



# novo nordisk – a focused healthcare company

Investor presentation  
First nine months of 2018

Shirley Adelia Stewart has type 2 diabetes  
New Orleans, Louisiana, US



# 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 2017 and Form 20-F, which are both filed with the SEC in February 2018 in continuation of the publication of the Annual Report 2017, 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 the overview of risk factors in 'The Risks of Doing Business' on pp 40-43 of the Annual Report 2017.

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 – First nine months of 2018

## Sales development

- Sales decreased by 2% in Danish kroner and increased by 4% in local currencies to DKK 82.1 billion
  - International Operations sales increased by 2% in Danish kroner and grew by 8% in local currencies
  - North America Operations sales decreased by 6% in Danish kroner and increased by 1% in local currencies
  - The GLP-1 diabetes franchise increased by 18% in local currencies and accounted for 84% share of growth

## Research and Development

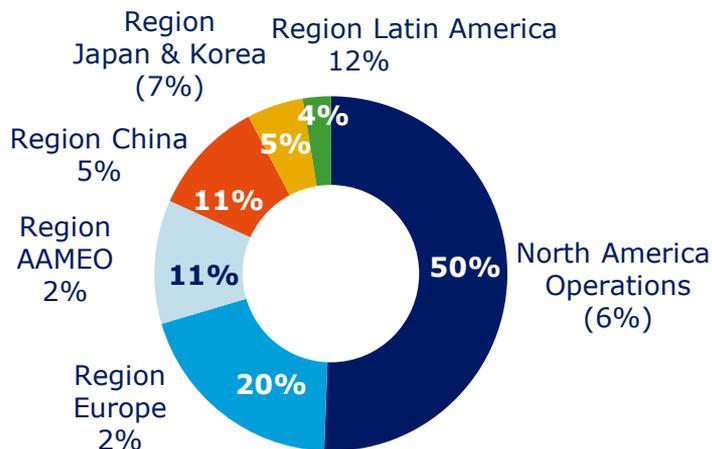
- Successful completion of additional three phase 3a trials with oral semaglutide; PIONEER 5, 8 and 10
- Phase 1 trial initiated with OG2023SC, a novel oral GLP-1
- Initiation of SELECT, a CVOT investigating efficacy of 2.4 mg subcutaneous semaglutide in people with overweight or obesity
- Successful completion of phase 2 trial explorer5 with concizumab

## Financials

- Operating profit decreased by 6% in Danish kroner and increased by 2% in local currencies to DKK 36.5 billion
- Operating profit adjusted for severance costs related to lay-offs in Q3 2018 increased by 4% in local currencies
- Net profit increased by 1% to DKK 30.1 billion and diluted earnings per share increased by 3% to 12.40 DKK per share
- 2018 financial outlook:
  - Sales growth is now expected to be 4-5% measured in local currencies (now around 4% lower reported)
  - Operating profit growth is still expected to be 2-5% measured in local currencies (still around 7% lower reported)
- The 2018 share repurchase programme is increased by DKK 1.0 billion to DKK 15 billion due to higher free cash flow outlook

# Sales growth driven by 8% growth in International Operations and 1% growth in North America Operations

## Sales as reported – first nine months of 2018



**Sales of DKK 82.1 billion (2%)**

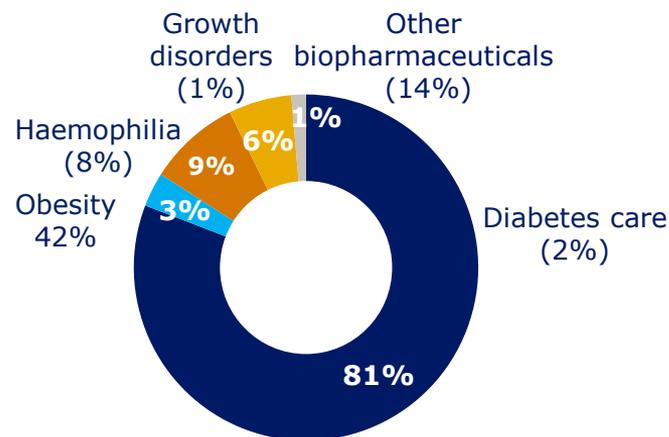
## Growth break down – first nine months of 2018

Local currencies	Growth	Share of growth
<b>North America Operations</b>	<b>1%</b>	<b>13%</b>
Hereof USA	1%	6%
<b>International Operations</b>	<b>8%</b>	<b>87%</b>
Region Europe	2%	11%
Region AAMEO	14%	36%
Region China	8%	17%
Region Japan & Korea	(3%)	(3%)
Region Latin America	35%	26%
<b>Total sales</b>	<b>4%</b>	<b>100%</b>

AAMEO: Africa, Asia, Middle East & Oceania  
The sales split does not add up to 100% due to rounding

# Sales growth of 4% measured in local currencies mainly driven by Victoza<sup>®</sup>, Ozempic<sup>®</sup> and Saxenda<sup>®</sup>

## Sales as reported – first nine months of 2018



Sales of DKK 82.1 billion (2%)

## Growth break down – first nine months of 2018

Local currencies	Growth	Share of growth
Long-acting insulin <sup>1</sup>	(2%)	(7%)
Premix insulin <sup>2</sup>	1%	3%
Fast-acting insulin <sup>3</sup>	(2%)	(7%)
Human insulin	1%	2%
<b>Total insulin</b>	<b>(1%)</b>	<b>(9%)</b>
GLP-1 <sup>4</sup>	18%	84%
Other diabetes care <sup>5</sup>	2%	1%
<b>Total diabetes care</b>	<b>4%</b>	<b>76%</b>
Obesity (Saxenda <sup>®</sup> )	53%	28%
<b>Diabetes care and obesity total</b>	<b>5%</b>	<b>104%</b>
Haemophilia <sup>6</sup>	(3%)	(6%)
Growth disorders (Norditropin <sup>®</sup> )	5%	6%
Other biopharmaceuticals <sup>7</sup>	(10%)	(4%)
<b>Biopharmaceuticals</b>	<b>(1%)</b>	<b>(4%)</b>
<b>Total</b>	<b>4%</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>

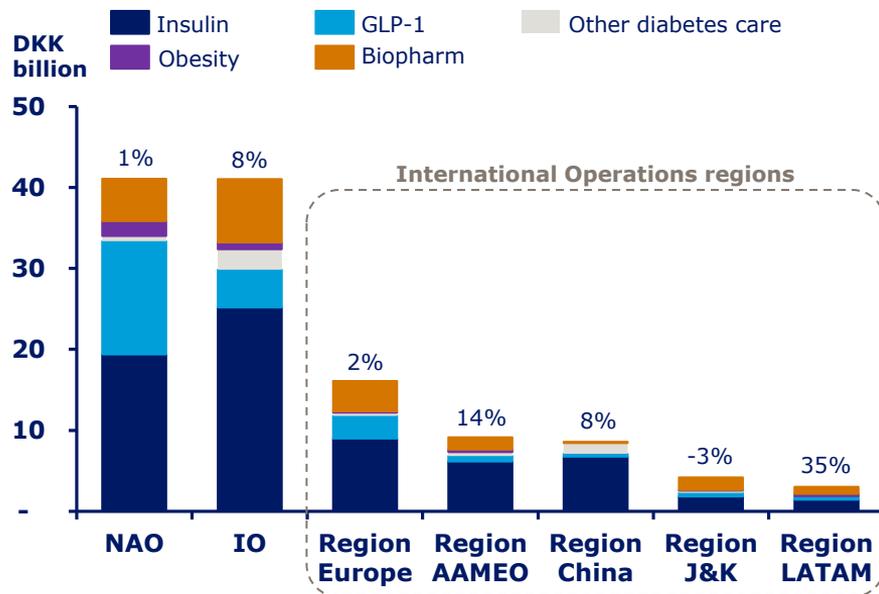
<sup>3</sup> Comprises Fiasp<sup>®</sup> and NovoRapid<sup>®</sup>; <sup>4</sup> Comprises Victoza<sup>®</sup> and Ozempic<sup>®</sup>

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

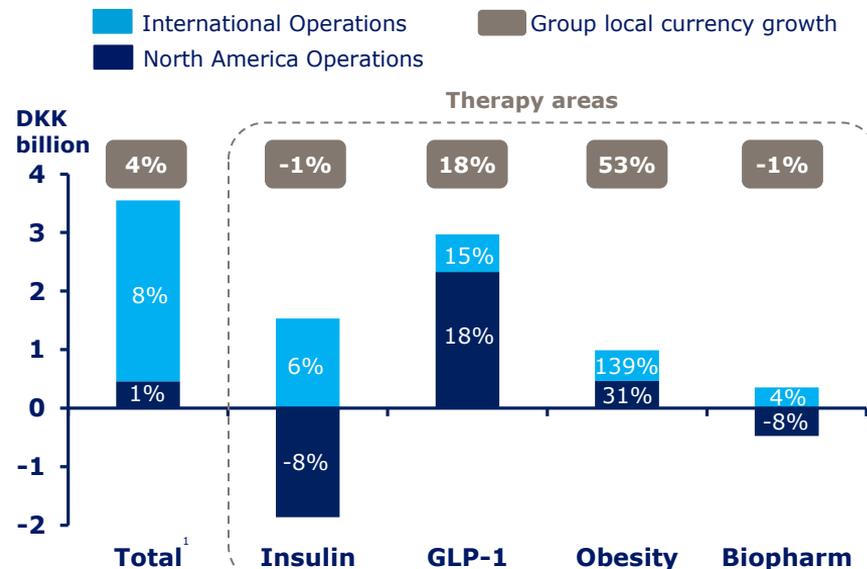
NovoThirteen<sup>®</sup> and Refixia<sup>®</sup>; <sup>7</sup> Primarily Vagifem<sup>®</sup> and Activelle<sup>®</sup>

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

## 9M 2018 reported sales split and local currency growth for NAO and IO



## 9M 2018 added sales 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; 9M: First nine months of 2018

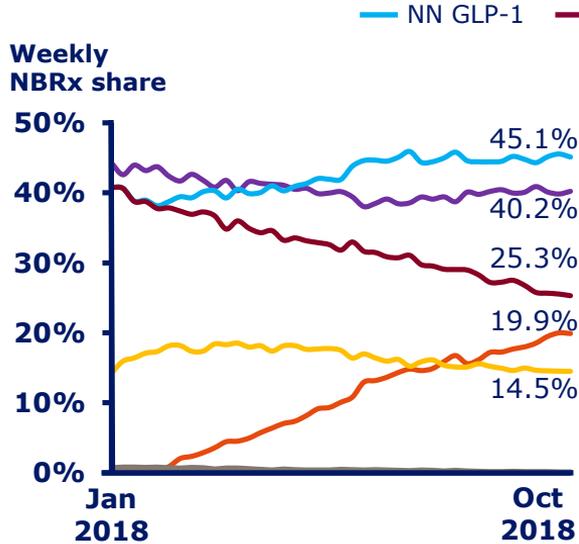
<sup>1</sup> "Other diabetes care" is included in Total.



