 Note: Data is sensitive to changes in IQVIA data collection and reporting methodology; \* Region China has increased by 145% MAT Nov, 2018  
 Source: IQVIA monthly MAT Nov, 2018 volume figures

## Regional GLP-1 volume market split

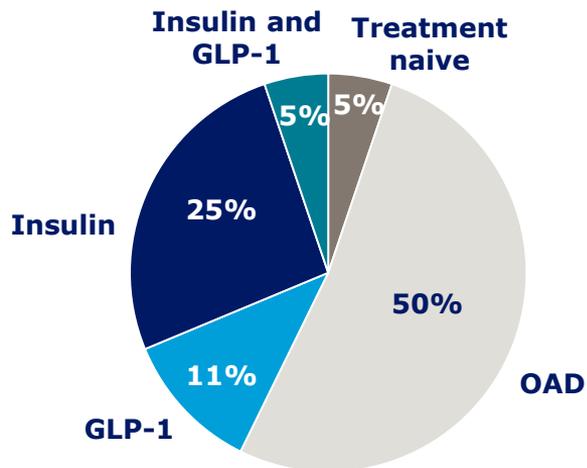


Note: Data is sensitive to changes in IQVIA data collection and reporting methodology; Numbers does not add up to 100% due to rounding

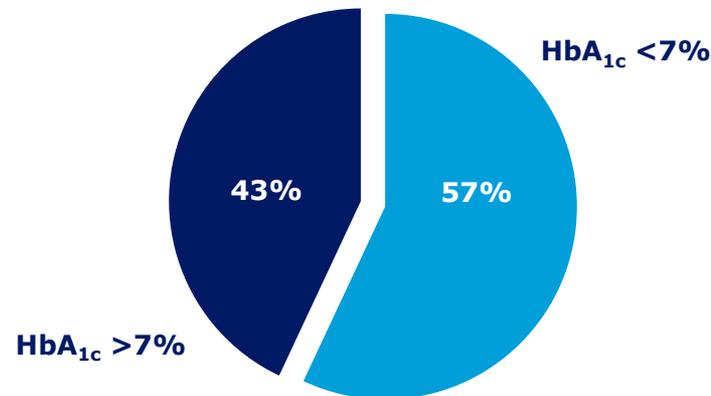
Source: IQVIA monthly MAT Nov, 2018 volume figures

# Main GLP-1 source of business comes from OAD patients as many OAD patients are not in good control

**GLP-1 source of business  
(new-to-brand prescription market share)**



**Share of patients on OADs achieving  
HbA<sub>1c</sub> below 7% in major European countries**

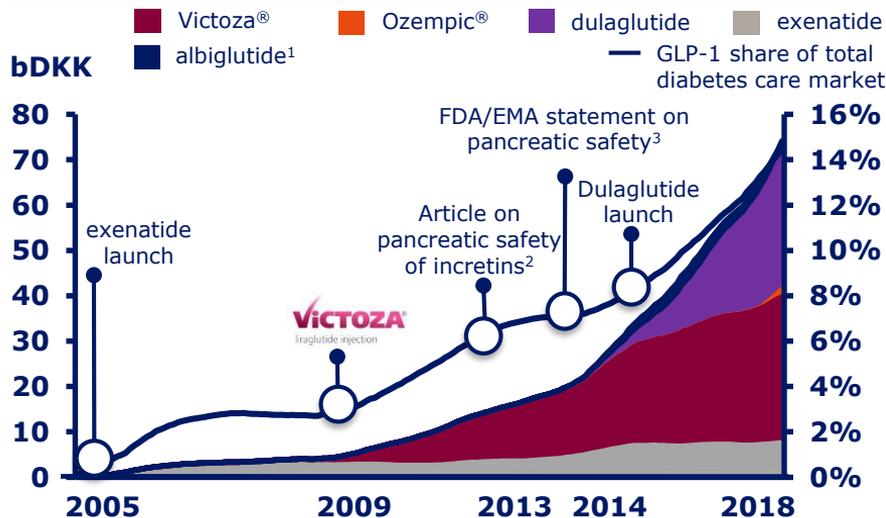


Note: Data based on data from France, Germany, UK and USA only  
 OAD: Oral anti-diabetic (includes but is not limited to DPP-IV, SGLT-2, metformin and sulfonylurea)  
 Source: IQVIA Disease Analyser (France, Germany and UK) and IQVIA (formerly IMS) LRx (USA), Jun 2018

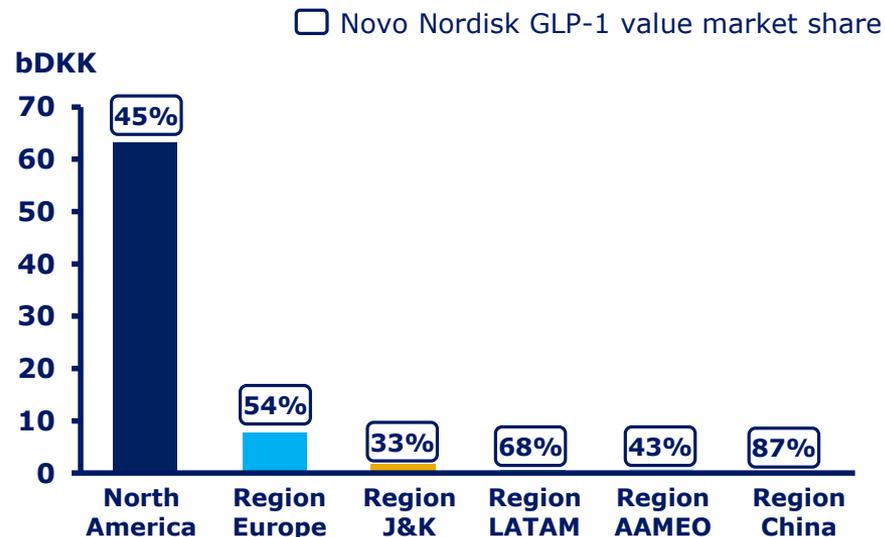
Note: Data based on data from France, Germany and UK only  
 Source: IQVIA Disease Analyser (France, Germany and UK), Sep 2017

# Significant growth in GLP-1 market with leading market share for Victoza®

## Global GLP-1 market value and share of total diabetes care market value



## Novo Nordisk GLP-1 value market share leading in all regions except Japan & Korea



<sup>1</sup> Manufacturing and sale of albiglutide expected to be discontinued by Jul 2018

<sup>2</sup> Butler et al, Marked Expansion of Exocrine and Endocrine Pancreas With Incretin Therapy in Humans With Increased Exocrine Pancreas Dysplasia and the Potential for Glucagon-Producing Neuroendocrine Tumors, Diabetes, Vol. 62, Jul 2013

<sup>3</sup> Egan et al, Pancreatic Safety of Incretin-Based Drugs — FDA and EMA Assessment, The New England Journal of Medicine 370;9, 27 Feb 2014

Source: IQVIA MIDAS, monthly data, Nov 2018 (Note: IQVIA data does not adequately capture rebates resulting in an overstatement of market value)

FDA: The US Food and Drug Administration; EMA: European Medicines Agency

AAMEO: Africa, Asia, the Middle-East and Oceania; J&K: Japan & Korea; LATAM: Latin America

Source: Reported sales until November 2018; IQVIA MIDAS, Nov 2018



# Ambition for Ozempic® to become leading weekly GLP-1, with daily GLP-1 users shifting to oral semaglutide

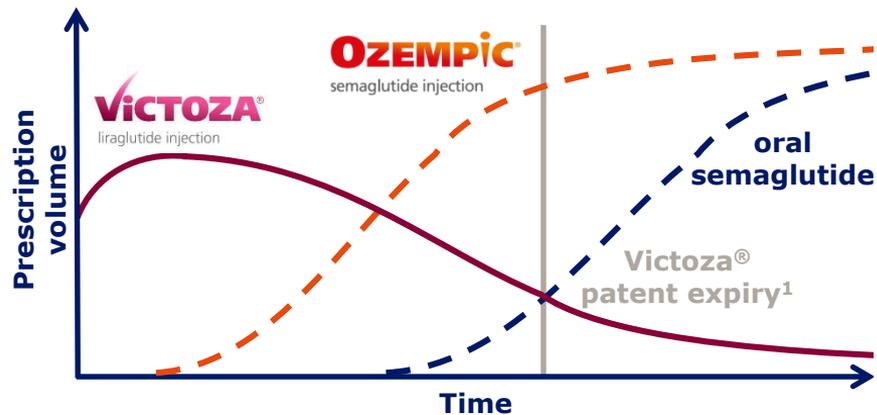
Promotional focus shifted from Victoza® towards Ozempic® as market access emerges

*Illustrative*



Aim for Ozempic® and oral semaglutide to replace Victoza® as market leaders

*Illustrative*



<sup>1</sup> Victoza® patent expiry expected in 2022/2023 in most markets

# Ozempic® approved in the USA and in the EU



## Ozempic® label in the USA

### Profile

- Adjunct to diet and exercise to improve glycaemic control
- Two therapeutic dosages, 0.5 mg and 1 mg

### Efficacy

- Reduction in HbA<sub>1c</sub> vs comparators<sup>1</sup>
- Reduction in body weight vs comparators<sup>1</sup>

### Convenience

- Administered once-weekly
- To be launched in the Ozempic® pen

### Safety

- Retinopathy wording similar to insulin labels
- Cardiovascular safety with number of MACE events in clinical section<sup>2</sup>

<sup>1</sup> Statistically significant reduction compared to comparators: placebo, sitagliptin, exenatide extended-release and insulin glargine U100 (phase 3a SUSTAIN trial programme)

<sup>2</sup> In SUSTAIN 6, there were 108 MACE events with Ozempic® compared to 146 events with placebo, equivalent to an event rate of 6.6% with Ozempic® and 8.9% with placebo  
MACE: Major adverse cardiovascular events

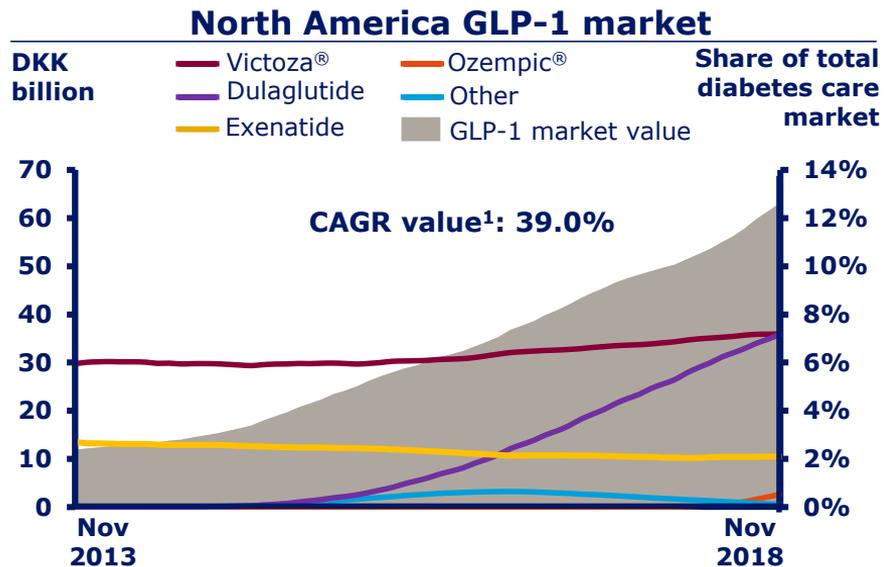


## CV data from SUSTAIN 6 trial in Ozempic® EU label

	Ozempic® label	Victoza® label
<b>Trial</b>	SUSTAIN 6	LEADER
<b>Patients</b>	3,297	9,340
<b>Reference to CV results in indication</b>	Included	Included
<b>MACE</b>	HR: 0.74 <sup>1</sup>	HR: 0.87 <sup>2</sup>
<b>Kaplan-Meier</b>	Included	Included

<sup>1</sup> 95% confidence interval [0.58;0.95]. <sup>2</sup> 95% confidence interval [0.78;0.97]  
CV: Cardiovascular; HR: Hazard ratio

# The GLP-1 segment accounts for 17% of total diabetes care market value in North America



## Key points on Victoza® and Ozempic® in the USA

- Victoza® and Ozempic® value market share within the GLP-1 segment is 45%<sup>2</sup>
- Around 93% of new patients who start on Victoza® transition from outside of the GLP-1 segment. Around 72% of new patients who start on Ozempic® transition from outside of GLP-1 segment<sup>3</sup>
- Unrestricted access for Ozempic® for commercial and Medicare Part D combined around 80%
- Around 71% of Victoza® prescriptions are for the higher dose 1.8 mg. Around 38% of Ozempic® prescriptions are for the higher dose 1 mg<sup>4</sup>

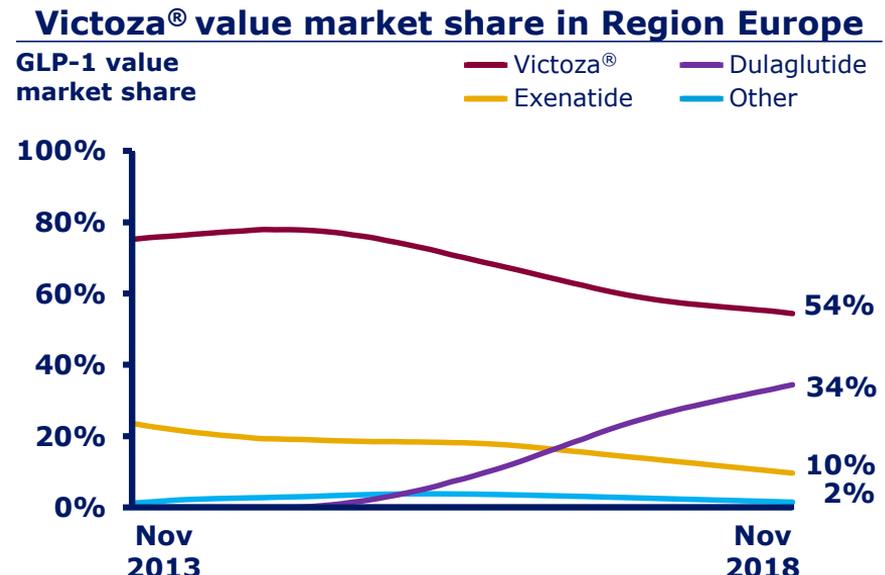
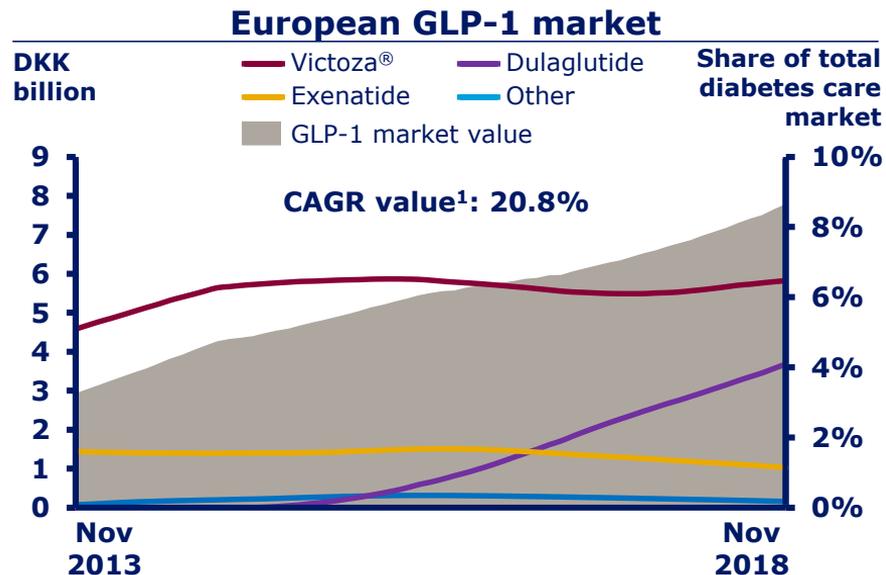
<sup>1</sup> CAGR for 5-year period  
 Source: IQVIA monthly MAT Nov, 2018 value figures

<sup>2</sup> Source: IQVIA NSP monthly, MAT Nov, 2018

<sup>3</sup> IQVIA SOB, week 21 Dec 2018 (based on 4 week average)

<sup>4</sup> IQVIA, NPA weekly, 28 Dec 2018 (based on 4 week average)

# The GLP-1 segment accounts for around 12% of total diabetes care market value in Region Europe



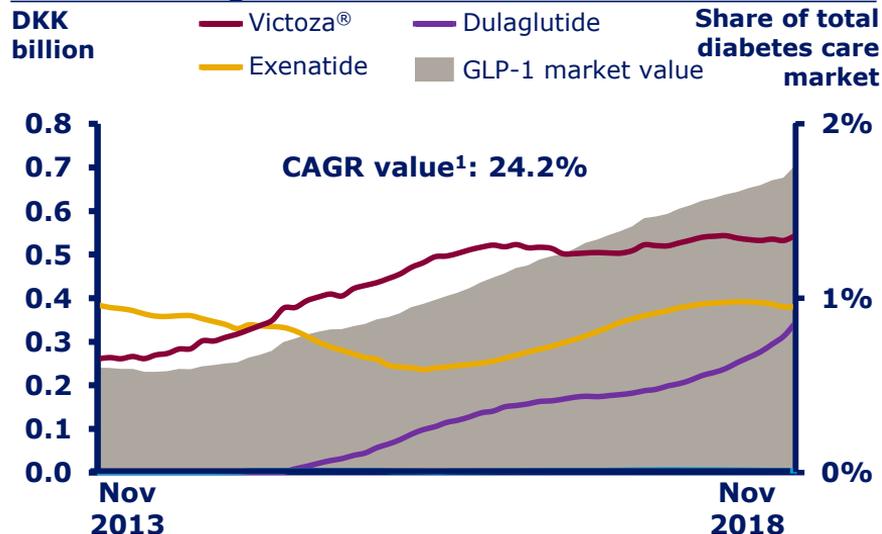
<sup>1</sup> CAGR for 5-year period  
Source: IQVIA monthly MAT Nov, 2018 value figures

Source: IQVIA monthly MAT Nov, 2018 value figures

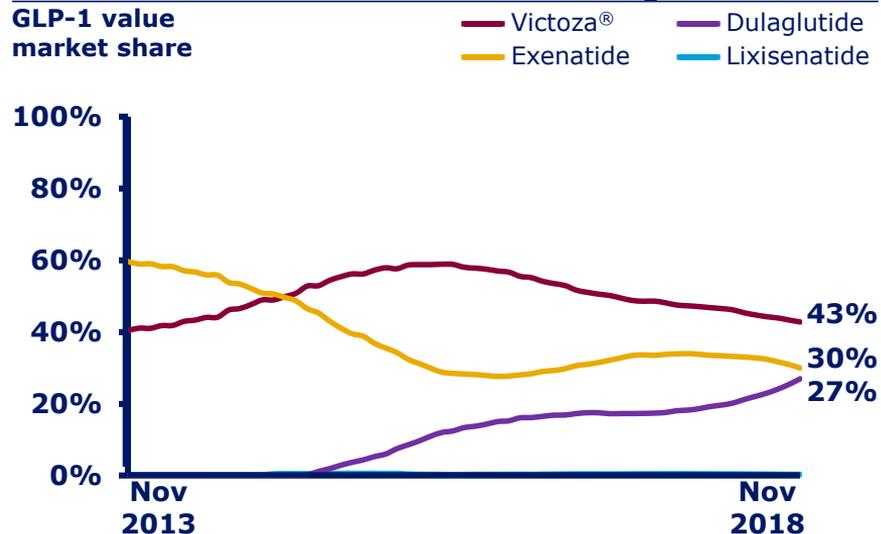
# The GLP-1 segment accounts for 3% of total diabetes care market value in Region AAMEO



## Region AAMEO GLP-1 market



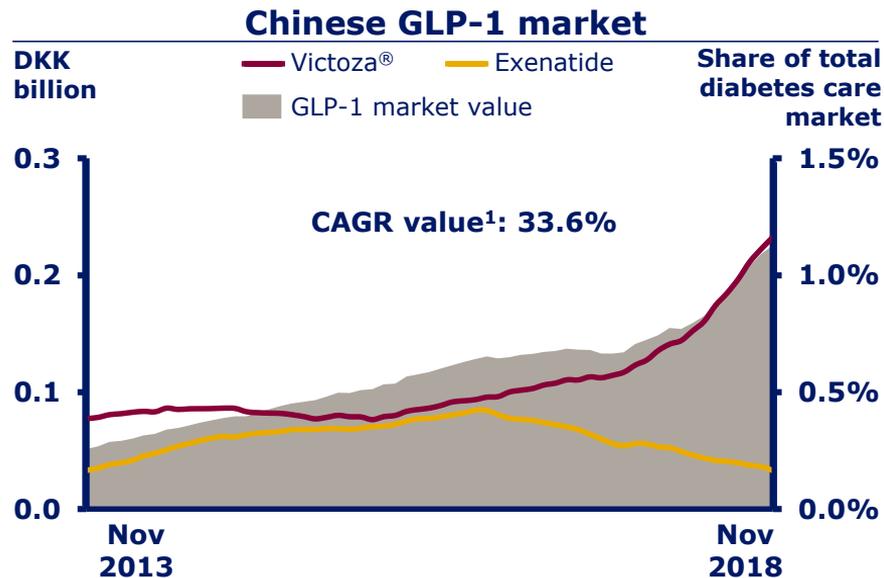
## Victoza® value market share in Region AAMEO



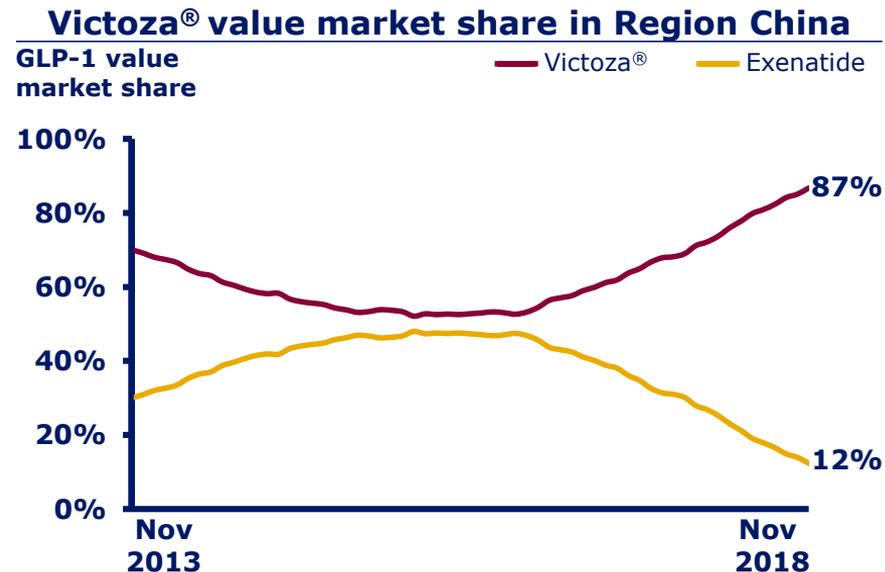
<sup>1</sup> CAGR for 5-year period  
AAMEO: Africa, Asia, the Middle East and Oceania  
Source: IQVIA monthly MAT Nov, 2018 value figures

Source: IQVIA monthly MAT Nov, 2018 value figures

# The GLP-1 segment accounts for around 1% of the total diabetes care market value in Region China

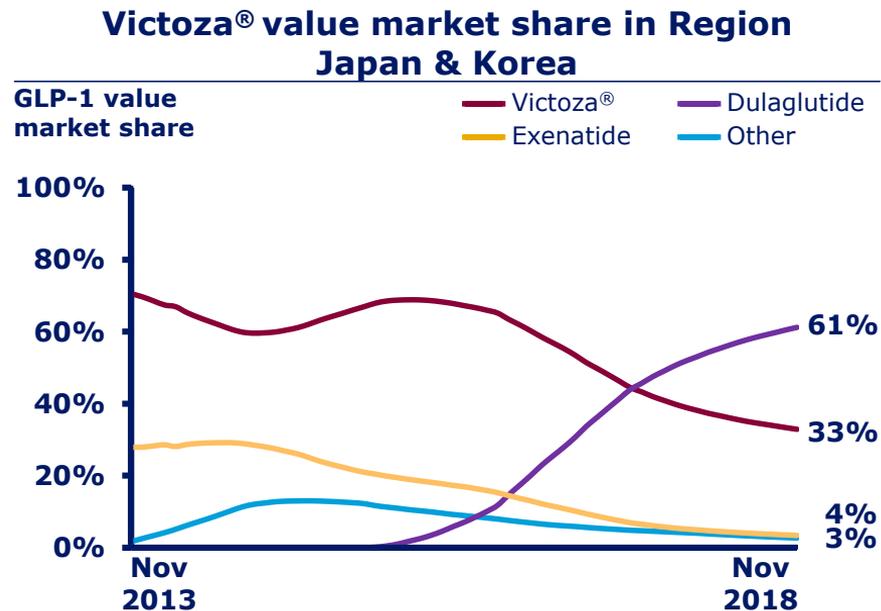
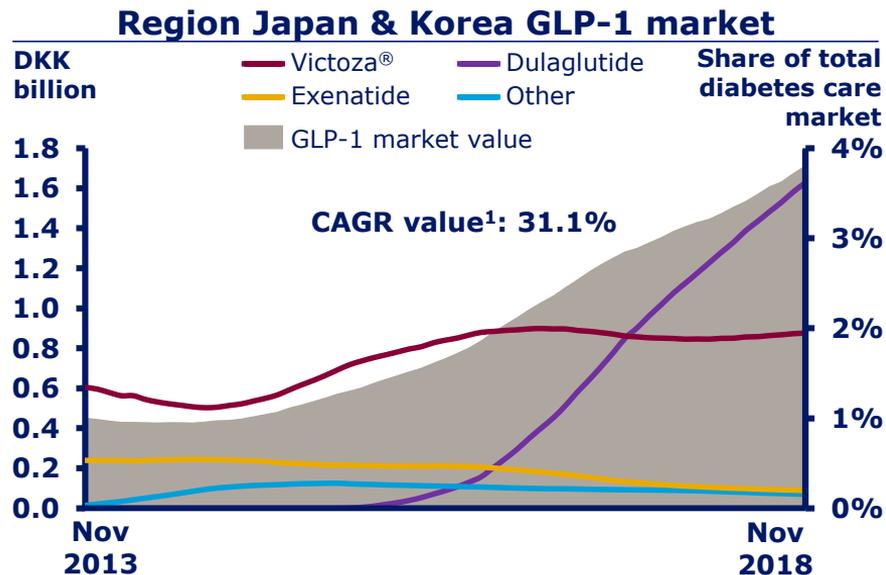


<sup>1</sup> CAGR for 5-year period  
Source: IQVIA monthly MAT Nov, 2018 value figures



Source: IQVIA monthly MAT Nov, 2018 value figures. Market share does not add up to 100% due to rounding

# The GLP-1 segment accounts for around 6% of the total diabetes care market in Region Japan & Korea

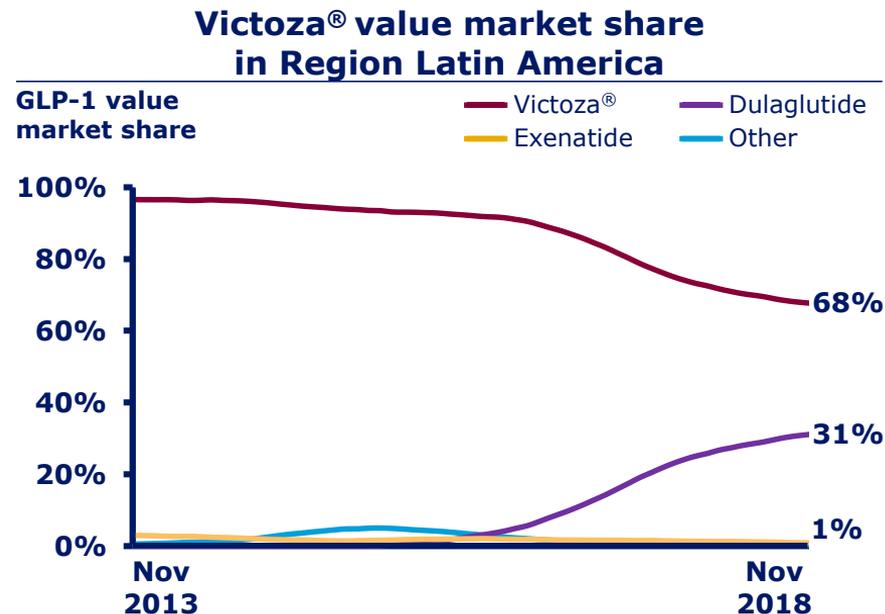
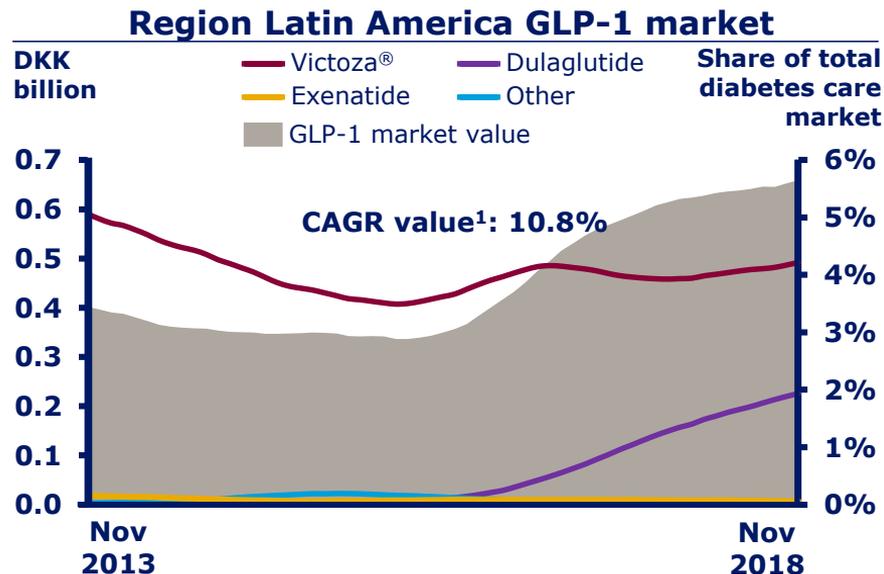


<sup>1</sup> CAGR for 5-year period

Source: IQVIA monthly MAT Nov, 2018 value figures

Source: IQVIA monthly MAT Nov, 2018 value figures. Market share does not add up to 100% due to rounding