# Ozempic® is now launched in seven countries leading to market share gains and expansion of the GLP-1 markets



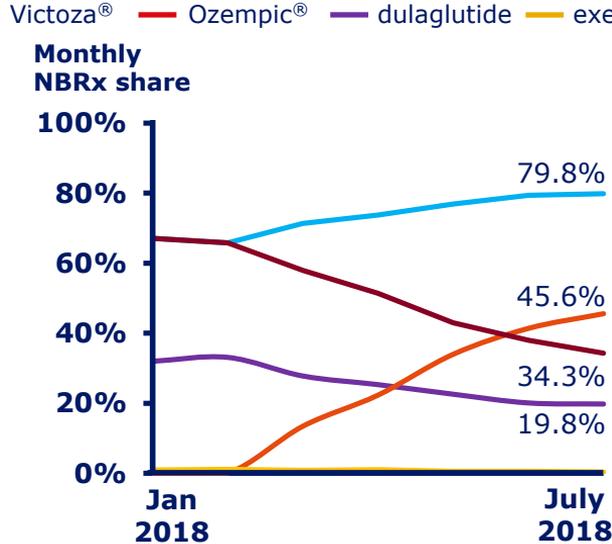
## USA GLP-1 NBRx market share



Source: NBRx-IQVIA LRx Weekly, week ending 12 October 2018  
Ozempic® has been launched in: the USA, Canada, Denmark, Switzerland, Ireland, Sweden and the Netherlands



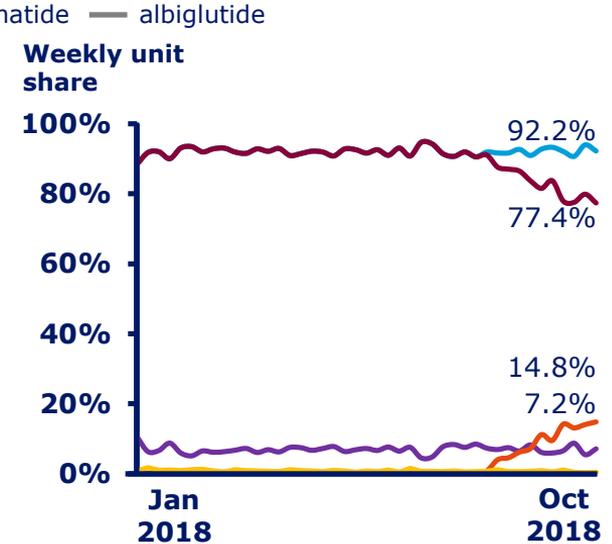
## Canada GLP-1 NBRx market share



Source: NBRx-IQVIA monthly, July 2018



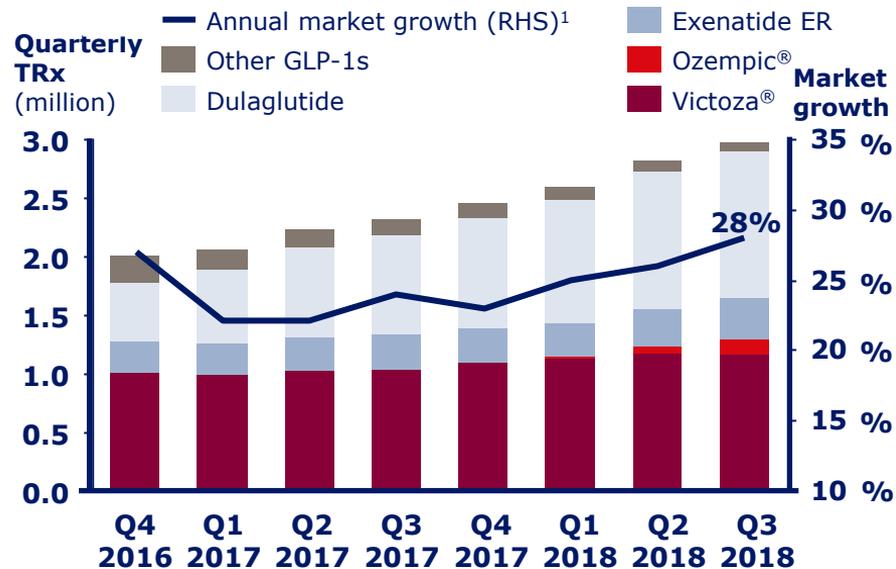
## Denmark GLP-1 volume market share



Source: Local sales data – Dansk lægemiddels information market intelligence, week ending 14 October 2018

# In the USA Victoza® CV indication and Ozempic® launch contribute to market growth and stabilising market share

## USA GLP-1 TRx market development

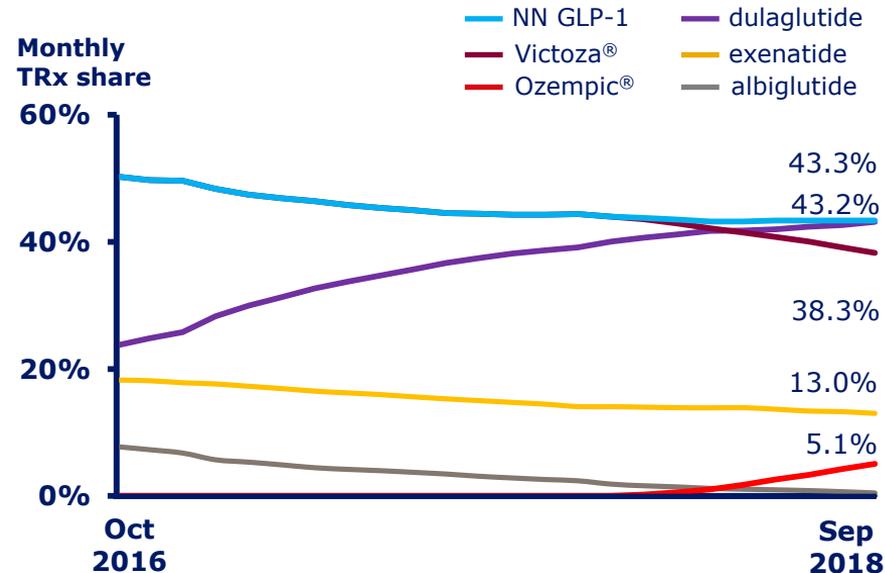


Source: IQVIA monthly NPA, September weekly NPA, week ending 5 October 2018

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

RHS: Right hand side

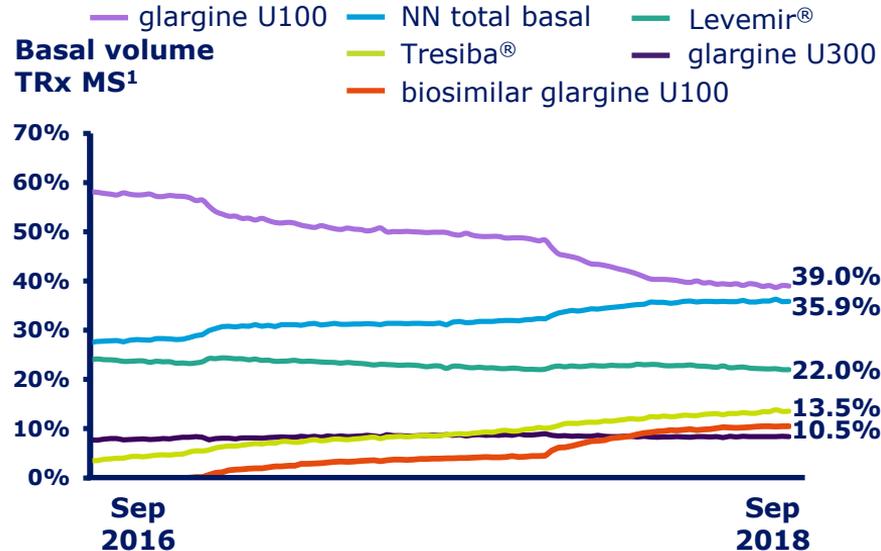
## USA GLP-1 volume market share



Source: IQVIA monthly NPA, August 2018; wNPA for September, week ending 5 October 2018

# Tresiba® has gained around 5%-points market share over the last 12 months in the USA

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



Note: The graph does not show NPH, which accounts for the residual market share  
 Source: IQVIA weekly Xponent Plantrak (\*excludes Medicaid), 14 September 2018  
 TRx volume: Insulin volume in mega units (MU) associated with total number of prescriptions;  
 VANTAGE FingerTip Formulary bridge, September 2018  
 MS: Market share