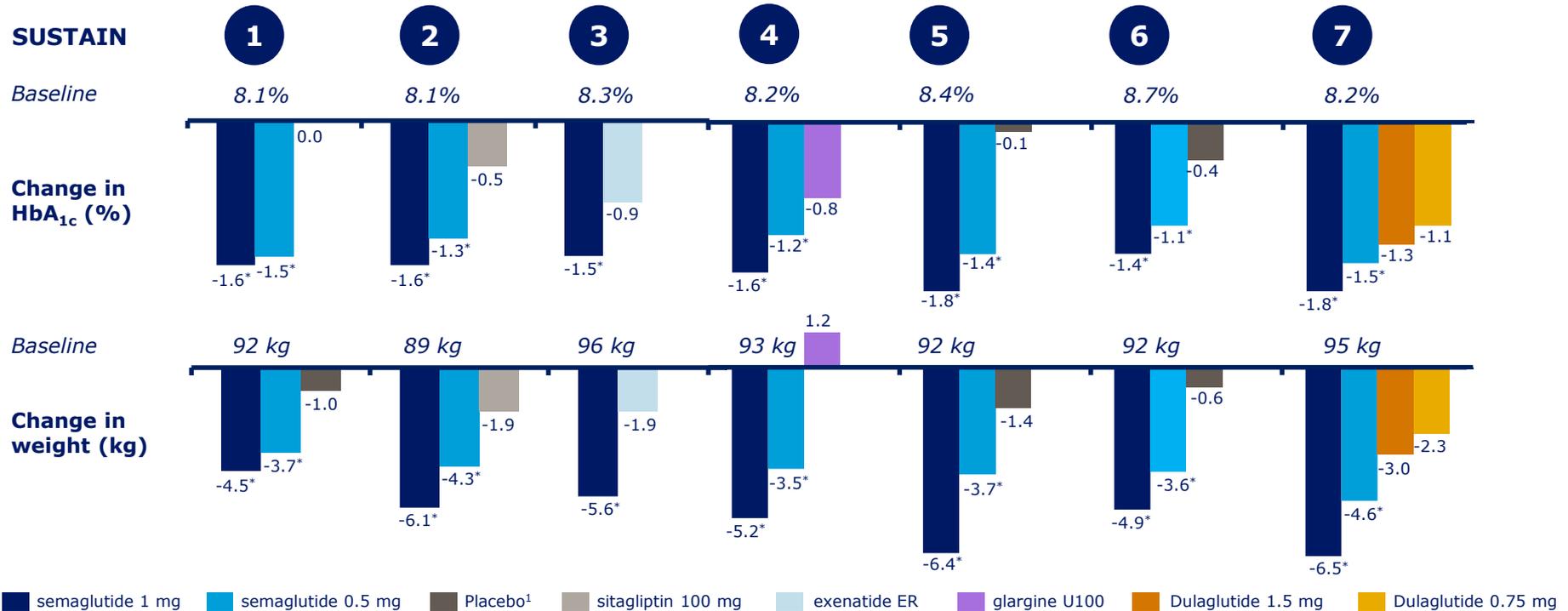
# The GLP-1 segment accounts for around 6% of the total diabetes care market in Region Latin America



<sup>1</sup> CAGR for 5-year period  
Source: IQVIA monthly MAT Nov, 2018 value figures

Source: IQVIA monthly MAT Nov, 2018 value figures

# SUSTAIN trials with semaglutide

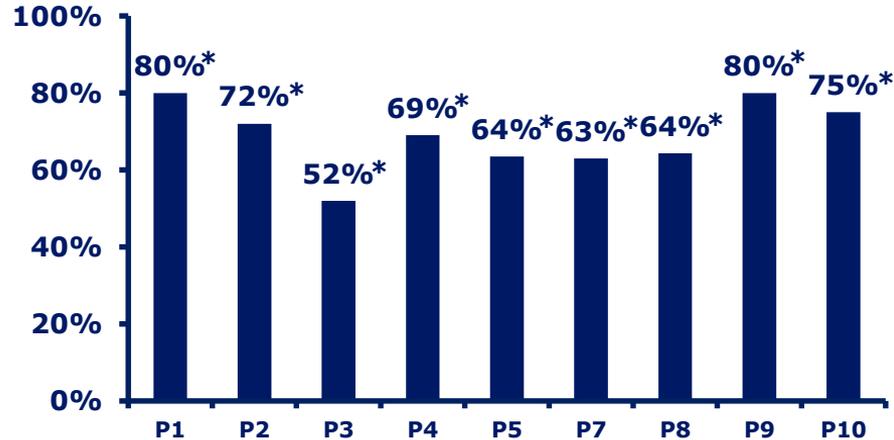


\* Statistically significant; SUSTAIN 1: QW sema versus placebo in drug-naïve subjects with T2D; SUSTAIN 2: QW sema versus sitagliptin 100 mg once-daily in subjects with T2D added on to 1-2 OADs; SUSTAIN 3: QW sema versus QW exenatide ER 2.0 mg in subjects with T2D added on to 1-2 OADs; SUSTAIN 4: QW sema versus QD insulin glargine in subjects with T2D added on to 1-2 OADs; SUSTAIN 5: QW sema versus placebo in subjects with type 2 diabetes added to insulin; SUSTAIN 6: QW sema versus placebo, added to standard-of-care; SUSTAIN 7: QW sema versus QW dulaglutide 75 mg and 150 mg in subjects with T2D added on to 1-2 OADs  
ER: Extended-release; QW: once weekly; QD: once daily; sema: semaglutide; T2D: type 2 diabetes, OAD: oral anti-diabetics

# In the completed PIONEER trials between 52–80% of patients on oral semaglutide achieved an HbA<sub>1c</sub> level <7%

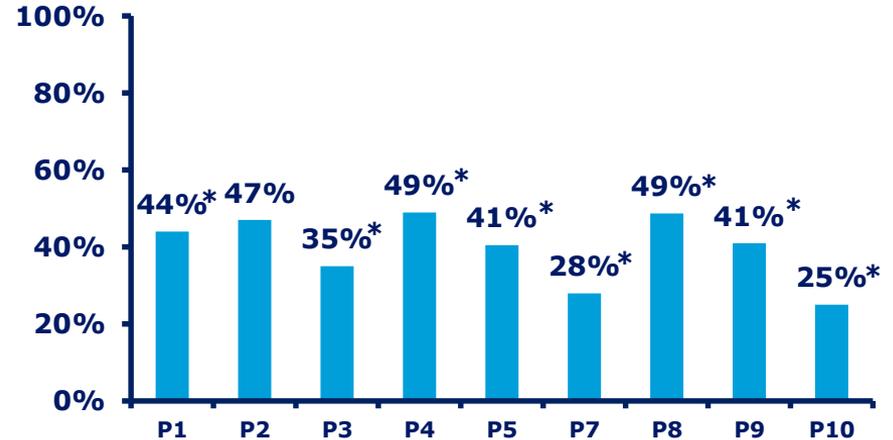
**In completed PIONEER trials 52–80% of patients achieved an HbA<sub>1c</sub> level <7.0% (ADA guidance)<sup>1</sup>**

Proportion of patients (%)



**In completed PIONEER trials 28–49% of patients achieved a weight loss of ≥ 5%<sup>1</sup>**

Proportion of patients (%)



<sup>1</sup> Hypothetical estimand, observed data

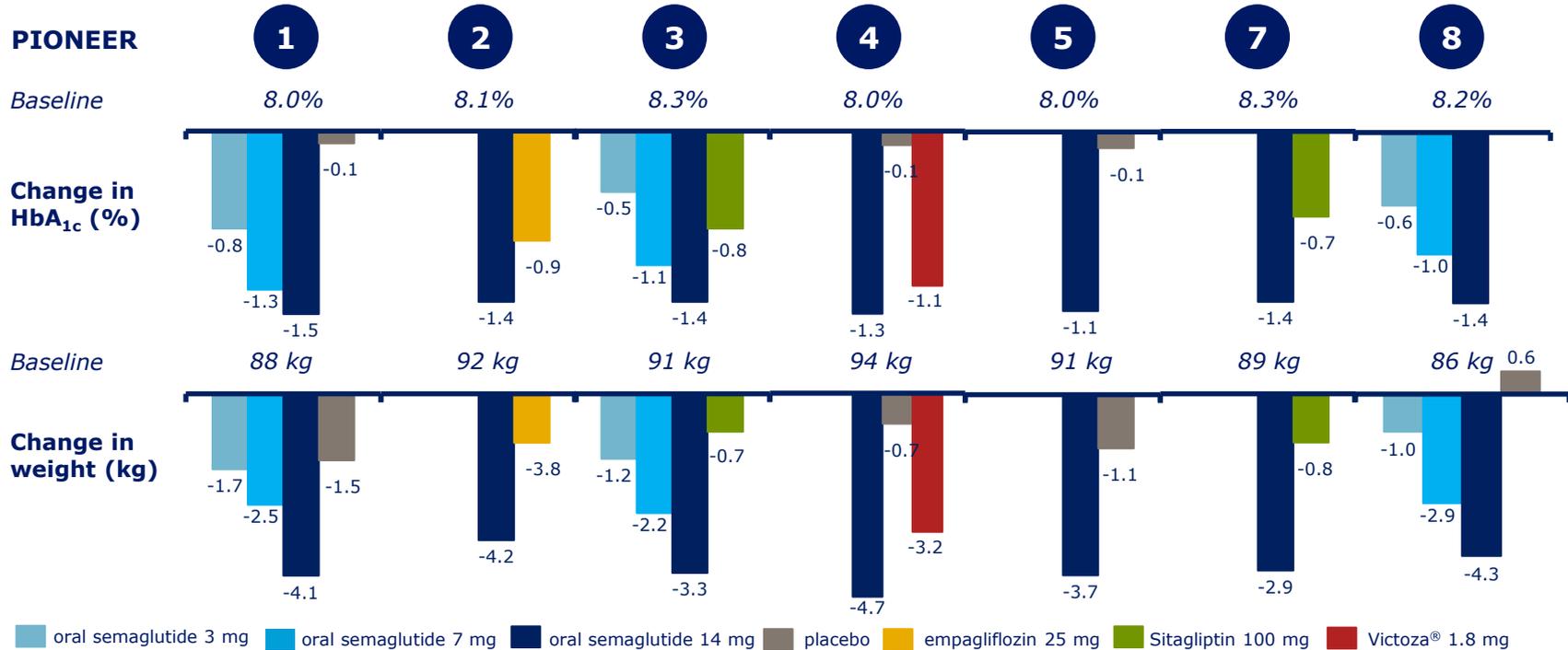
\* Statistically significant vs comparator (PIONEER 1 vs placebo; PIONEER 2 vs empagliflozin 25 mg; PIONEER 3 vs sitagliptin 100 mg; PIONEER 4 vs Victoza® 1.8 mg; PIONEER 5 vs. placebo in T2DM and with renal impairment; PIONEER 7 vs sitagliptin 100 mg; PIONEER 10 vs. dulaglutide in Japanese people)

Note: Results shown are: PIONEER 1 for 26 weeks with 14 mg oral semaglutide; PIONEER 2, 4 and 9 for 52 weeks with 14 mg oral semaglutide; PIONEER 3 for 78 weeks with 14 mg oral semaglutide; PIONEER 7 for 52 weeks with a mixed dose. PIONEER 6 not included as it was a CVOT.

T2DM: Type 2 diabetes mellitus; CVOT: Cardiovascular outcomes trial; ADA: American Diabetes Association

Source: Novo Nordisk data on file

# PIONEER programme completed for oral semaglutide and global trials showed consistent efficacy profile



Note: PIONEER 9 and PIONEER 10 were Japanese studies and PIONEER 6 was a CV safety study.

\* Statistically significant; PIONEER 1: QD oral sema versus placebo in subjects with T2D treated with diet and exercise only; PIONEER 2: QD oral sema versus empagliflozin 25 mg in subjects with T2D; PIONEER 3: QD oral sema versus sitagliptin 100 mg in subjects with T2D; PIONEER 4: QD oral sema versus Victoza® 1.8 mg and placebo in subjects with T2D; PIONEER 5: QD oral sema versus placebo in subjects with T2D and moderate renal impairment; PIONEER 7: QD oral sema using a flexible dose adjustment based on clinical evaluation versus sitagliptin 100 mg in subjects with T2D; PIONEER 8: Effects of QD oral sema versus placebo in subjects with long duration of T2D treated with insulin ER: Extended-release; QW: once weekly; QD: once daily; oral sema: oral semaglutide; T2D: type 2 diabetes, OAD: oral anti-diabetics

# Obesity



**1. Obesity as a chronic disease** 85

**2. Obesity treatment** 86

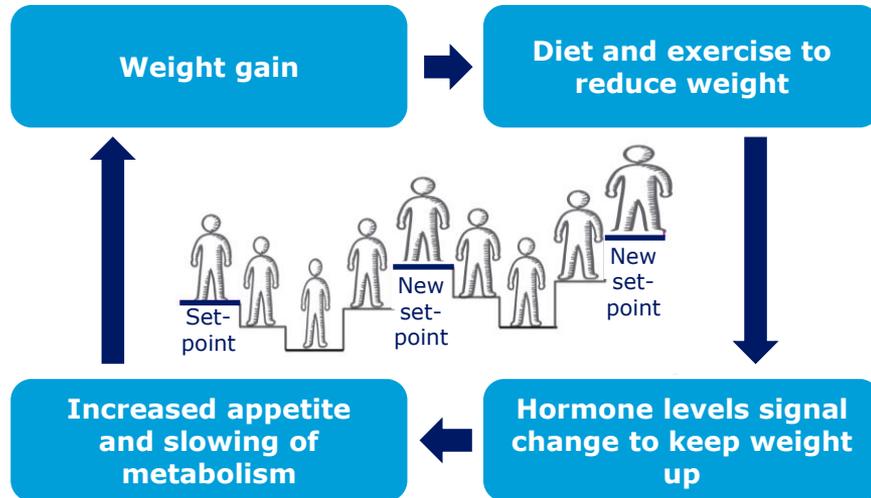
**3. Saxenda®** 88

**4. Obesity pipeline** 90

**5. STEP and SELECT** 92

# Obesity is a chronic disease that requires treatment

## The set-point theory portrays how metabolic changes affect the ability to lose weight



## The body fights weight loss for people with obesity

- The body “remembers” its highest body weight and defends this body weight as the “new normal weight”
- During weight loss, changes occur in appetite-regulating hormones, which increase hunger
- If people with obesity do not eat enough, the hormones trigger the body to conserve energy
- Changes in hormones persist for at least 5-10 years following weight loss

# Treatment rate is low and an increase requires a change of mindset and physician engagement

Only 2% of the 650 million people with obesity are treated with prescription medication



Note: The figure illustrates some of the intervention points to treat obesity with prescription medication

<sup>1</sup> Attempt to manage weight through lifestyle modification or surgery

<sup>2</sup> 2% of people with obesity are estimated to be treated with anti-obesity medication

Source: IQVIA MIDAS 2017

## Key barriers to effective obesity management

### Mindset

- Belief that obesity is self-inflicted
- Focus on acute weight loss rather than chronic weight management

### Few prescribers engaged

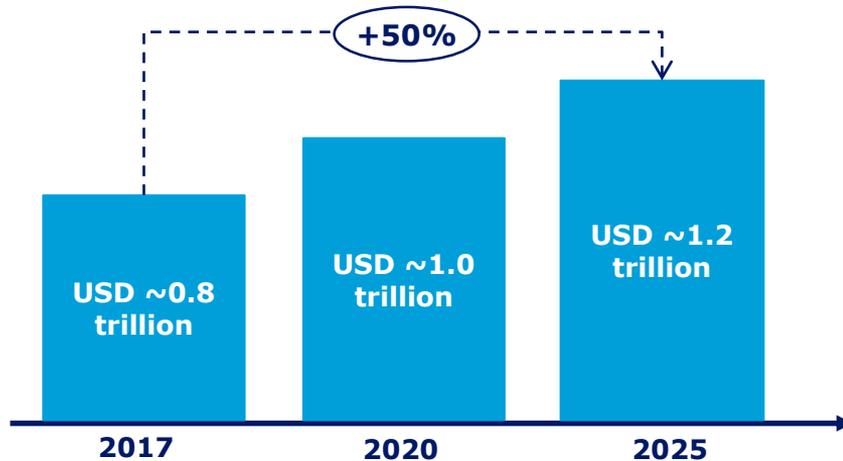
- Physicians not equipped to engage in and treat obesity

### Limited patient access

- Funding and reimbursement a hurdle for physicians and patients

# Healthcare cost associated with obesity expected to increase

## Global healthcare cost related to obesity expected to increase by 50% by 2025



Source: World Obesity Federation, 2017

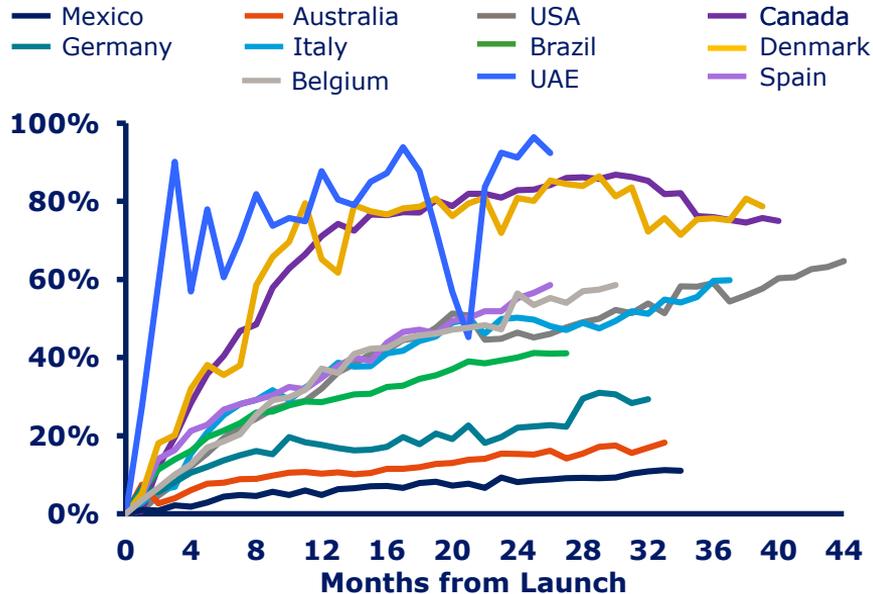
## Increase in healthcare costs primarily driven by obesity-related comorbidities

- Today, 650 million people have obesity globally
- By 2025, ~1 billion people are expected to have obesity
- If left untreated, by 2025, the cost of treating complications of obesity is expected to reach USD ~550 billion in the USA and USD ~1.2 trillion globally
- The increased healthcare costs are primarily driven by obesity-related comorbidities such as type 2 diabetes and cardiovascular disease

Source: WHO, Oct 2017; World Obesity Federation, 2017

# Saxenda® now launched in 41 countries

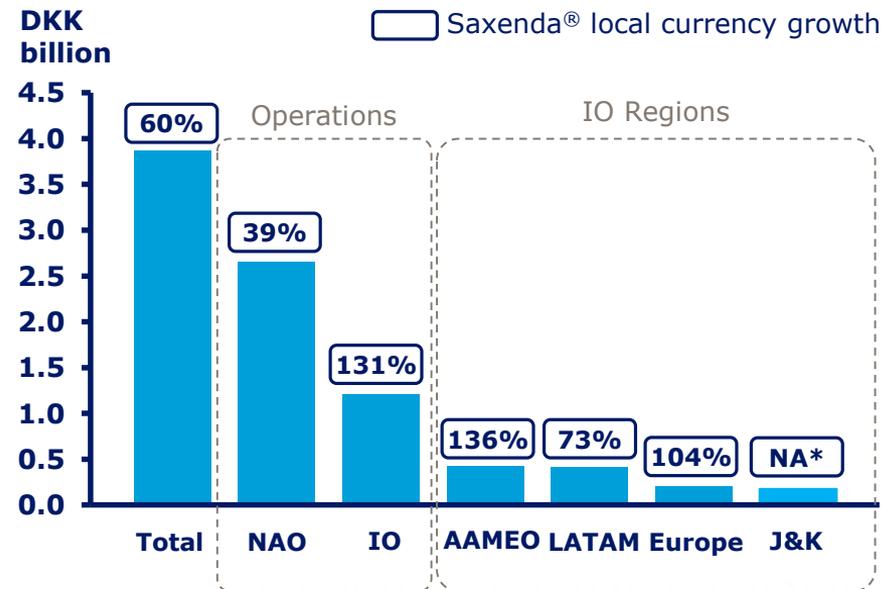
## Saxenda® value share of anti-obesity medications in selected countries



Source: IQVIA Nov 2018

Note: The market for anti-obesity medication varies significantly in size between countries

## Saxenda® reported sales for full year 2018<sup>1</sup>

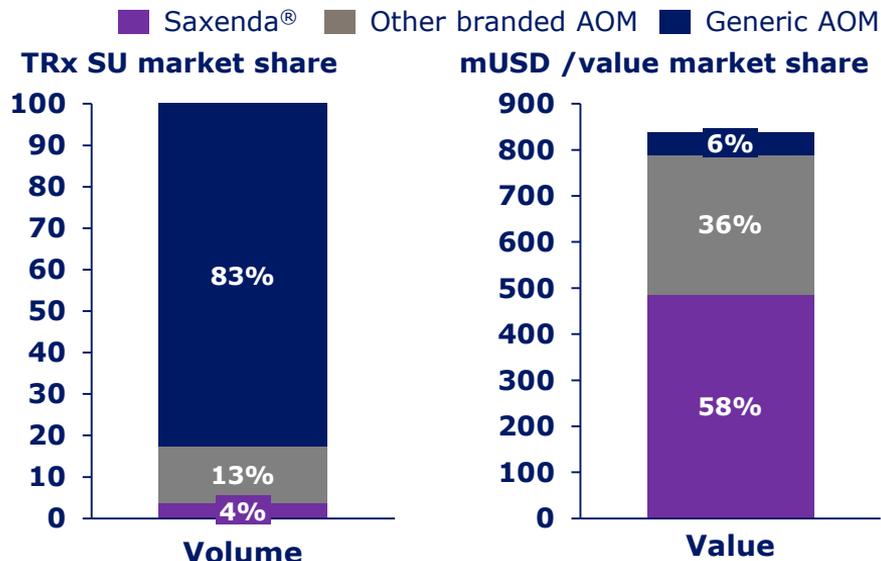


NAO: North America Operations; IO: International Operations; AAMEO: Africa, Asia, Middle East & Oceania; LATAM: Latin America; J&K: Japan & Korea

\*Saxenda® was launched in South Korea within Region Japan & Korea during 2018, hence 'NA' = Not Applicable

# Saxenda® has rapidly grown value market share, but market development efforts are required to expand the market

Despite strong Saxenda® growth, US obesity care market remains small at around USD 839 million



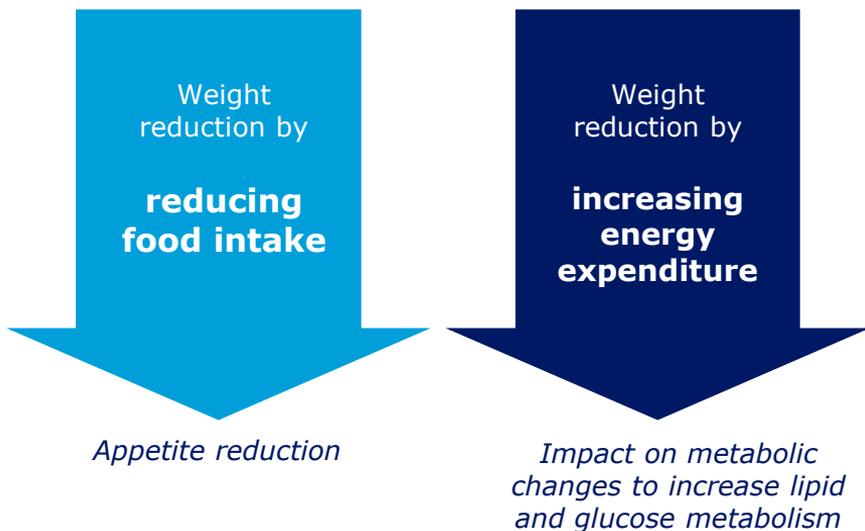
Novo Nordisk is investing in overcoming the barriers preventing effective obesity care

	Current state	Key initiatives
Mindset	Acute weight loss focus with Saxenda® stay-time ~5 months	Advocate for chronic treatment through partnerships
Few prescribers engaged	Less than 3,000 physicians write ≥10 AOM prescriptions per month	Launch obesity educator programme
Limited patient access	Only 2 in 5 of ~95 million adults with obesity have access to reimbursed medication	Obtain Medicare coverage through support of "Treat and Reduce Obesity Act"

AOM: Anti-obesity medication; TRx standard units Volume  
Source: IQVIA NPA moving annual total through Nov 2018; NSP moving annual total through Nov 2018

# The obesity pipeline consists of projects addressing both appetite reduction and energy expenditure

## How to address obesity from a medical perspective



## Novo Nordisk obesity products and pipeline

### Projects:

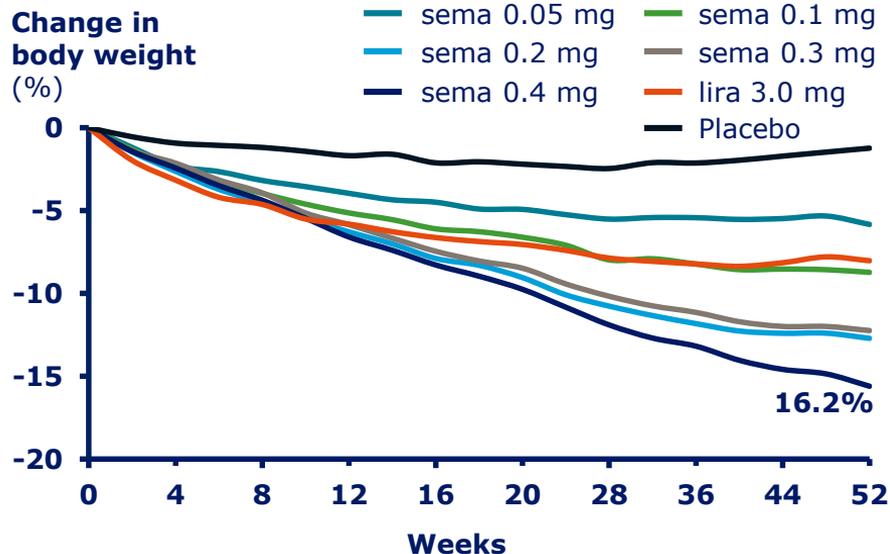
Projects:	2019 expectations
Saxenda®	Launched
semaglutide – QW GLP-1	Phase 3 ongoing
AM833 – amylin analogue	Phase 2 initiation
PYY1562 – PYY analogue	Phase 1 results
NN9277 – GG-co-agonist	Phase 1 results
NN9423 – Tri-agonist 1706	Phase 1 results
PYY1875 – PYY analogue	Phase 1 ongoing

■ Appetite reduction 
 ■ Energy expenditure  
■ Appetite reduction and energy expenditure

QW: Once-weekly

# Semaglutide demonstrated unprecedented weight loss in a phase 2 obesity trial

## 16.2% weight reduction with the highest semaglutide dose in phase 2 obesity trial



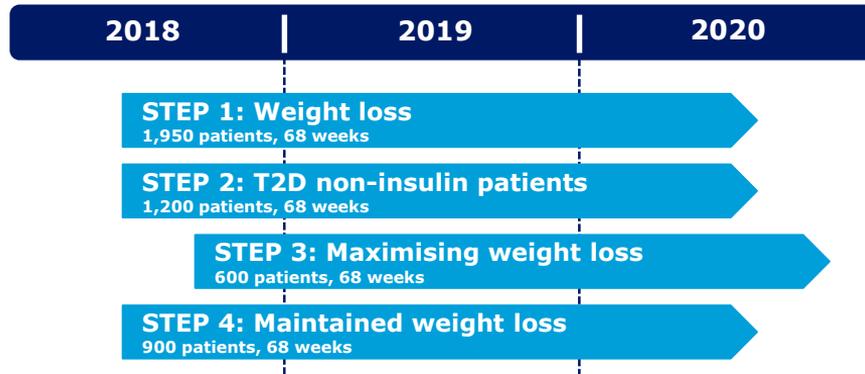
Note: All treatment arms are adjunct to diet and exercise  
 QD: Once-daily; sema: Semaglutide; lira: Liraglutide

## Key results and next steps

- Participants in the highest dose arms continued to lose weight over the duration of the trial as the response curve did not plateau in the highest dose arm
- Nearly two out of three patients experienced a weight loss of 10% or more with the highest dose of semaglutide
- 80% of patients completed the trial
- Once-daily semaglutide had a well-tolerated safety profile, with the most common adverse events being gastrointestinal
- Phase 3a programme STEP and cardiovascular outcomes study SELECT were initiated in 2018

# Phase 3a programme STEP and CV outcomes study SELECT were initiated in 2018

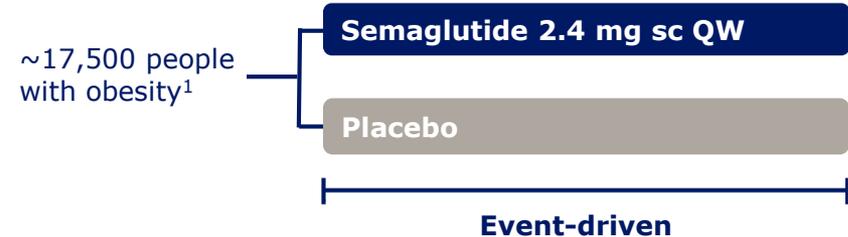
**Semaglutide in obesity phase 3a programme, STEP, expected to include ~4,500 patients<sup>1</sup>**



**Expected phase 3a programme completion: 2020**

<sup>1</sup> Inclusion criteria: Male or female, age  $\geq 18$  years, BMI:  $\geq 30$  kg/m<sup>2</sup> or  $\geq 27$  kg/m<sup>2</sup> and  $\geq 1$  comorbidity  
 Note: All treatment arms are adjunct to diet and exercise  
 CV: Cardiovascular; T2D: Type 2 diabetes; BMI: Body mass index

**Cardiovascular outcomes study, SELECT, initiated for semaglutide in obesity**



**Completion: Pre-defined number of events**

<sup>1</sup> Inclusion criteria: Male or female > 45 years, BMI > 27 kg/m<sup>2</sup>, myocardial infarction or stroke > 60 days, HbA<sub>1c</sub> < 6.5%  
 QW: Once-weekly; sc: Subcutaneous; BMI: Body mass index

# Biopharm and other chronic areas



1. Biopharm at a glance	94
2. Haemophilia – a rare disease	95
3. Haemophilia market	96
4. NovoSeven®	97
5. NovoEight®	98
6. Refixia®/Rebinyn®	99
7. N8-GP	100
8. Growth Hormone market	101
9. Clinical trial for Somapacitan	102
10. Other chronic disease	103