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

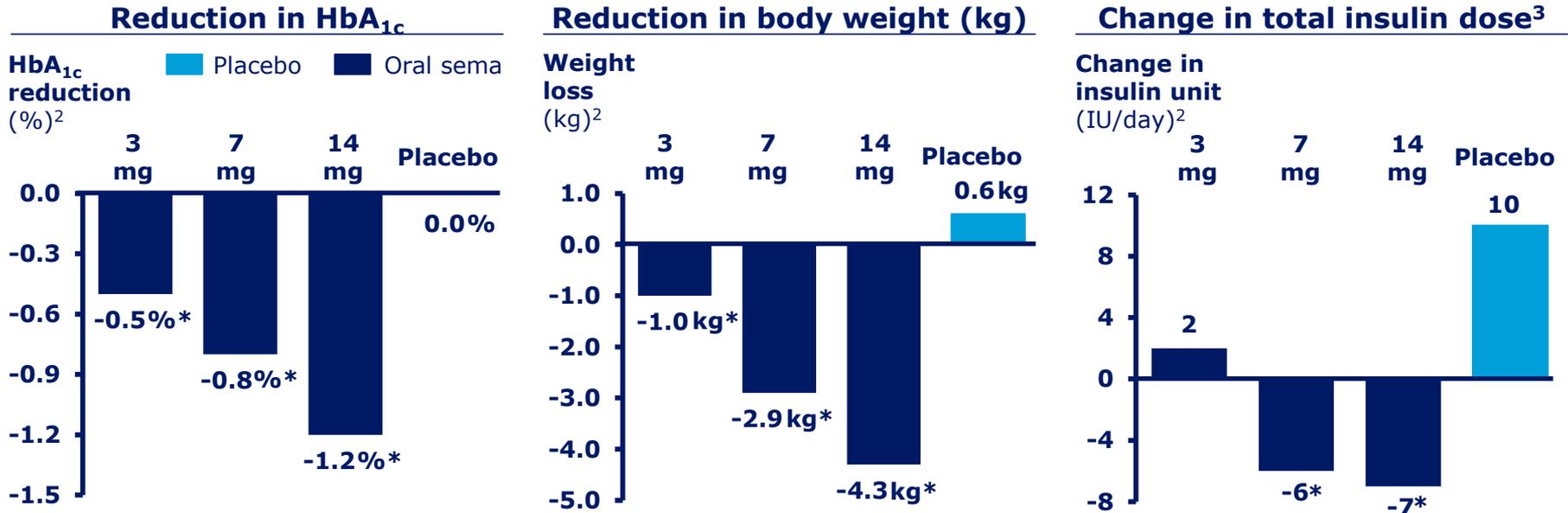
## Tresiba® launch in the USA

- Novo Nordisk basal volume market share is now at 35.9% with Tresiba® volume market share of 13.5%, resulting in a gain of around 5%-points over the last 12 months
- Tresiba® formulary access is above 80% for Commercial and Medicare Part D combined
- In April 2018, promotion of the updated Tresiba® label<sup>2</sup> was initiated

<sup>2</sup> Tresiba® label was updated in March 2018 to include a 40% reduction of severe hypoglycaemic events compared to insulin glargine U100



# In PIONEER 8, oral sema showed statistically significant reductions in HbA<sub>1c</sub>, body weight and total insulin dose<sup>1</sup>



<sup>1</sup> Only 7 mg and 14 mg oral semaglutide showed reduction in end of trial insulin dose

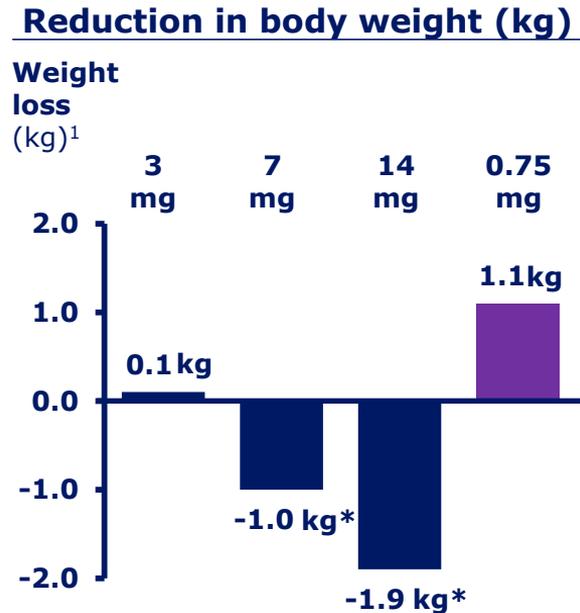
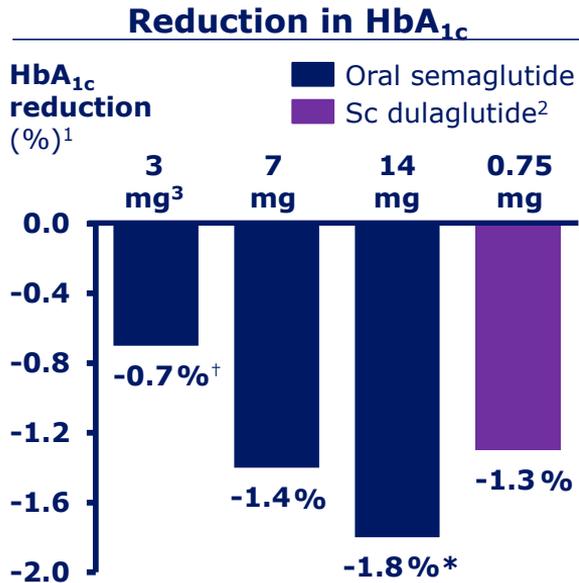
<sup>2</sup> Results illustrated by using the secondary statistical method called hypothetical estimand after 52 weeks of treatment: Treatment effect, if all participants followed the treatment without rescue medication (analysed by using Mixed Models for Repeated Measurements (MMRM)). The statistical method is consistent with e.g. the statistical method used for the SUSTAIN programme for subcutaneous semaglutide

<sup>3</sup> At end of trial period

\*Statistically significant vs placebo

Sema: semaglutide

# In PIONEER 10, oral sema 14 mg showed statistically significant reduction in HbA<sub>1c</sub> and weight vs sc dulaglutide



### Number of adverse events

	Oral semaglutide			Sc dula
Dose (mg)	3	7	14	0.75
GI adverse events	31%	39%	54%	40%
- Consti.	9%	12%	15%	9%
- Nausea	5%	8%	9%	9%
Disc. rate due to AE	3%	6%	6%	3%

<sup>1</sup> Results illustrated by using the secondary statistical method called hypothetical estimand after 52 weeks of treatment: Treatment effect, if all participants followed the treatment without rescue medication (analysed by using Mixed Models for Repeated Measurements (MMRM)). The statistical method is consistent with e.g. the statistical method used for the SUSTAIN programme for subcutaneous semaglutide

<sup>2</sup> Subcutaneous dulaglutide 0.75 mg is the approved dose in Japan

<sup>†</sup> Statistically significantly lower versus 0.75 mg dulaglutide

\* Statistically significant versus 0.75 mg dulaglutide

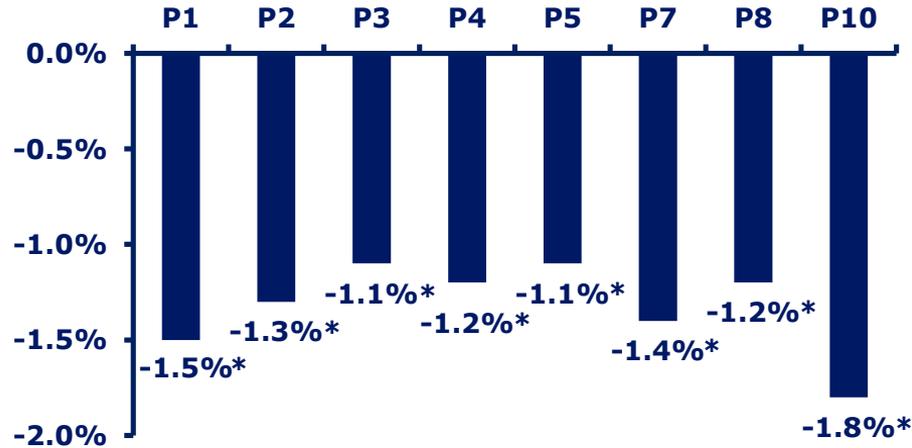
GI: Gastrointestinal; Consti: Constipation; Disc. rate: Discontinuation rate; AE: Adverse events; Sema: Semaglutide; Dula: Dulaglutide; Sc: Subcutaneous



# Oral semaglutide has demonstrated a consistent reduction in HbA<sub>1c</sub> and body weight in the completed PIONEER trials

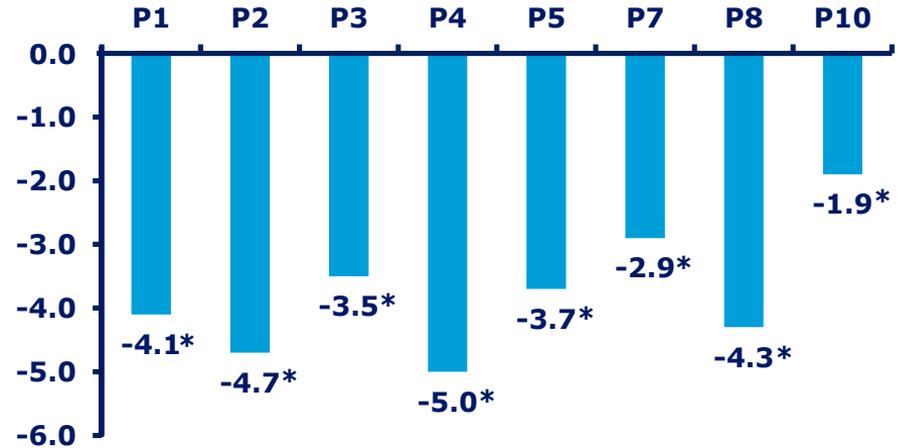
In completed PIONEER trials, oral semaglutide lowered HbA<sub>1c</sub> by 1.1–1.8%-points by end of trial<sup>1</sup>

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



In completed PIONEER trials, 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 sitagliptin 100 mg in PIONEER 7; vs placebo in PIONEER 8; 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 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

P: PIONEER

# Key development milestones

## Diabetes

- Successful completion of additional three phase 3a trials, PIONEER 5, 8 and 10, with oral semaglutide
- Novo Nordisk acquires Ziylo Ltd to accelerate its development of glucose responsive insulins
- Phase 1 trial initiated with OG2023SC investigating the safety, tolerability and pharmacokinetics
- Two new drug applications have been submitted in Japan for Xultophy® and Fiasp®
- Hypopen-1513 discontinued

## Obesity

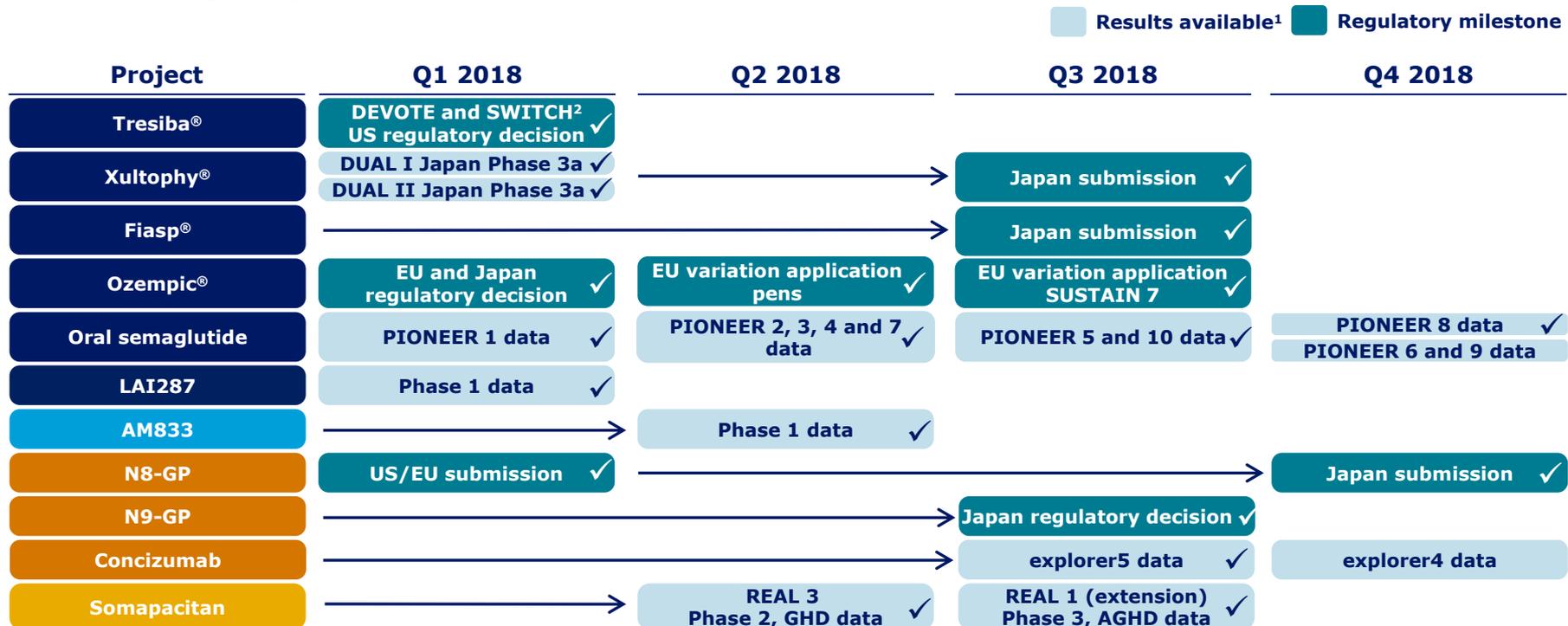
- The SELECT Phase 3b trial initiated with injectable semaglutide 2.4 mg investigating effects on cardiovascular outcomes in people with overweight or obesity
- Phase 1 trial initiated with PYY 1875 investigating safety, tolerability and pharmacokinetics of single doses as monotherapy and in combination with semaglutide in subjects with overweight or obesity
- Cardiovascular safety data added to Saxenda® label in the USA

## Biopharma

- Successful completion of phase 3a extension trial with once-weekly somapacitan in adults with GHD
- N8-GP submitted for regulatory approval in Japan
- Successful completion of phase 2 trial explorer5 with concizumab to evaluate the efficacy and safety of prophylactic administration in people with severe Haemophilia A without inhibitors
- Novo Nordisk expands its growth disorders franchise with the acquisition of the North American rights to Macrilen™, the first and only FDA approved product for diagnosis of growth hormone deficiency in adults

GHD: Growth hormone deficiency

# R&D milestones in 2018



■ Diabetes  
 ■ Obesity  
 ■ Haemophilia  
 ■ Growth disorders

<sup>1</sup> Expected to be published in the given quarter or in the subsequent quarterly company announcement

<sup>2</sup> Supplemental applications to include the two SWITCH trials have been withdrawn based on interactions with FDA

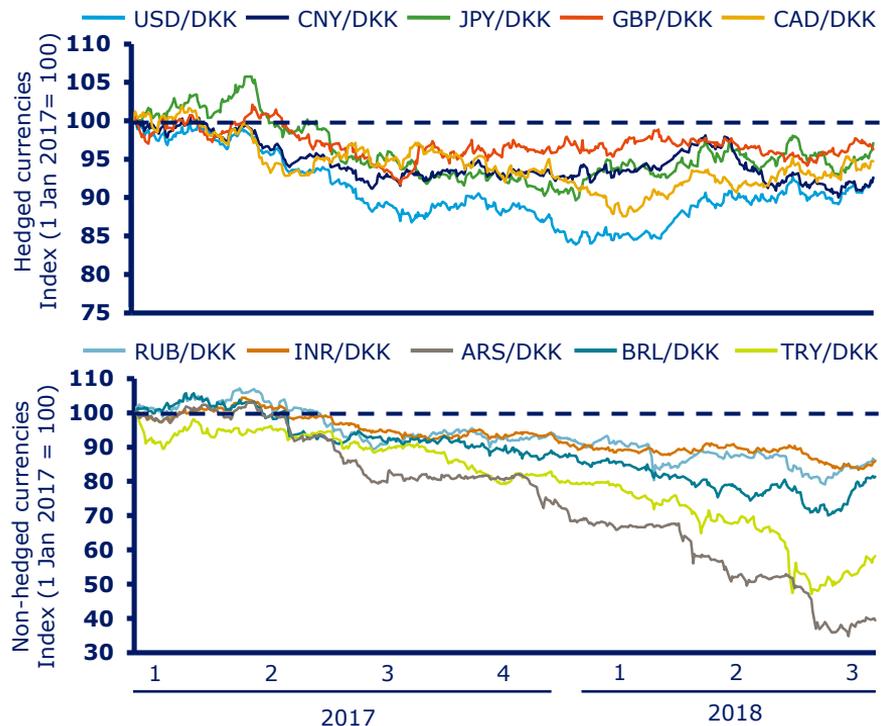
GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency

# Financial results – First nine months of 2018

DKK million	9M 2018	9M 2017	Change (reported)	Change (local currency)
<b>Sales</b>	82,099	83,704	(2%)	4%
<b>Gross profit</b>	69,135	70,772	(2%)	
<i>Gross margin</i>	84.2%	84.6%		
Sales and distribution costs	20,669	20,045	3%	9%
<i>Percentage of sales</i>	25.2%	23.9%		
Research and development costs	10,261	10,031	2%	5%
<i>Percentage of sales</i>	12.5%	12.0%		
Administration costs	2,647	2,666	(1%)	3%
<i>Percentage of sales</i>	3.2%	3.2%		
Other operating income, net	907	890	2%	
<b>Operating profit</b>	36,465	38,920	(6%)	2%
<i>Operating margin</i>	44.4%	46.5%		
Financial items (net)	780	(811)		
<b>Profit before income tax</b>	37,245	38,109	(2%)	
Income taxes	7,114	8,232	(14%)	
<i>Effective tax rate</i>	19.1%	21.6%		
<b>Net profit</b>	30,131	29,877	1%	
<b>Diluted earnings per share (DKK)</b>	12.40	12.03	3%	

9M: First nine months of 2018

# Unfavourable currency impact in 9M 2018 driven by development in both hedged and unhedged currencies



Hedged Currencies	2017 average	2018 average <sup>2</sup>	Spot rate <sup>2</sup>	Impact of a 5% move <sup>3</sup>	Hedging (months)
USD <sup>1</sup>	660	632	658	2,050	11
CNY <sup>1</sup>	98	95	95	330	7 <sup>4</sup>
JPY <sup>1</sup>	5.9	5.7	5.9	180	12
GBP <sup>1</sup>	849	843	841	95	10
CAD <sup>1</sup>	508	489	501	80	10

Non-hedged Currencies	2017 average	2018 average <sup>2</sup>	Spot rate <sup>2</sup>
ARS <sup>1</sup>	0.4	0.2	0.2
TRY <sup>1</sup>	181	133	117
INR <sup>1</sup>	10.1	9.2	9.0
RUB <sup>1</sup>	11.3	10.1	10.0
BRL <sup>1</sup>	207	174	177

<sup>1</sup> DKK per 100; <sup>2</sup> As of 26 October 2018; <sup>3</sup> Impact on operating profit in the next 12 months of a 5% immediate currency move. DKK million per annum; <sup>4</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

# Financial outlook for 2018

	<b>Expectations 1 Nov 2018</b>	Previous expectations 8 Aug 2018
Sales growth - local currencies	<b>4% to 5%</b>	3% to 5%
Sales growth - reported	<b>Around 4 percentage point lower</b>	Around 5 percentage points lower
Operating profit growth - local currencies	2% to 5%	2% to 5%
Operating profit growth - reported	Around 7 percentage point lower	Around 7 percentage points lower
Financial items (net)	<b>Gain of around DKK 0.5 billion</b>	Gain of around DKK 0.9 billion
Effective tax rate	19% to 20%	19% to 20%
Capital expenditure	Around DKK 9.5 billion	Around DKK 9.5 billion
Depreciation, amortisation and impairment losses	Around DKK 3 billion	Around DKK 3 billion
Free cash flow	<b>Around DKK 29 to 33 billion</b>	Around DKK 27 to 32 billion

The financial outlook is based on an assumption of a continuation of the current business environment and given the current scope of business activities and has been prepared assuming that currency exchange rates remain at the level as of 26 October 2018

# Highlights – First nine months of 2018



Sales

- Continued solid sales growth of 4%, predominantly driven by International Operations
- Sales growth is now expected to be 4-5% measured in local currencies, up from previously 3-5%