# Biopharm R&D efforts reflect Novo Nordisk's commitment to satisfy unmet patient needs

## Aim to develop subcutaneous haemophilia products and long-acting growth hormone

Pursue leadership in **HAEMOPHILIA**



Pursue subcutaneous bypassing and mimicking agents

Strengthen leadership in **GROWTH DISORDERS**



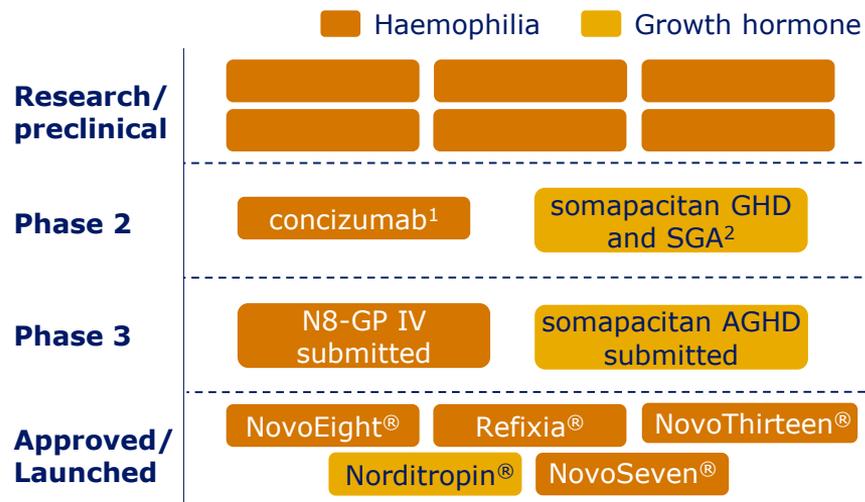
Bring long-acting growth hormone somapacitan to market and expand indications

Pursue **bolt-on opportunities**



Identify bolt-on acquisition or in-licensing opportunities in adjacent disease area

## Novo Nordisk Biopharm portfolio

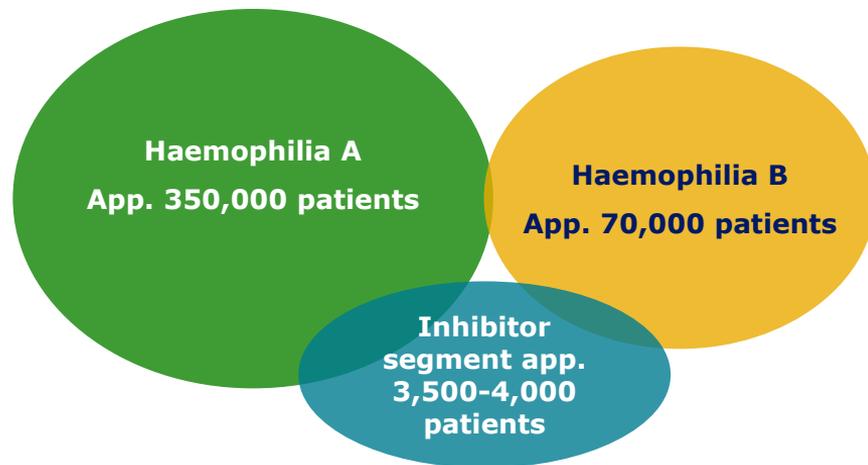


<sup>1</sup> Concizumab has completed phase 2 trials and is phase 3 ready; <sup>2</sup> Somapacitan GHD and SGA have completed phase 2 trials and are phase 3 ready

Note: NovoThirteen® and Refixia® are the brand names in the majority of countries, whereas these products are marketed as TRETEN® and Rebinyn® respectively in the USA  
IV: Intravenous; GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency; SGA: small for gestational age

# Haemophilia is a rare disease with severe unmet medical needs

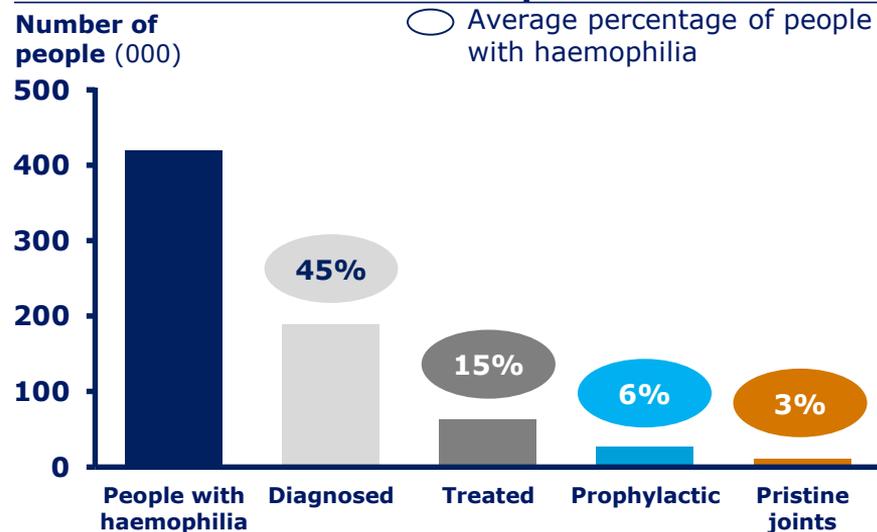
## Number of people with haemophilia A and B and haemophilia with inhibitors



Note: The inhibitor segment represents people with haemophilia and high titre inhibitors to their normal replacement treatment

Source: Estimates based on prevalence data in literature (Stonebraker JS et al. Haemophilia. 2010; 16: 20-32), World Federation of Haemophilia – Annual Global Survey 2012, UDC database in the USA

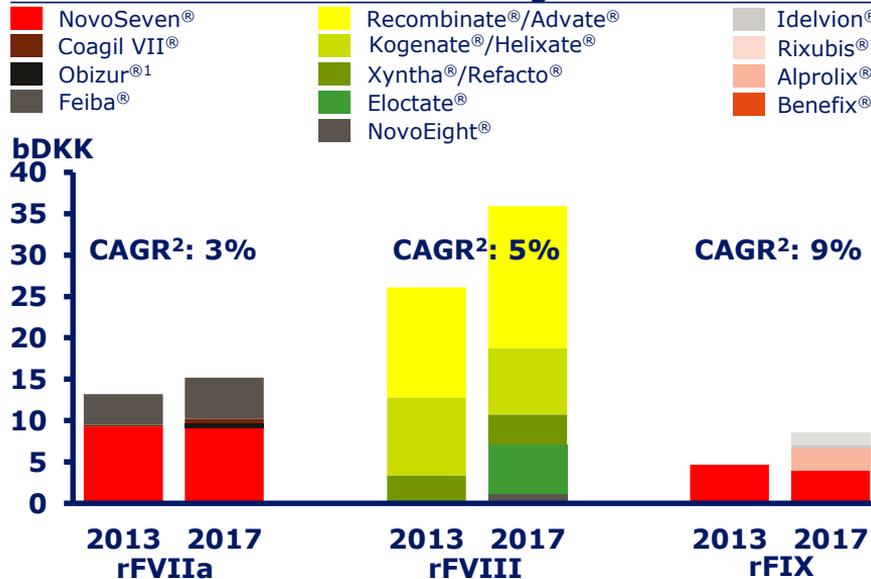
## Low diagnosis and treatment rates within haemophilia



Source: World Federation of Haemophilia – Annual Global Survey 2016

# Global haemophilia market is growing by high-single digit

## Sales of recombinant coagulation factors



<sup>1</sup> Obizur® only indicated for acquired haemophilia

<sup>2</sup> CAGR for 5-year period

Source: Company reported sales

changing  
diabetes®

## Strategic positioning of Novo Nordisk's haemophilia portfolio

Novo Nordisk compound	Status	Strategic position
NovoSeven®	Launched	Maintain market leadership
NovoEight®	Launched	Establish presence in a competitive market place
N8-GP	Submitted <sup>3</sup>	Contribute to market conversion
Refixia®/ Rebinyn®	Approved <sup>4</sup>	Contribute to new treatment paradigm
NovoThirteen®	Launched	Launch first recombinant product

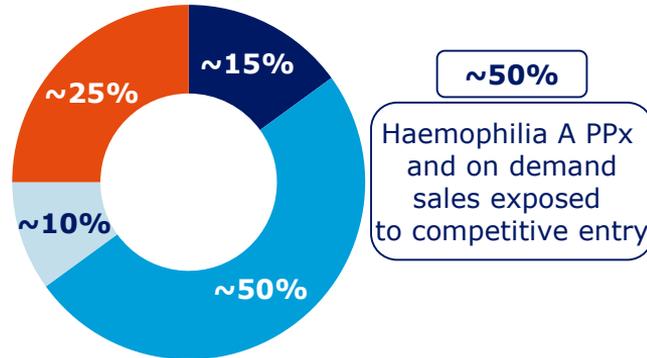
<sup>3</sup> Submitted in the USA, the EU and Japan

<sup>4</sup> Refixia® is the global brand name and Rebinyn® is the brand name in North America



# ~50% of historic NovoSeven® sales exposed to competition, but opportunities remain in other indications

## Estimated NovoSeven® sales by indication<sup>1</sup>



**NovoSeven® sales of DKK 7.9 billion<sup>3</sup>**

<sup>1</sup> Based on internal Novo Nordisk estimate

<sup>2</sup> Other indications include areas like acquired haemophilia, Glanzmann's thrombastenia and congenital FVII deficiency

<sup>3</sup> Reported sales for full year 2018

CHwI: Congenital haemophilia with inhibitors; PPx: Prophylaxis; A&B: Haemophilia A and B

## Opportunities and challenges for NovoSeven® franchise

### Challenge

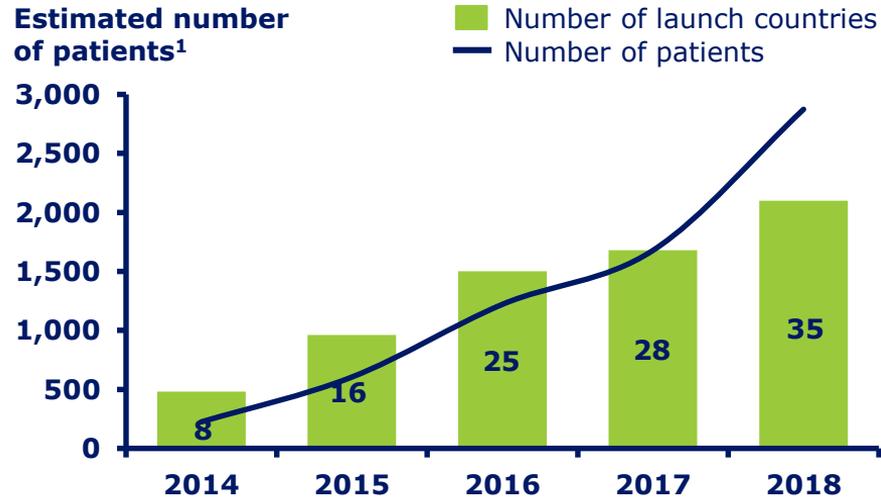
- Roche's emicizumab launched recently, leading to intensified competition in the segment for haemophilia A with inhibitors

### Opportunities

- Maintain position as preferred agent for all bleeds including breakthrough bleeds for patients on prophylactic treatment
- Improving diagnosis and treatment of select indications outside of haemophilia A with inhibitors with special focus on acquired haemophilia
- Drive development of NovoSeven® franchise in underdeveloped Chinese market following inclusion on National Drug Reimbursement List

# NovoEight® volumes continue to grow despite increasing penetration of long-acting FVIII products

## NovoEight® roll-out continues and the number of patients has steadily increased



## NovoEight® has potential to increase volume share in selected segments and markets

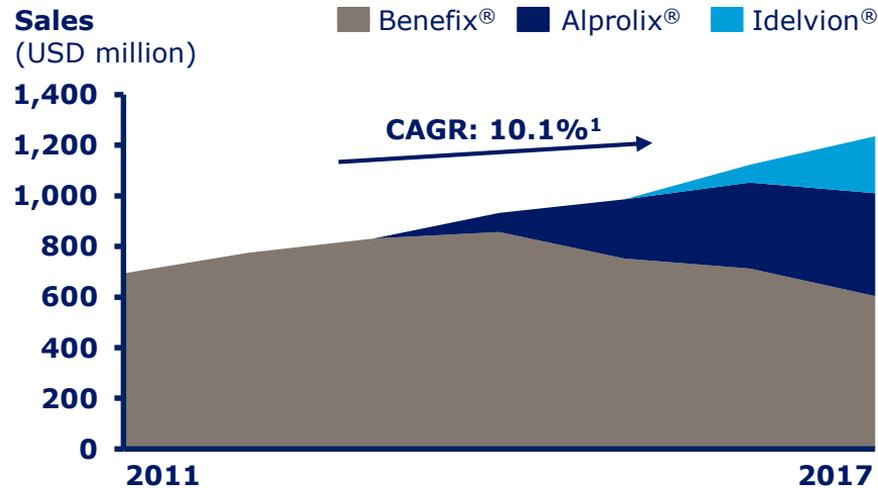
### Competitive positioning for NovoEight®

- Temperature stability at high room temperature and best-in-class portability
- Uptake driven by Novo Nordisk's strong customer focus and company recognition within the haemophilia community
- Continued volume growth especially in less mature markets with tender opportunities, despite increasing penetration of long-acting FVIII products

<sup>1</sup> Novo Nordisk estimated accumulated patient number. Patient number in 2018 as of November 2018  
FVIII: Coagulation factor VIII

# Strong growth in the long-acting haemophilia B market and Refixia<sup>®</sup>/Rebinyn<sup>®</sup> has been launched in twelve countries

## Reported recombinant FIX sales



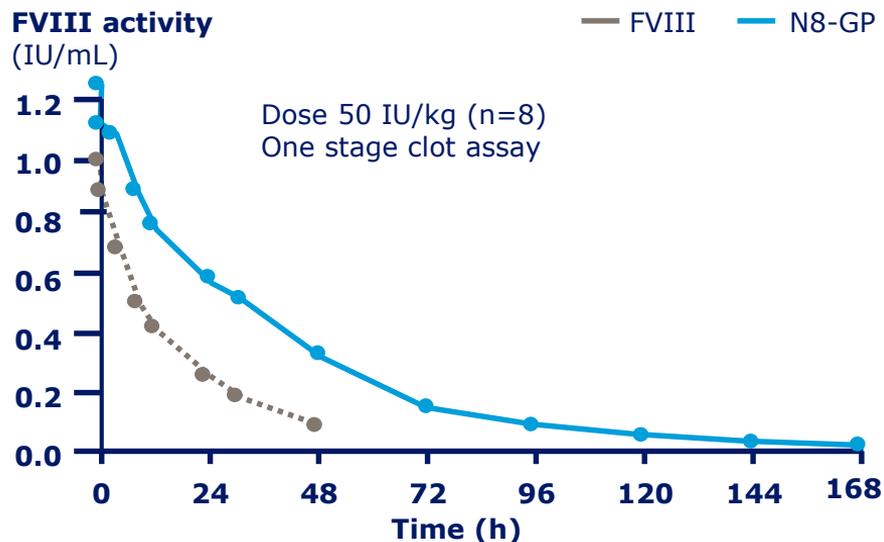
## Refixia<sup>®</sup>/Rebinyn<sup>®</sup> launched in twelve countries

- Launched in the first EU countries in 2017
- Launched in the USA in February 2018
- Approved in Japan in July 2018
- Refixia<sup>®</sup>/Rebinyn<sup>®</sup> offers a unique clinical profile that brings factor levels into the non-haemophilia range for adults and adolescents
- Dialogue ongoing with the FDA and the EMA to establish path forward to obtain routine prophylaxis indication in the USA and complete paediatric indication in Europe to include children younger than 12 years old

<sup>1</sup> CAGR for 6-year period  
 FIX: Coagulation factor IX  
 Source: Company reports (does not include Rixubis<sup>®</sup> as sales are not reported separately)

# N8-GP administered every fourth day reduces median bleeding rate to 1.3 episode per year in phase 3 trial

## N8-GP phase 1 pharmacokinetics



Source: Tiede et al. J Thromb Haemot. 2013;11:670-675

## Pathfinder 2 headline results (phase 3)

- PK documented single dose half-life of 18.4 hours and mean trough level before next dose of 3%
- Patients on every fourth day prophylaxis (50 IU/kg) had a median ABR of 1.3
- 95% of mild to moderate bleeds managed with 1-2 doses
- N8-GP appeared to have a safe and well tolerated profile
- One patient developed inhibitors, as expected in a population of previously treated haemophilia A patients

### Pathfinder 2 extension trial results

- 55 patients with  $\leq 2$  bleeds during 6 months in the main phase were randomised 2:1 to either once-weekly (75 IU/kg) or every fourth day (50 IU/kg) treatment for 180 days<sup>1</sup>
- Patients in both treatment arms had a median ABR of 0

### Next steps

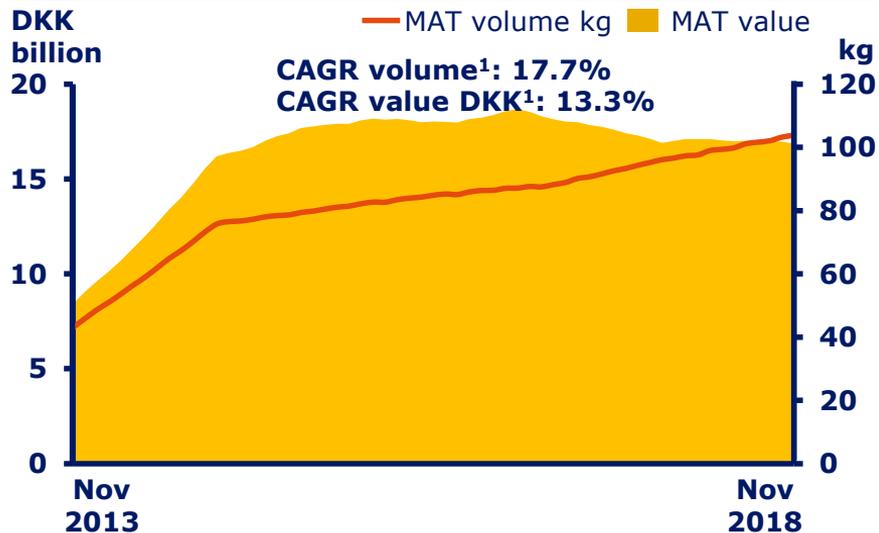
- Awaiting regulatory decisions in the USA, the EU and Japan

PK: Pharmacokinetic; ABR: Annualised bleeding rate; IU: International unit

<sup>1</sup> Prophylaxis 75 IU/kg every 7 days (n=38) or prophylaxis 50 IU/kg every 4 days (n=17)

# Novo Nordisk maintains leadership within growth disorder

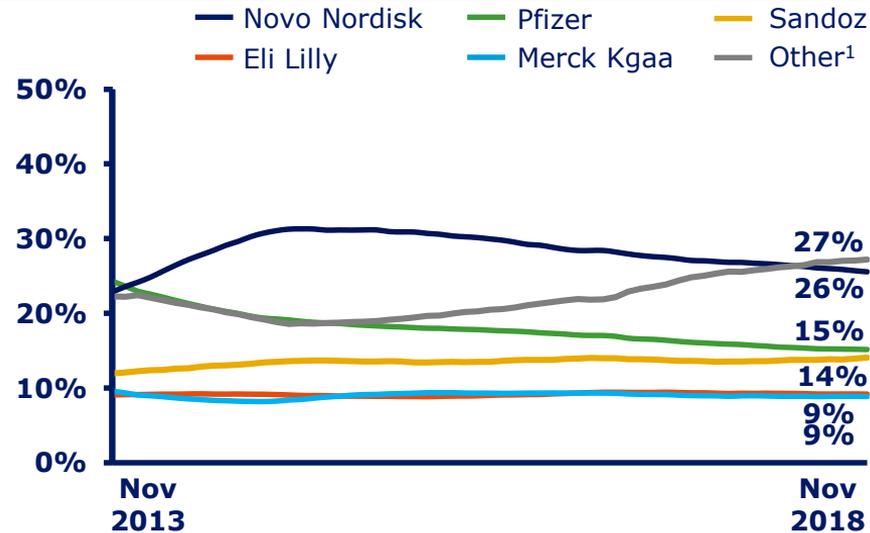
## Development in global growth disorder market



<sup>1</sup> CAGR for 5-year period

Source: IQVIA monthly MAT Nov, 2018 volume figures and value figures

## Growth disorder volume market share



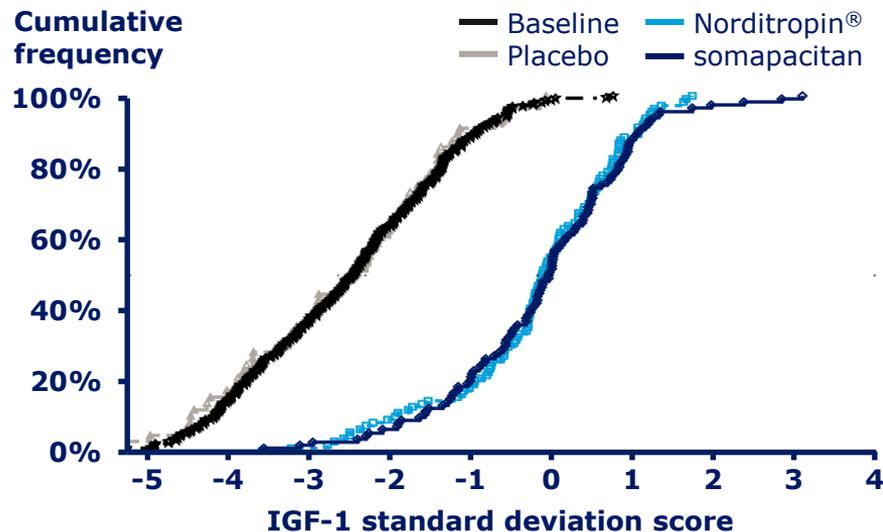
Source: IQVIA monthly MAT Nov, 2018 volume figures

Note: Does not add up to 100% due to rounding

<sup>1</sup> 'Other' consists of more than 20 other companies with no single company holding more than 9% volume market share

# Phase 3 extension trial in adults and phase 2 trial in children for once-weekly somapacitan

## Somapacitan IGF-1 levels similar to daily Norditropin® in REAL 1 phase 3 AGHD trial



## Phase 3a AGHD extension trial and phase 2 GHD successfully completed

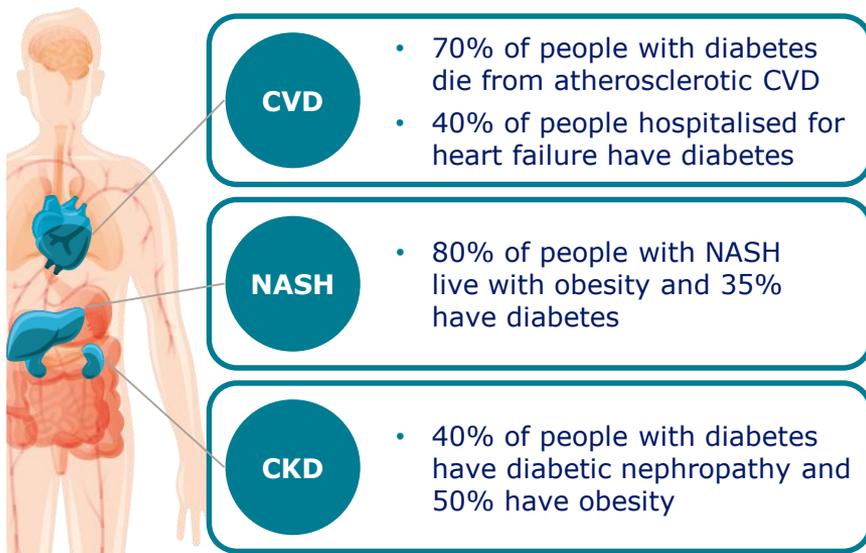


IGF-1: Insulin-like growth factor 1; AGHD: Adult growth hormone deficiency  
Source: Novo Nordisk data on file; REAL 1, NN8640-4054

AGHD: Adult growth hormone deficiency GHD: Growth hormone deficiency; SGA: Small for gestational age

# Other serious chronic diseases

## Serious chronic diseases are often associated with diabetes and obesity



CVD: Cardiovascular disease; NASH: Non-alcoholic Steatohepatitis; CKD: Chronic kidney disease  
Source: Diabetes Care 2005 Jan; 28(1): 164-176

## New therapeutic areas represent patient populations with high unmet medical needs

	Estimated patients	Number of related deaths
<b>CVD</b>	~420 million	~20 million annually

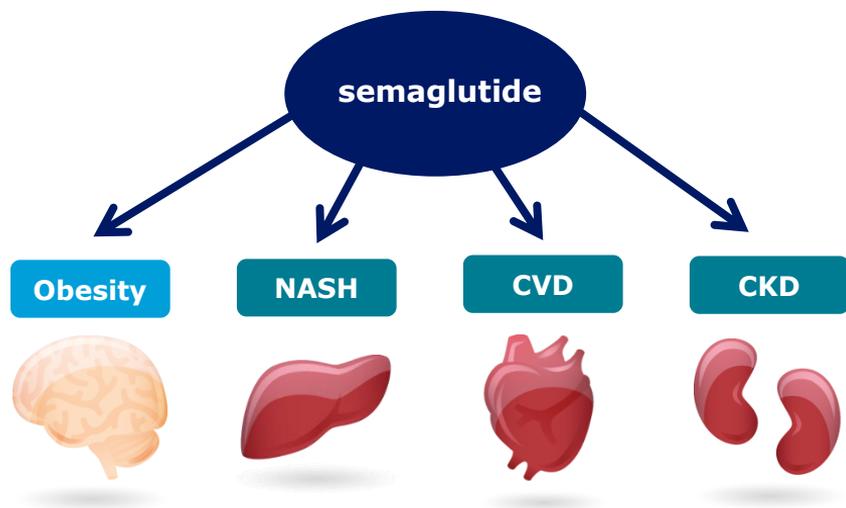
	Estimated patients	Diagnosis rate
<b>NASH</b>	~15-40 million <sup>1</sup>	~20% <sup>2</sup>
<b>CKD</b>	~200 million	~20%

<sup>1</sup> Internal forecast comprising the USA, Europe and Japan

<sup>2</sup> Diagnosis rate is considered a major uncertainty to the forecast  
Source: Abera SF et al. Global, Regional, and National Burden of Cardiovascular Diseases for 10 Causes, 1990 to 2015, 2017; Heart Disease and Stroke Statistics, American Heart Association, 2017; Williams CD et al. Prevalence of nonalcoholic fatty liver disease and nonalcoholic steatohepatitis among a largely middle-aged population utilizing ultrasound and liver biopsy, 2011; Addressing the global burden of chronic kidney disease through clinical and translational research, 2014

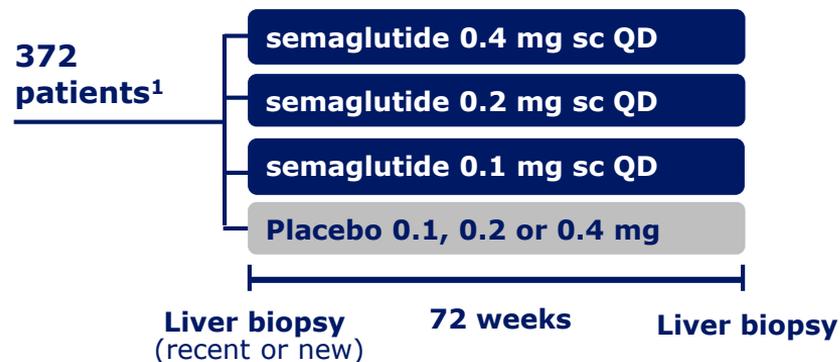
# Trials in obesity and other serious chronic disease areas building on the semaglutide molecule

## Planned or ongoing trials with semaglutide addressing other serious chronic diseases



CVD: Cardiovascular disease; NASH: Non-alcoholic steatohepatitis; CKD: Chronic kidney disease

## Ongoing phase 2 trial with daily semaglutide vs placebo in patients with NASH



### Next steps:

- Phase 2 trial expected to complete 2020

<sup>1</sup> Inclusion criteria: Histological confirmation of NASH, BMI 25–45 kg/m<sup>2</sup>, NASH fibrosis stage 2 or 3, Histological NAFLD Activity Score ≥ 4  
mg: Milligram; sc: Subcutaneous; QD: Once-daily; MR: Magnetic resonance;  
NAFLD: Non-alcoholic fatty liver disease; NASH: Non-alcoholic steatohepatitis

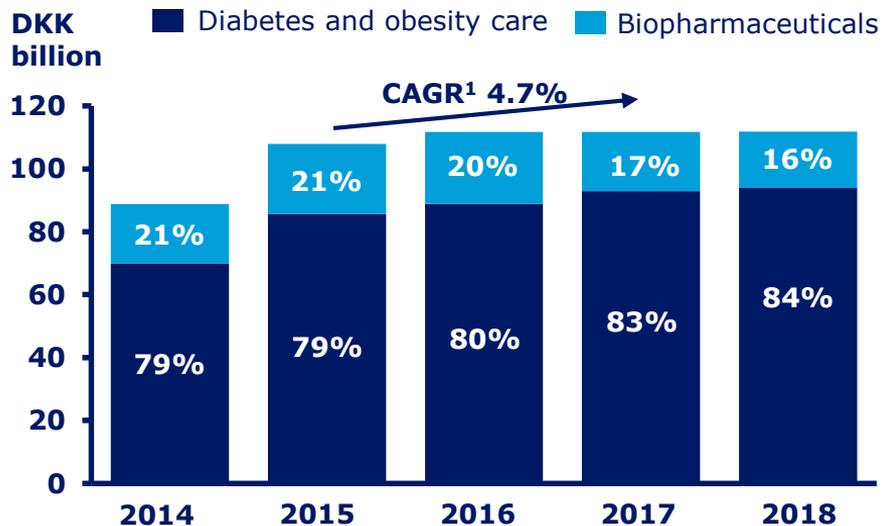
# Financials



- |  |            |
|--|------------|
| <b>1. Sales growth</b>                         | <b>106</b> |
| <b>2. Operating Profit growth</b>              | <b>108</b> |
| <b>3. Cost distribution</b>                    | <b>109</b> |
| <b>4. COGS &amp; CAPEX as percent of sales</b> | <b>110</b> |
| <b>5. Long-term financial targets</b>          | <b>111</b> |
| <b>6. Cash return to shareholders</b>          | <b>112</b> |
| <b>7. Currency impact</b>                      | <b>113</b> |
| <b>8. Ownership structure</b>                  | <b>116</b> |

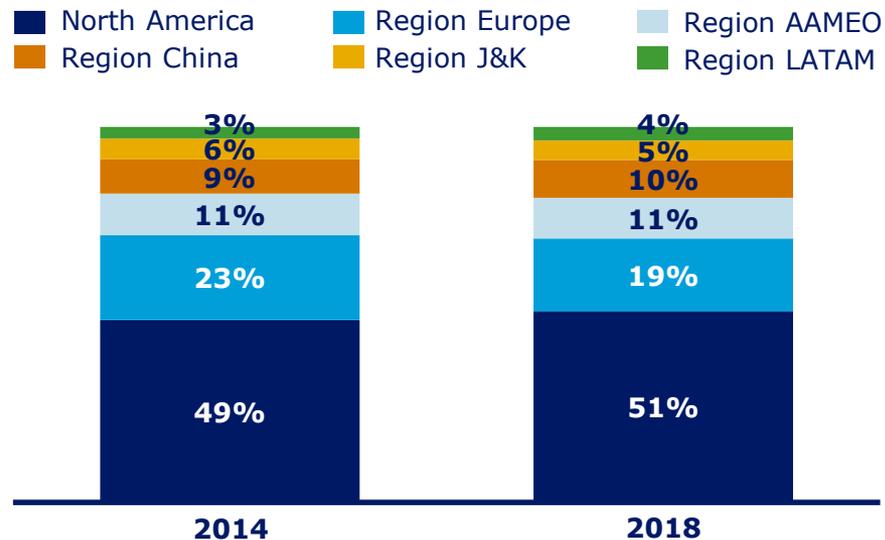
# Solid sales growth driven by diabetes care and obesity