Insulin

- Insulin sales decreased by 1%, however Novo Nordisk has expanded its leading global insulin volume market share to 46%, driven by Tresiba® and Xultophy® growing sales by 15% and 161%<sup>1</sup>



GLP-1

- GLP-1 sales increased by 18% driving 84% of total growth
- Ozempic® is off to a strong start and strengthening the total Novo Nordisk market share and expanding the GLP-1 market
- Novo Nordisk is the global market leader with 47% value market share in the GLP-1 market<sup>1</sup>



Obesity

- Saxenda® sales increased by 53% driving 28% of total sales growth
- Novo Nordisk is expanding the global leadership position in obesity and now holds a 43% value market share



Innovation

- The PIONEER programme for oral semaglutide is nearing completion and eight trials have now been successfully completed
- First clinical trial with the next generation oral GLP-1 has been initiated
- Novo Nordisk expands its growth hormone business with the acquisition of the North American rights to Macrilen™



Organisation

- A number of restructuring initiatives across functions and geographies have been initiated to support R&D and commercial activities for the portfolio of innovative products with an expected reduction of the workforce by 1,300 employees by the end of 2018



Financials

- Operating profit increased by 4% in the first nine months when adjusting for the severance costs and operating profit growth for 2018 is still expected to be 2-5%
- Solid cash-flow generation leads to an increased share buy-back with DKK 1 billion to DKK 15 billion

<sup>1</sup> Sales growth in local currencies and market shares based on MAT Aug 2018

# Investor contact information

## Share information

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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 the internet at: [novonordisk.com](http://novonordisk.com)

## Upcoming events

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01 Feb 2019	Financial statement for 2018
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

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# Appendix

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- Novo Nordisk expands its growth hormone business with the acquisition of the North American rights to Macrilen™



Organisation

- A number of restructuring initiatives across functions and geographies have been initiated to support R&D and commercial activities for the portfolio of innovative products with an expected reduction of the workforce by 1,300 employees by the end of 2018



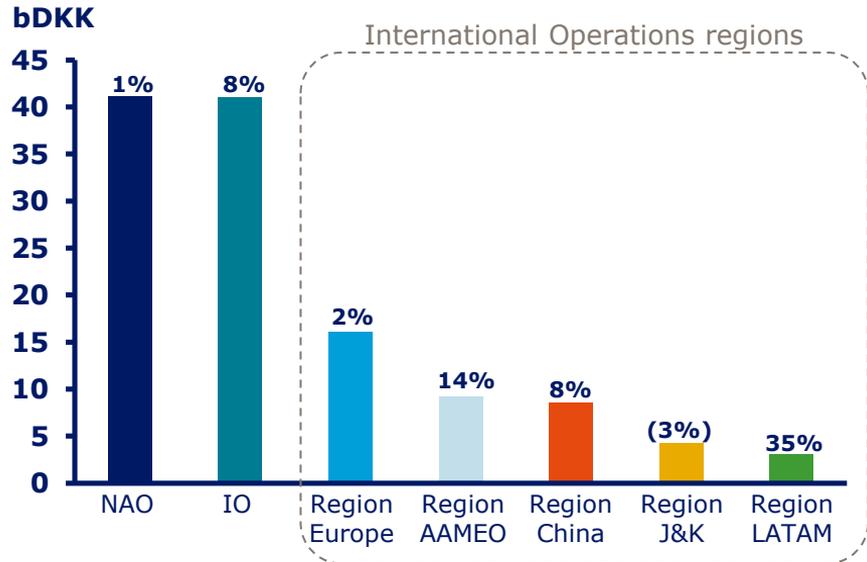
Financials

- Operating profit increased by 4% in the first nine months when adjusting for the severance costs and operating profit growth for 2018 is still expected to be 2-5%
- Solid cash-flow generation leads to an increased share buy-back with DKK 1 billion to DKK 15 billion

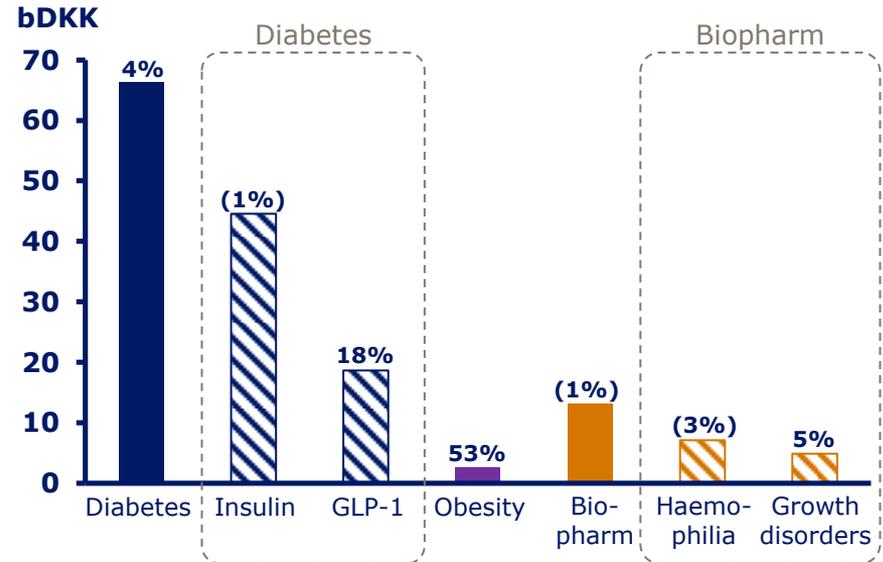
<sup>1</sup> Sales growth in local currencies and market shares based on MAT Aug 2018

# 9M 2018 sales decreased by 2% in Danish kroner and increased by 4% in local currencies to DKK 82.1 billion

## Reported sales and local currency growth by region



## Reported sales and local currency growth by therapy



NAO: North America Operations; IO: International Operations; LATAM: Latin America; AAMEO: Africa, Asia, Middle East & Oceania; J&K: Japan & Korea; 9M: First nine months of 2018

# Key development milestones

## Diabetes

- Successful completion of additional three phase 3a trials, PIONEER 5, 8 and 10, with oral semaglutide
- Novo Nordisk acquires Ziylo Ltd to accelerate its development of glucose responsive insulins
- Phase 1 trial initiated with OG2023SC investigating the safety, tolerability and pharmacokinetics
- Two new drug applications have been submitted in Japan for Xultophy® and Fiasp®
- Hypopen-1513 discontinued

## Obesity

- The SELECT Phase 3b trial initiated with injectable semaglutide 2.4 mg investigating effects on cardiovascular outcomes in people with overweight or obesity
- Phase 1 trial initiated with PYY 1875 investigating safety, tolerability and pharmacokinetics of single doses as monotherapy and in combination with semaglutide in subjects with overweight or obesity
- Cardiovascular safety data added to Saxenda® label in the USA

## Biopharma

- Successful completion of phase 3a extension trial with once-weekly somapacitan in adults with GHD
- N8-GP submitted for regulatory approval in Japan
- Successful completion of phase 2 trial explorer5 with concizumab to evaluate the efficacy and safety of prophylactic administration in people with severe Haemophilia A without inhibitors
- Novo Nordisk expands its growth disorders franchise with the acquisition of the North American rights to Macrilen™, the first and only FDA approved product for diagnosis of growth hormone deficiency in adults

GHD: Growth hormone deficiency

# Financial results for the first nine months of 2018 and financial outlook for 2018

## First nine months of 2018 results

DKK billion	9M 2018	Change reported DKK	Change local currency
Sales	82.1	(2%)	4%
Gross profit	69.1	(2%)	
<i>Gross margin</i>	84.2%		
<i>Total operating costs<sup>1</sup></i>	33.6	3%	7%
Operating profit <sup>2</sup>	36.5	(6%)	2%
<i>Operating margin</i>	44.4%		
Financial items (net)	0.8		
Profit before income tax	37.2	(2%)	
Income taxes	7.1	(14%)	
<i>Effective tax rate</i>	19.1%		
Net profit	30.1	1%	
Diluted earnings per share (DKK)	12.40	3%	

## Updated financial outlook for 2018

**Sales growth - local currencies** 4% to 5%

**Sales growth - reported** ~4 p.p. lower

Operating profit growth - local currencies 2% to 5%

Operating profit growth - reported ~7 p.p. lower

**Financial items (net)** ~DKK 0.5 billion

**Free cash flow** ~DKK 29 to 33 billion

<sup>1</sup> Total operating costs include S&D costs, R&D costs and Administrative costs; <sup>2</sup> Operating profit includes Other operating income

The financial outlook is based on an assumption of a continuation of the current business environment and current scope of business activities and assuming currency exchange rates remain at the level as of 26 October 2018

9M: First nine months of 2018

# Novo Nordisk at a glance

## Global leader in diabetes care

- A focused pharmaceutical company with leading positions in diabetes, 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 90%
- Cash generated returned to shareholders

## Global insulin market leadership

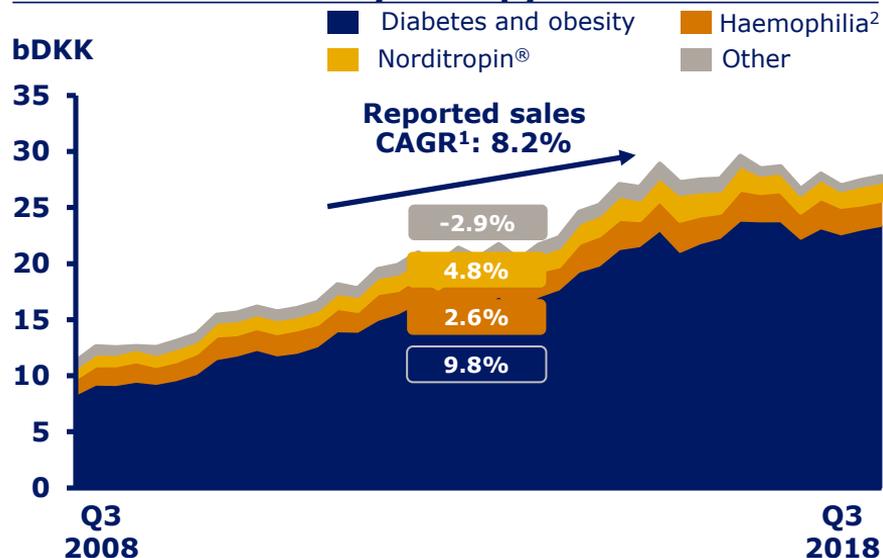
Global insulin market share: 46%



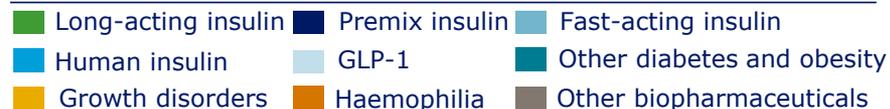
Source: IQVIA MAT Aug 2018 volume figures  
AAMEO: Africa, Asia, the Middle East & Oceania

# Sales growth driven by the diabetes and obesity franchise

## Novo Nordisk reported quarterly sales by therapy



## Reported sales split by product segments for first nine months of 2018



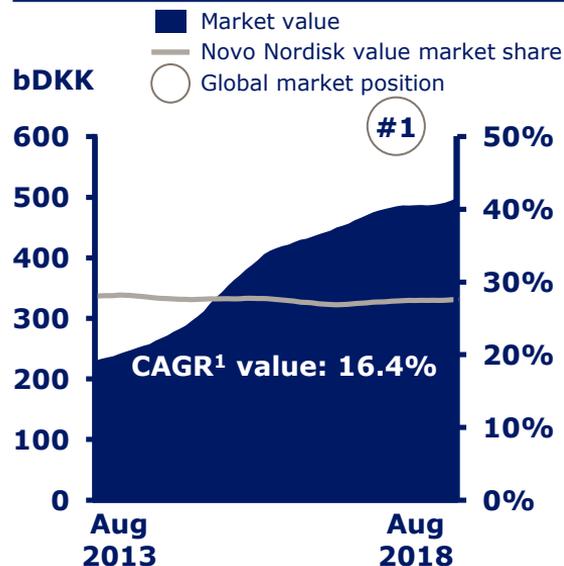
Sales of DKK 82.1 billion (2%)

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

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

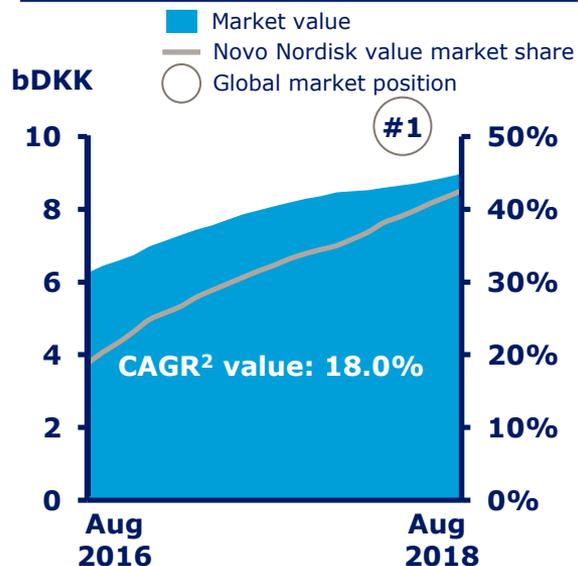
# Novo Nordisk has leading positions in diabetes, obesity and haemophilia

## Diabetes



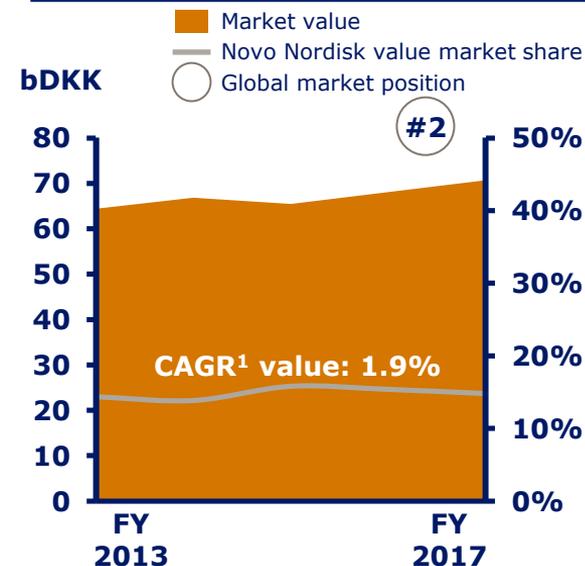
<sup>1</sup> CAGR for 5-year period   
 Source: IQVIA MAT Aug, 2018 value figures

## Obesity



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

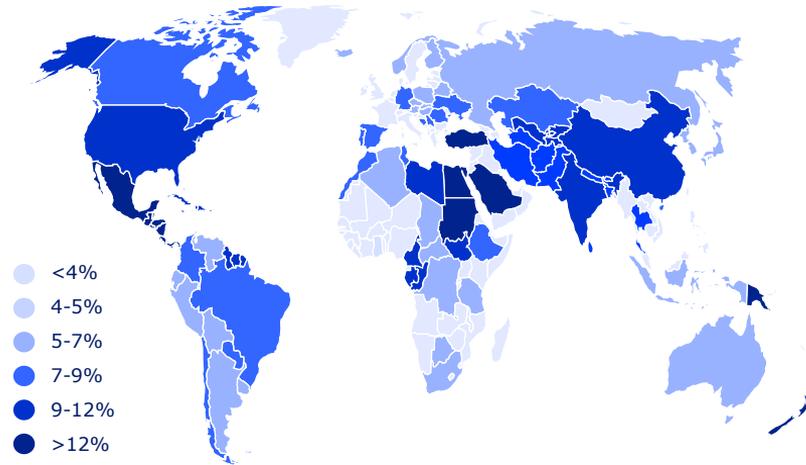
## Haemophilia



<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

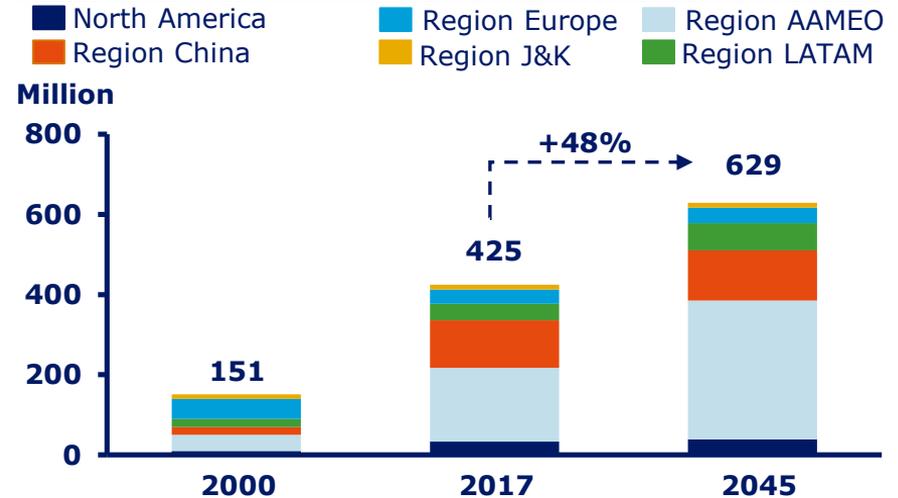
# Global diabetes prevalence is increasing and 629 million people are expected to have diabetes by 2045

Around 10% of all adults globally have diabetes



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

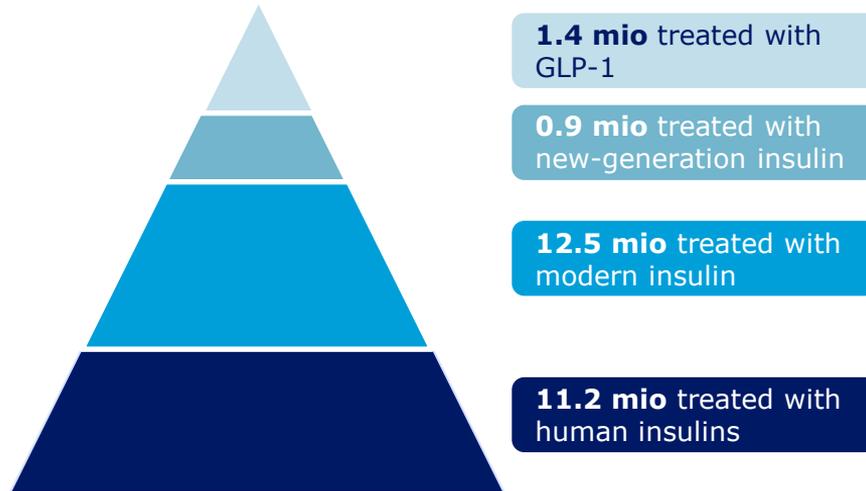
The number of people with diabetes is expected to increase by 48% by 2045



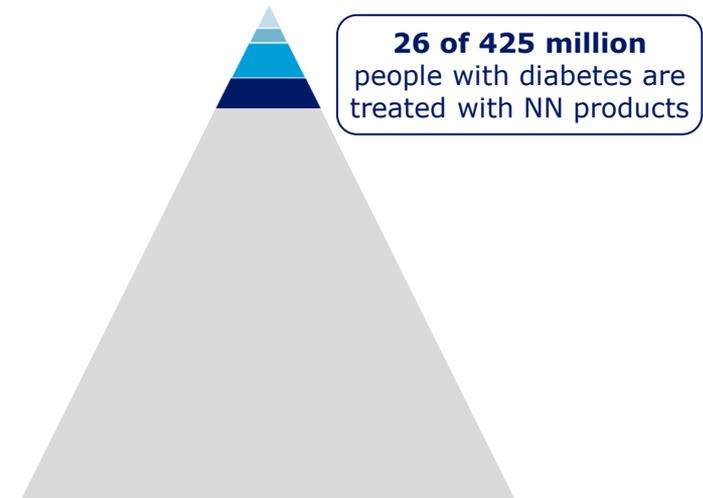
J&K: Japan & Korea; AAMEO: Africa, Asia, the Middle-East and Oceania; LATAM: Latin America  
Source: International Diabetes Federation: Diabetes Atlas 1<sup>st</sup> Edition 2000 and Diabetes Atlas 8<sup>th</sup> Edition 2017