## Reported annual sales 2014-2018



<sup>1</sup> CAGR for 5-year period

## Reported annual sales split by region



AAMEO: Africa, Asia, Middle-East and Oceania; J&K: Japan and Korea; LATAM: Latin America

# Sales per key product for Q4 2018 and full year 2018

Reported currencies	Sales Q4 2018 (mDKK)	Sales split	Sales full year 2018 (mDKK)	Sales split
Tresiba®	2,172	7%	8,035	7%
Levemir®	2,832	10%	11,195	10%
Fiasp®	206	1%	590	1%
NovoRapid®	4,824	16%	18,763	17%
NovoMix®	2,239	8%	9,480	8%
Victoza®	6,500	22%	24,333	22%
Ozempic®	992	3%	1,796	2%
Saxenda®	1,229	4%	3,869	3%
<b>Diabetes care and obesity<sup>1</sup></b>	<b>24,897</b>	<b>84%</b>	<b>93,904</b>	<b>84%</b>
NovoSeven®	1,956	7%	7,881	7%
NovoEight®	396	1%	1,354	1%
Norditropin®	1,962	7%	6,834	6%
<b>Biopharmaceuticals<sup>1</sup></b>	<b>4,835</b>	<b>16%</b>	<b>17,927</b>	<b>16%</b>
<b>Total<sup>1</sup></b>	<b>29,732</b>	<b>100%</b>	<b>111,831</b>	<b>100%</b>

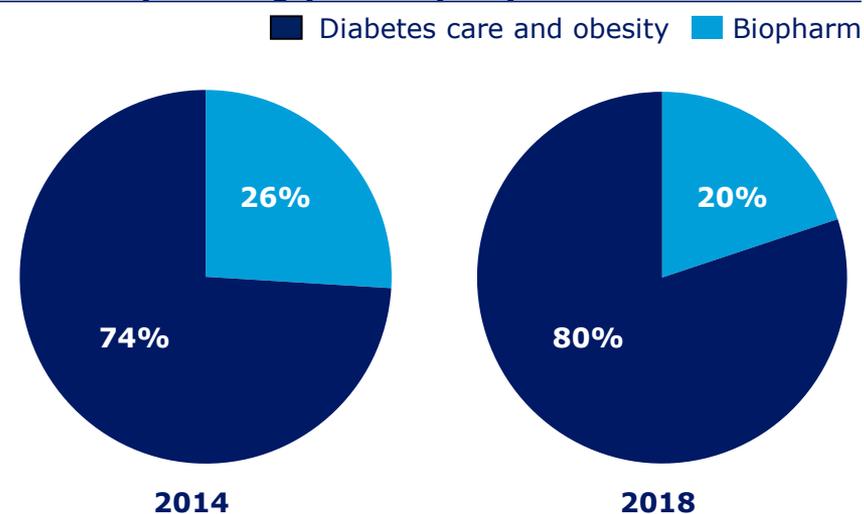
<sup>1</sup> Values are higher than the sum of the total elements listed due to residual values from products not listed

# Solid operating profit growth driven by diabetes

## Operating profit



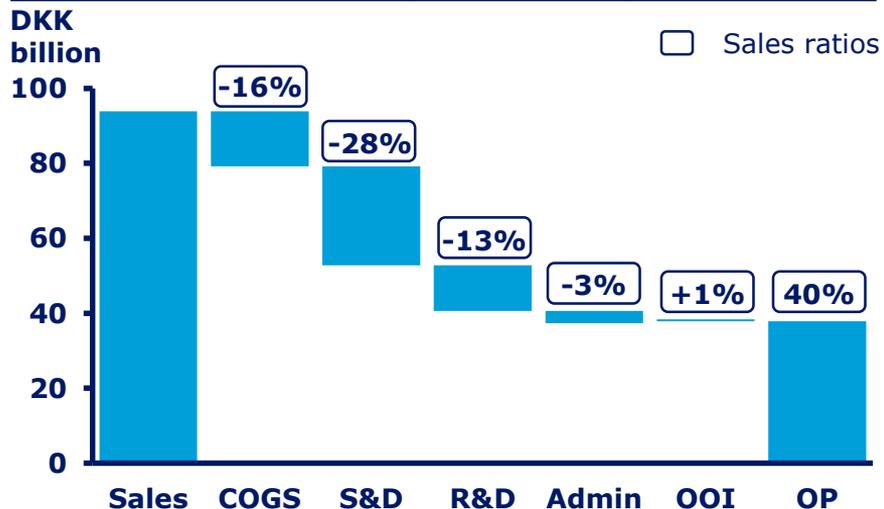
## Operating profit split per franchise



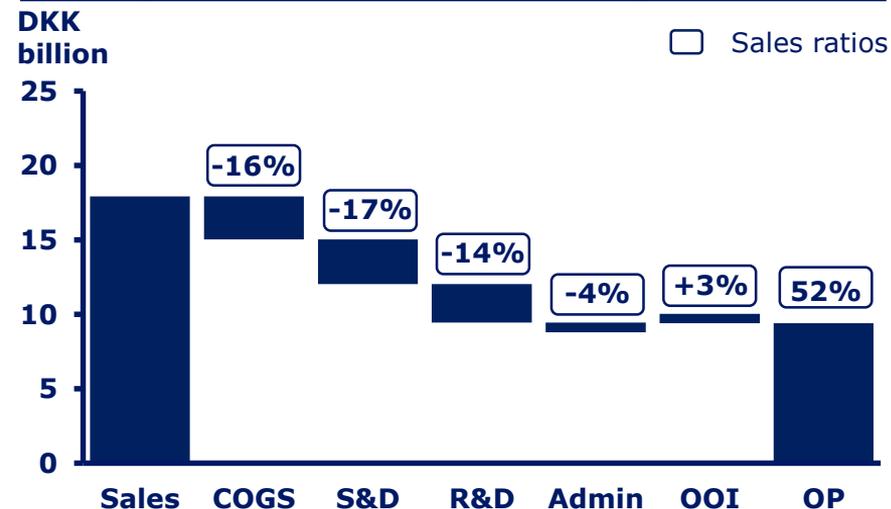
\* Adjusted for the partial divestment of NNIT A/S and inflammatory out-licensing in 2015

# Higher profitability in the biopharmaceuticals segment driven by lower S&D costs

## Diabetes & Obesity P&L – full year 2018

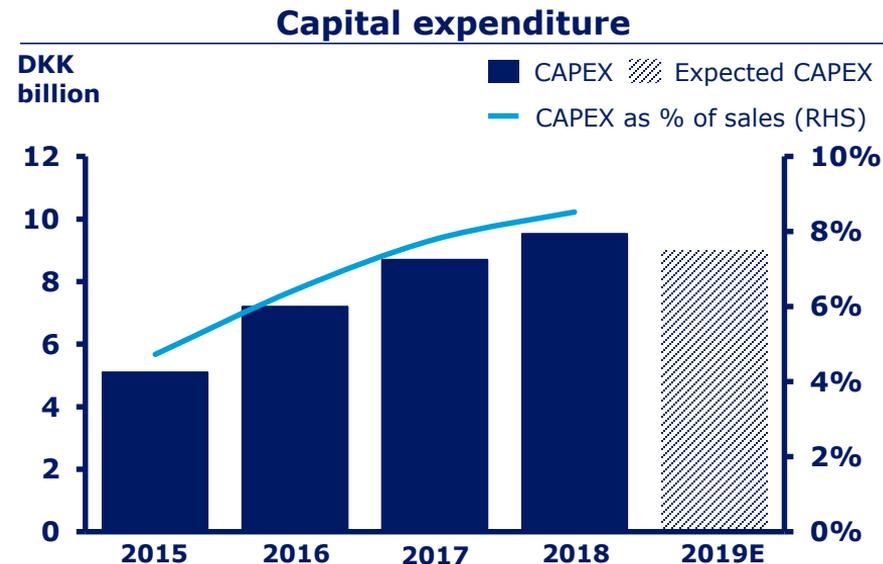
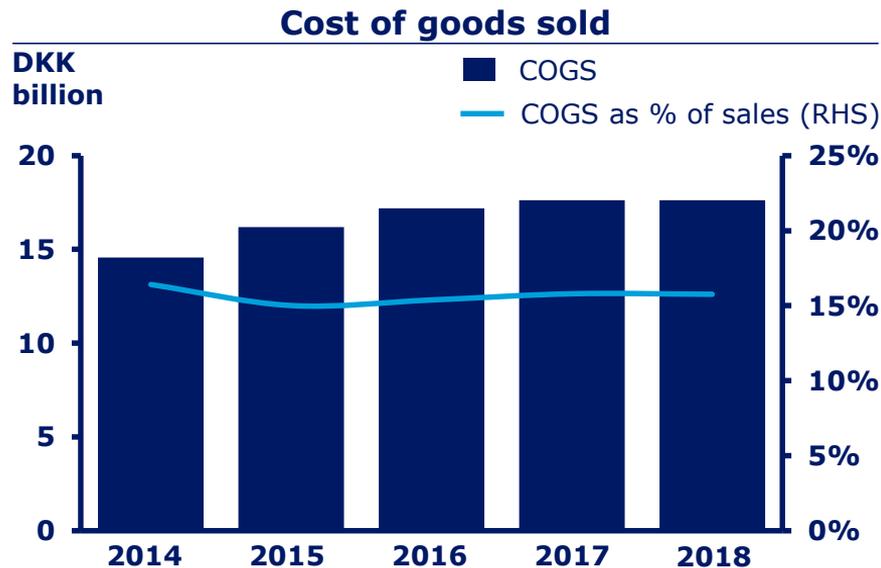


## Biopharmaceuticals P&L – full year 2018



P&L: Profit and Loss; COGS: Cost of goods sold; OOI: Other operating income; OP: Operating profit; S&D: Sales and distribution costs; R&D: Research and development costs; Admin: Administrative costs

# Stable COGS level as percentage of sales and increasing CAPEX level for new production facilities

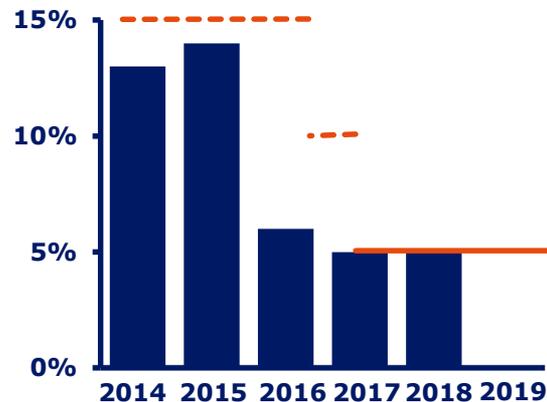


COGS: Cost of goods sold; CAPEX: Capital expenditure; RHS: Right hand side

# Long-term financial targets support focus on profitable growth, capital allocation and cash conversion

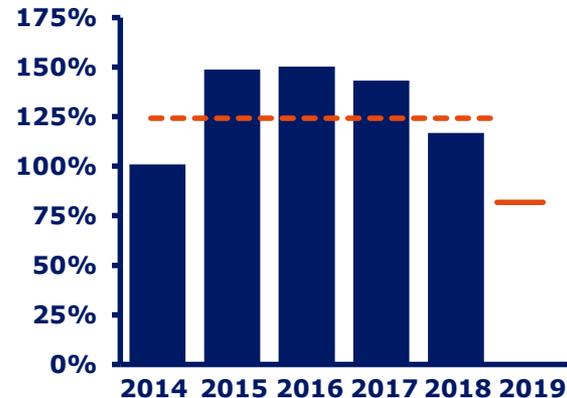
## Operating profit growth in local currencies

- Current long-term financial target<sup>1</sup>
- - - Previous long-term financial targets



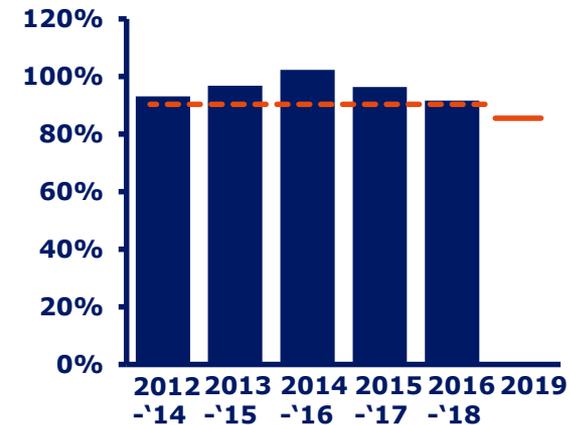
## Operating profit after tax to net operating assets

- Current long-term financial target<sup>1</sup>
- - - Previous long-term financial targets



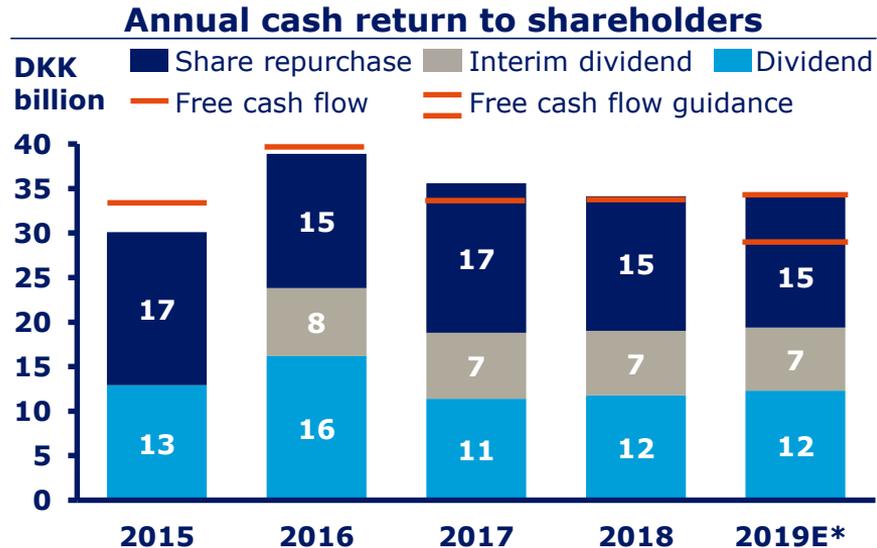
## Cash to earnings (three-year average)

- Current long-term financial target<sup>1</sup>
- - - Previous long-term financial targets



<sup>1</sup> Long-term target established in connection with the Q3 2016 report. The target of an average operating profit growth of 5% is an average for the period of 3-5 years, with 2015 as the base year. Operating profit after tax to net operating assets target adjusted from 125% to 80% starting in 2019. Cash to earnings (three year average) target adjusted from 90% to 85%. Operating profit growth target unchanged at 5%. Note: The long-term financial targets are based on an assumption of a continuation of the current business environment; 2015 and 2016 figures are adjusted for the partial divestment of NNIT A/S and inflammatory out-licensing in 2015

# Cash return to shareholders in 2019



## Cash return priorities

- New share repurchase programme of up to DKK 15 billion to be executed during the coming 12 months
- Total programme may be reduced in size if significant bolt-on acquisition opportunities arise during 2019
- For 2018, the proposed total dividend increased 4% to DKK 8.15 per share of DKK 0.20 (including interim dividend of DKK 3.00 per share paid in August 2018), resulting in a total pay-out ratio of 50.6%.