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

Around 26 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

425 million



People with diabetes

~6%



People in good control

## OBESITY

650 million



People with obesity

~2%



People medically treated

## HAEMOPHILIA

~425,000



People with haemophilia

~50%



People living with constant pain

## OTHER SERIOUS CHRONIC DISEASES



80% of diagnosed NASH patients are obese and 35% have T2DM



70% of diabetes patients die from atherosclerotic CVD



40% of patients hospitalised for heart failure are diabetic



~50% of the total CKD population suffers from diabetic nephropathy

# Six strategic priorities



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



**DRIVE  
INSULIN  
VOLUME AND  
VALUE SHARE**



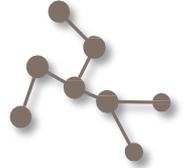
**BUILD THE  
GLOBAL  
OBESITY  
MARKET**



**RETURN TO  
GROWTH IN  
BIOPHARM**



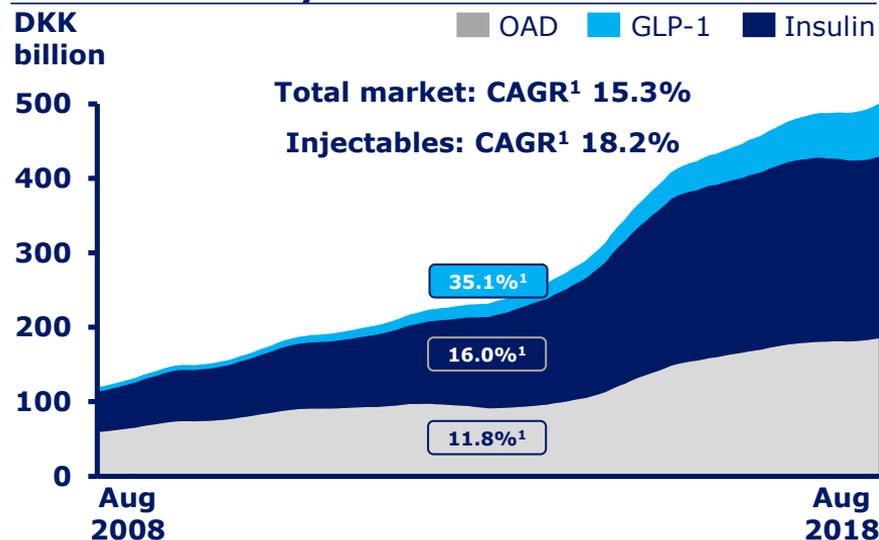
**DRIVE  
COMMERCIAL  
INNOVATION**



**INNOVATE  
AND EXPAND  
PATIENT BASE**

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

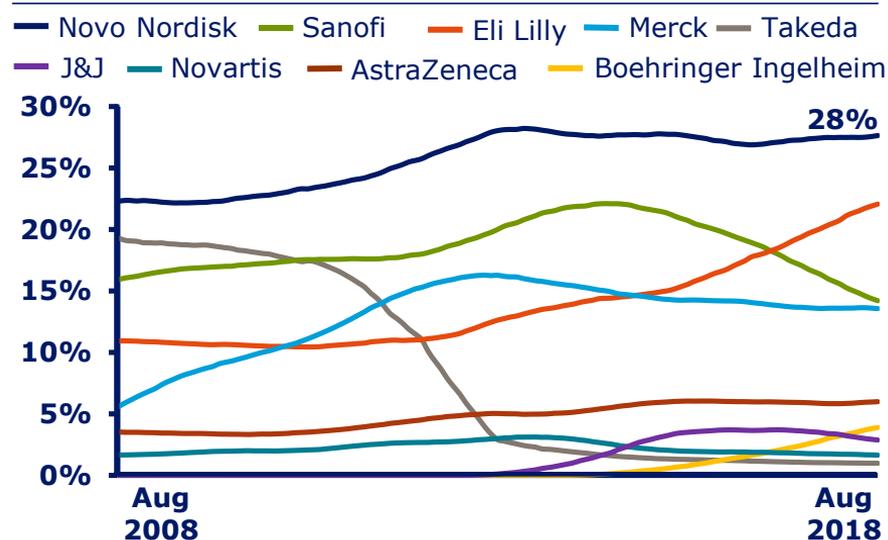
## Global diabetes care market by treatment class



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

changing  
diabetes®

## Global diabetes care value market share



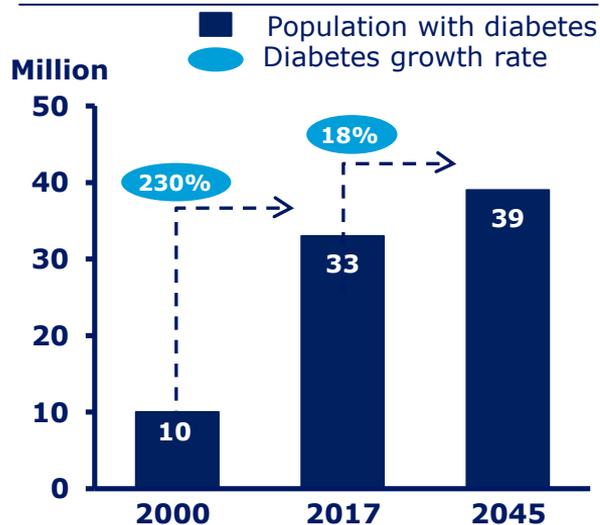
Source: IQVIA MAT Aug, 2018 value figures





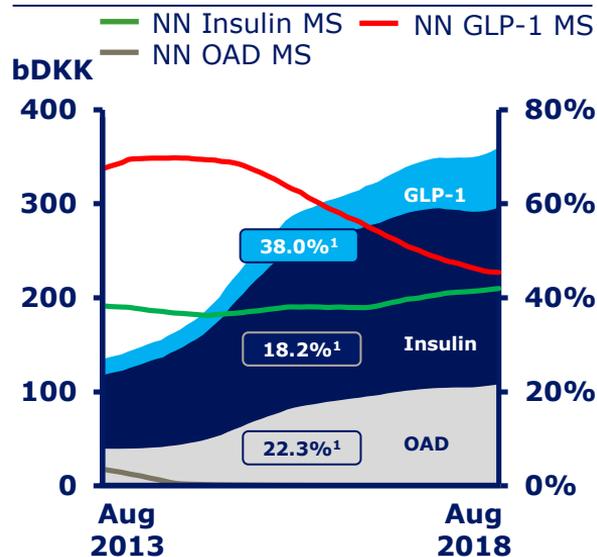
# North America Operations at a glance

## Diabetes trend in population



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

## Diabetes market by value and Novo Nordisk market share



<sup>1</sup> CAGR calculated for 5-year period  
 Competitor value market share for insulin as of Aug 2018: Eli Lilly 30% and Sanofi 27%  
 Competitor value market share for GLP-1 as of Aug 2018: Eli Lilly 41% and AstraZeneca 13%  
 OAD: Oral anti-diabetic; MS: Market share  
 Source: IQVIA MAT Aug, 2018 value figures

## Novo Nordisk reported sales

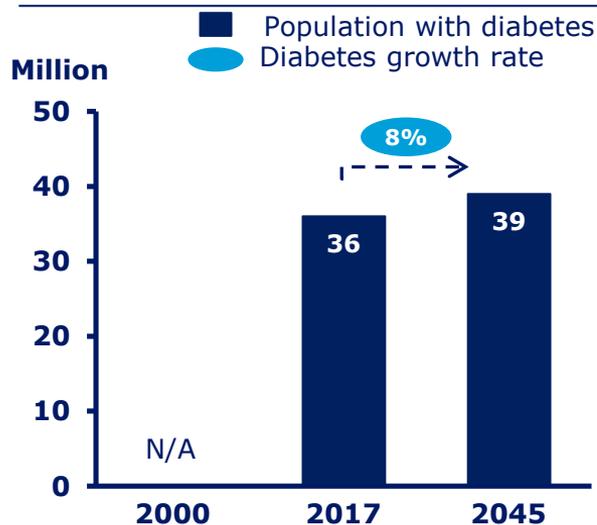
First nine months of 2018	Sales (mDKK)	YTD growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	9,455	(9%)
Premix insulin <sup>4</sup>	1,061	(16%)
Fast-acting insulin <sup>5</sup>	7,389	(9%)
Human insulin	1,485	13%
<b>Total insulin</b>	<b>19,390</b>	<b>(8%)</b>
GLP-1 <sup>6</sup>	13,971	18%
Other diabetes care <sup>7</sup>	638	0%
<b>Diabetes care</b>	<b>33,999</b>	<b>1%</b>
Obesity (Saxenda <sup>®</sup> )	1,825	31%
<b>Biopharm<sup>8</sup></b>	<b>5,234</b>	<b>(8%)</b>
<b>Total</b>	<b>41,058</b>	<b>1%</b>

<sup>2</sup> Percentage change in local currency from YTD Q3 2017 to YTD Q3 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

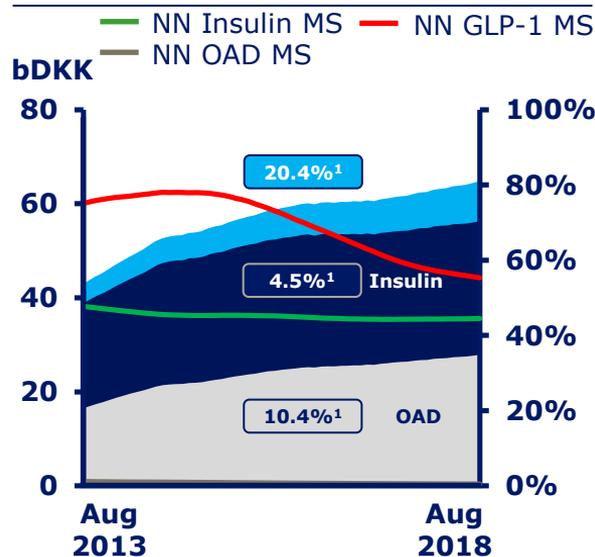
## Diabetes trend in population



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

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 for Insulin as of Aug 2018: Sanofi 35% and Eli Lilly 18%