Note: For 2019 expected free cash flow is DKK 29-34 billion. Share repurchase programmes run for 12 months starting Feb until end Jan of the following year.

# Currency impact on Novo Nordisk's P/L

## Operational currency impact

- All movements in currencies will directly impact the individual reported functional lines of the Novo Nordisk's profit and loss statement
- The currency effect on e.g. operating profit growth is the difference between the reported and the local operating profit growth
- Key currencies account for around 65-85% of the total currency exposure
- No hedging effects are included in the operating profit

INCOME STATEMENT	2018	2017
DKK million		
Net sales	111,831	111,696
Gross profit	94,214	94,064
Gross margin	84.2%	84.2%
Sales and distribution costs	29,397	28,340
Percentage of sales	26.3%	25.4%
Research and development costs	14,805	14,014
Percentage of sales	13.2%	12.5%
Administrative costs	3,916	3,784
Percentage of sales	3.5%	3.4%
Other operating income, net	1,152	1,041
Operating profit	42,248	48,967
Operating margin	42.2%	43.8%
Financial items (net)	367	(287)
Profit before income taxes	47,615	48,680
Income taxes	8,907	10,550
Effective tax rate	18.9%	21.7%
Net profit	38,628	38,130
Net profit margin	34.5%	34.1%

## Financial currency impact

- All gain/losses from hedging contracts are included in the financial income/expenses
- All key currencies are hedged:
  - USD 11 months
  - CNY 6 months
  - JPY 12 months
  - GBP 11 months
  - CAD 9 months
- Hedging is primarily performed with the use of forward contracts
- Net financials includes hedging gain/loss including the cost of hedging (interest differential) and the effect from currency gain/losses of balances in non-hedged currencies.

Note: Example is based on Annual Report 2018

# Currency impact on operating profit

## Operational currency impact

### Operational currency impact in 2018

- The operational currency impact is the difference between e.g. operating profit growth in reported currency (Danish kroner) and operating profit growth in local currencies
- In 2018 the operating profit was:
  - In Danish kroner: 47,248 million
  - In local currencies: 50,346 million
  - Currency impact: **-3,098 million**

### Estimation of operational currency impact from key currencies

- Novo Nordisk guides on currency sensitivity of key currencies in quarterly announcements
- Sensitivity table gives an indication of gain/loss of a 5% immediate change in exchange rates compared to exchange rates on announcement day
- Key currencies account for around 65-85% of the currency exposure

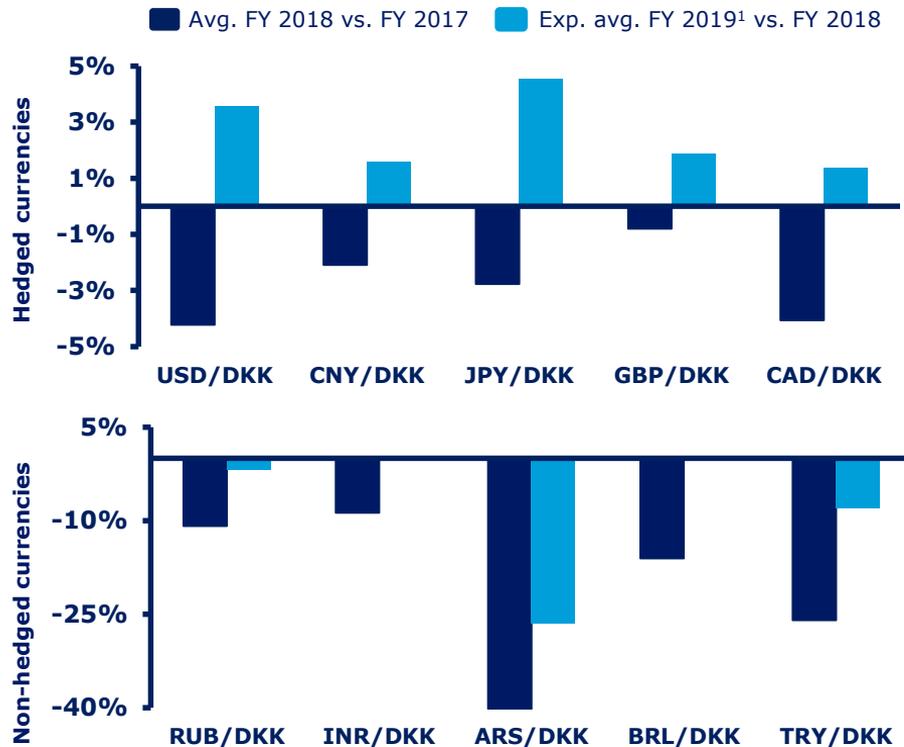
### Estimation of operational currency impact from other currencies

- Significant changes in other currencies will additionally impact the operational currency in exposure
- In 2018, the depreciation of the ARS and TRY had an additional negative impact on the operational currency exposure.

Key currencies	Avg. FX rate 2017	Avg. FX rate 2018	%-change	Yearly impact of 5% change <sup>2</sup> (mDKK)	Estimated impact from key currencies
USD	660	632	-4%	1,900	-1,610
CNY	98	95	-2%	325	-142
JPY	5.9	5.7	-3%	170	-93
GBP	849	842	-1%	90	-13
CAD	508	488	-4%	80	-65
<b>Total estimated currency impact from key currencies in 2018</b>					<b>-1,924</b>
ARS	0.4	0.2	-40%		
TRY	181	134	-26%		
INR	10.1	9.2	-9%		
RUB	11.3	10.1	-11%		
BRL	207	174	-16%		
<b>Total currency impact from other currencies in 2018 (residual)</b>					<b>-1,173</b>
<b>Total currency impact in 2018</b>					<b>-3,098</b>

<sup>1</sup> Yearly impact on operating profit for next 12 months. Estimates reflected in Annual Report 2018; <sup>2</sup> Yearly impact on operating profit for next 12 months as reported in the Annual Report 2017  
 FX: Foreign exchange

# Unfavourable currency impact in 2018 primarily driven by unhedged currencies



Hedged Currencies	2017 average	2018 average	Spot rate <sup>3</sup>	Impact of a 5% move <sup>4</sup>	Hedging (months)
USD <sup>2</sup>	660	632	654	2,000	11
CNY <sup>2</sup>	98	95	97	350	6 <sup>5</sup>
JPY <sup>2</sup>	5.9	5.7	6.0	160	12
GBP <sup>2</sup>	849	843	860	85	11
CAD <sup>2</sup>	508	489	494	90	9

Non-hedged Currencies	2017 average	2018 average	Spot rate <sup>3</sup>
ARS <sup>2</sup>	0.4	0.2	0.2
TRY <sup>2</sup>	181	133	134
INR <sup>2</sup>	10.1	9.2	9.2
RUB <sup>2</sup>	11.3	10.1	10.1
BRL <sup>2</sup>	207	174	174

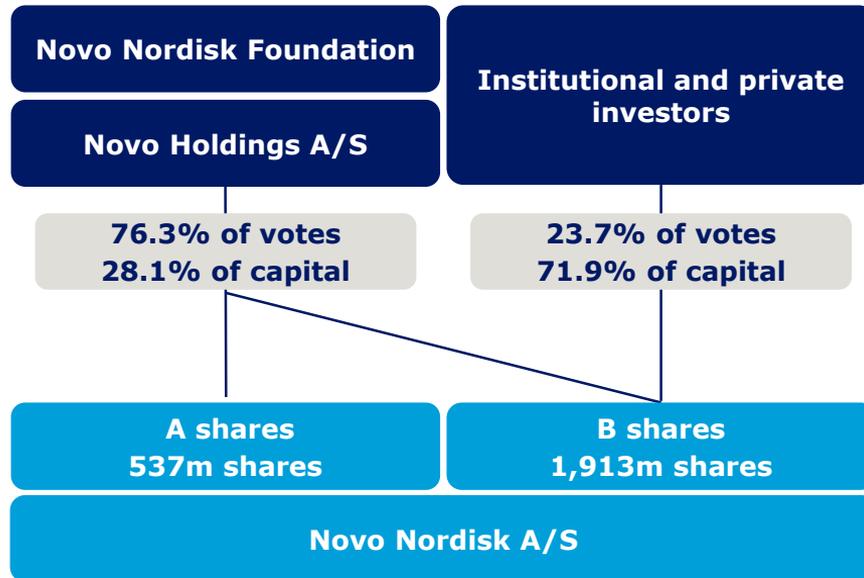
<sup>1</sup> Year-to-date realised data and remainder expected flat currency development based on the spot rate as of 28 January 2019

<sup>2</sup> DKK per 100; <sup>3</sup> Spot rate as of 28 Jan 2019; <sup>4</sup> Impact on operating profit in the next 12 months of a 5% immediate currency move. DKK million per annum; <sup>5</sup> Chinese Yuan traded offshore (CNH)  
Note: Operating profit impact of one of the non-hedged currencies appreciating 5% is in the range of DKK -15 to +50 million

# Stable ownership structure

- secured through A and B-share structure

## Share structure



Note: As of 5 Nov 2018. Treasury shares are included in the capital but have no voting rights

## The Novo Nordisk Foundation

- The Novo Nordisk Foundation is a self-governing institution that
  - provides a stable basis for Novo Nordisk and
  - supports scientific, humanitarian and social purposes
- All strategic and operational matters are governed by the board and management of Novo Nordisk
- Overlapping board memberships ensure that the Novo Nordisk Foundation and Novo Nordisk share vision and strategy

# Sustainability



changing  
diabetes®

1. Sustainable business

118

2. Novo Nordisk Way and Triple Bottom Line

119

3. Changing Diabetes®

120

4. Circular for Zero

122

# Novo Nordisk's ambition is to be a sustainable business

**By sustainable  
business,  
we mean**

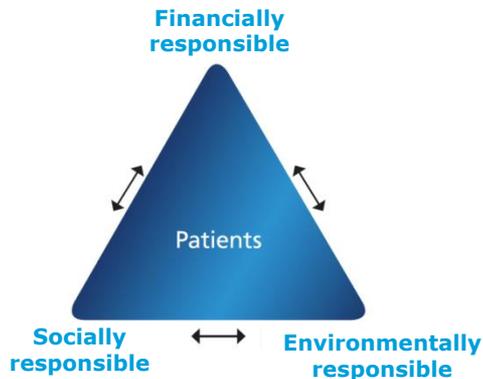
...creating **long-term value** for patients, employees, partners and shareholders by developing innovative and competitive solutions to patients' unmet needs

...doing business in a financially, environmentally and socially **responsible way**

...**anticipating, adapting to and creating** new business opportunities from changes in our business environment

# The Triple Bottom Line is the foundation for how Novo Nordisk creates value and stays successful

## The Triple Bottom Line Business Principle



The **Triple Bottom Line Principle**, anchored in the **Articles of Association**, guides how we do business responsibly and how we make decisions that consider the interests of stakeholders and the long-term interests of our shareholders

## The Novo Nordisk Way



The **Novo Nordisk Way** sets direction, unites us around a common purpose and spells out expected behaviours in a way that is consistent understood by everyone

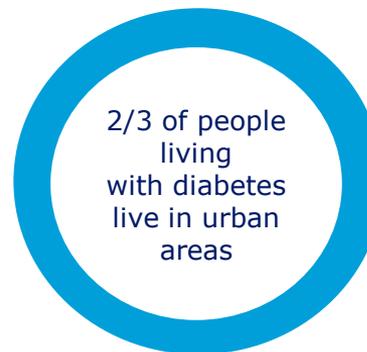
# Cities Changing Diabetes™ aims to break the 'Rule of Halves' by tackling urban diabetes

Global partnership platform to develop an approach to fight urban diabetes

At present nineteen partner cities with more than 130 million citizens



- Map the challenge in selected cities
- Share learning and best practices on how to break the 'Rule of Halves'
- Implement action plans with local partners



- Beijing
- Beirut
- Buenos Aires
- Copenhagen
- Hangzhou
- Houston
- Jakarta
- Johannesburg
- Koriyama
- Leicester
- Madrid
- Merida
- Mexico City
- Milan
- Rome
- Shanghai
- Tianjin
- Vancouver
- Xiamen

Urban diabetes: Type 2 diabetes in cities

# Enhancing access to affordable medicines is a key priority

## Product quality and patient safety is material



**29.2 million** patients reached with diabetes care products



**5 million** people with diabetes treated at cost below USD 0.16 per day



**103 million DKK** donations to World Diabetes Foundation and Novo Nordisk Haemophilia Foundation



**3** product recalls  
**0** failed inspections

## Access to insulin commitment expanded

Novo Nordisk guarantees to make low-priced human insulin available in the world's least developed and low-income countries, selected middle-income countries and selected humanitarian relief organisations

**78 countries**, home of **124 million** people with diabetes



2018/2019 maximum price **4 USD/vial**  
**0.3 million<sup>1</sup>** people treated at USD 0.12 per day in average

Note: Full social statements to be found in Novo Nordisk Annual Report 2018

changing  
diabetes®

<sup>1</sup> This reflects the people covered by the 'Access to insulin commitment'.



# Novo Nordisk offers a healthy, engaging and inclusive workplace with development opportunities for employees

## Employee health, safety and engagement are key focus areas for management



~42,700 FTEs



91% employee engagement score



11.7% employee turnover



2.4 accidents with absence per million working hours

## Novo Nordisk is committed to building a diverse and inclusive culture



Note: Full social statements to be found in Novo Nordisk Annual Report 2018  
FTE: Full time employee

changing  
diabetes®

<sup>1</sup> All appointments to management positions, incl. internal promotions and external hires, excl. NNIT



# Novo Nordisk has set a bold ambition to have zero negative environmental impact – based on a circular mindset

## Use of resources, emissions and waste with a focus on recovery and re-use



**77% of power for production** is from renewable energy



**86% of water use** is in areas not subject to water stress or large seasonal variations



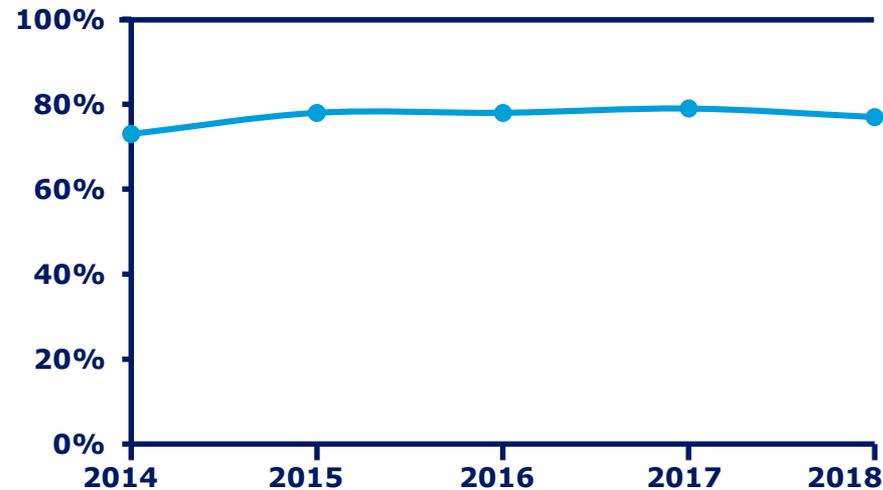
**Tracking of CO<sub>2</sub> emissions expanded** to global scope, covering production, product distribution, offices, laboratories, business flights and company cars



**94% of total waste** is recycled, used for biogas or recovered as energy for heat and power production

## On track to have all production sites run 100% on renewable power by 2020

— Target ● Realised



Note: Full environmental statements to be found in Novo Nordisk Annual Report 2018