Competitor value market share for GLP-1 as of Aug 2018: Eli Lilly 32% and AstraZeneca 11%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Aug, 2018 value figures

## Novo Nordisk reported sales

First nine months of 2018	Sales (mDKK)	YTD growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	3,162	9%
Premix insulin <sup>4</sup>	1,270	(10%)
Fast-acting insulin <sup>5</sup>	3,365	4%
Human insulin	1,184	(10%)
<b>Total insulin</b>	<b>8,981</b>	<b>1%</b>
GLP-1 <sup>6</sup>	2,784	10%
Other diabetes care <sup>7</sup>	432	(4%)
<b>Diabetes care</b>	<b>12,197</b>	<b>3%</b>
Obesity (Saxenda <sup>®</sup> )	145	121%
<b>Biopharm<sup>8</sup></b>	<b>3,743</b>	<b>(2%)</b>
<b>Total</b>	<b>16,085</b>	<b>2%</b>

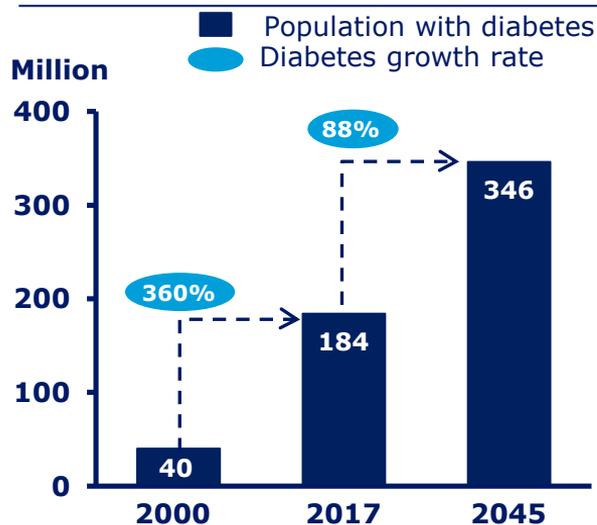
<sup>2</sup> Percentage change in local currency from YTD Q3 2017 to YTD Q3 2018

<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

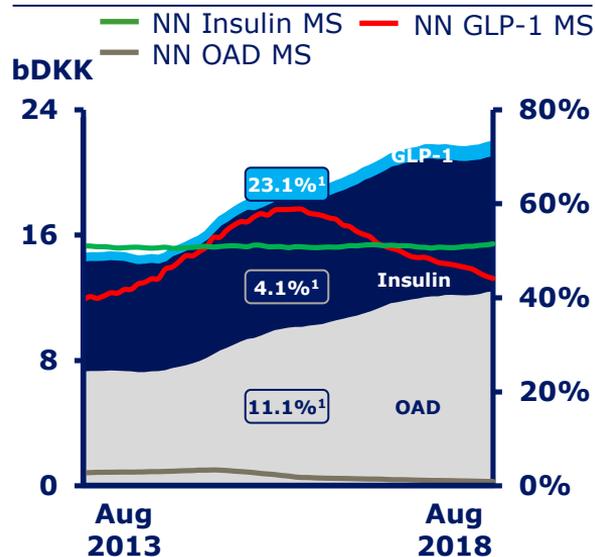
## Diabetes trend in population



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 for insulin as of Aug 2018: Sanofi 32% and Eli Lilly 12%  
Competitor value market share for GLP-1 as of Aug 2018: AstraZeneca 33% and Eli Lilly 23%  
OAD: Oral anti-diabetic; MS: Market share  
Source: IQVIA MAT Aug, 2018 value figures

## Novo Nordisk reported sales

First nine months of 2018	Sales (mDKK)	YTD growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	987	27%
Premix insulin <sup>4</sup>	1,980	11%
Fast-acting insulin <sup>5</sup>	1,640	13%
Human insulin	1,557	13%
<b>Total insulin</b>	<b>6,164</b>	<b>14%</b>
GLP-1 <sup>6</sup>	662	9%
Other diabetes care <sup>7</sup>	500	(4%)
<b>Diabetes care</b>	<b>7,326</b>	<b>12%</b>
Obesity (Saxenda <sup>®</sup> )	321	201%
<b>Biopharm<sup>8</sup></b>	<b>1,513</b>	<b>8%</b>
<b>Total</b>	<b>9,160</b>	<b>14%</b>

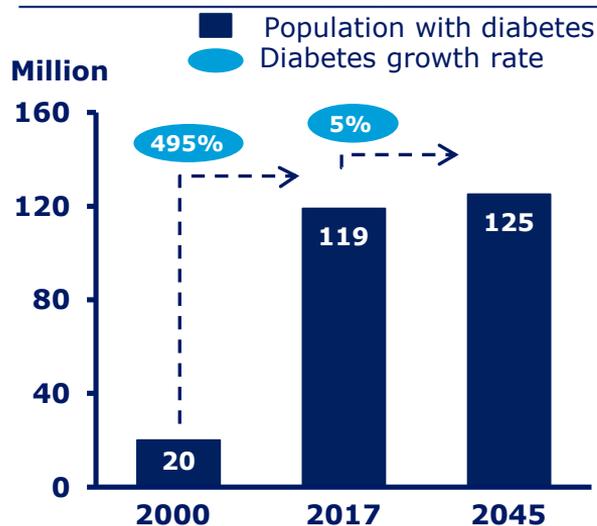
<sup>2</sup> Percentage change in local currency from YTD Q3 2017 to YTD Q3 2018

<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>

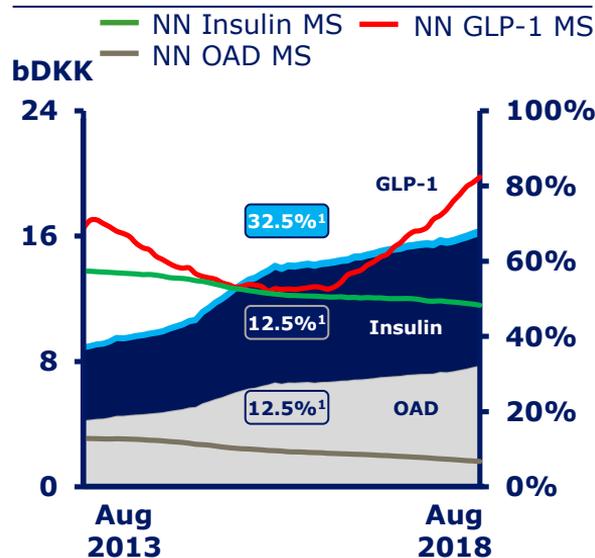


# Region China at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

First nine months of 2018	Sales (mDKK)	YTD growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	619	21%
Premix insulin <sup>4</sup>	2,870	9%
Fast-acting insulin <sup>5</sup>	1,105	19%
Human insulin	2,144	(7%)
<b>Total insulin</b>	<b>6,738</b>	<b>6%</b>
GLP-1 <sup>6</sup>	388	89%
Other diabetes care <sup>7</sup>	1,284	6%
<b>Diabetes care</b>	<b>8,410</b>	<b>8%</b>
Obesity (Saxenda <sup>®</sup> )	-	-
<b>Biopharm<sup>8</sup></b>	<b>163</b>	<b>(4%)</b>
<b>Total</b>	<b>8,573</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 for insulin as of Aug 2018: Sanofi 18% and Gan & Lee 12%

Competitor value market share for GLP-1 as of Aug 2018: AstraZeneca 17%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Aug, 2018 value figures

<sup>2</sup> Percentage change in local currency from YTD Q3 2017 to YTD Q3 2018

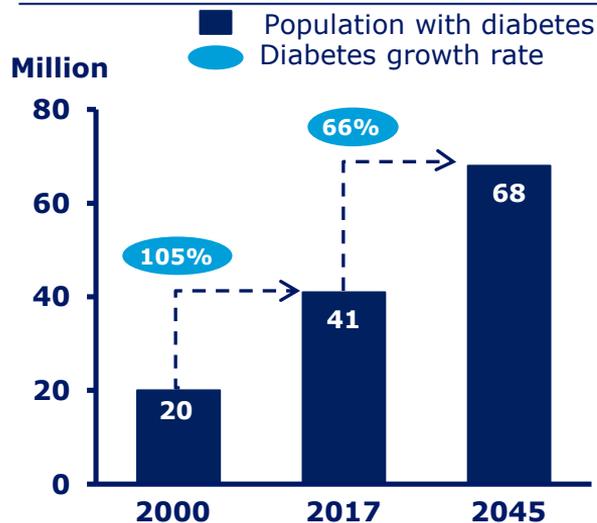
<sup>3</sup> Comprises Tresiba<sup>®</sup> and Levemir<sup>®</sup>; <sup>4</sup> Comprises NovoMix<sup>®</sup>;

<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>

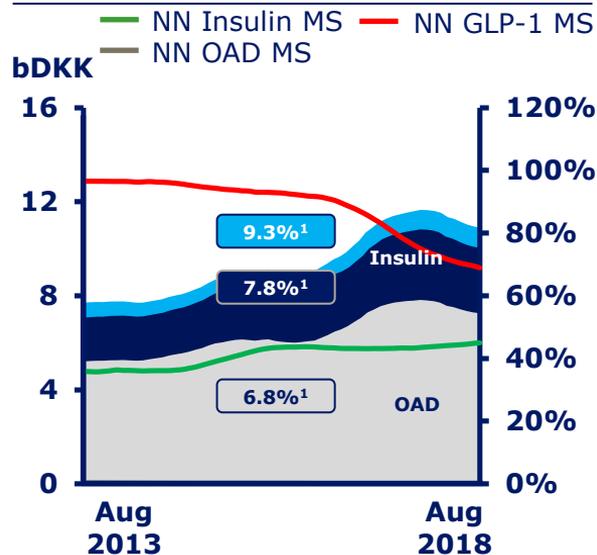


# Region Latin America at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

First nine months of 2018	Sales (mDKK)	YTD growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	528	27%
Premix insulin <sup>4</sup>	92	14%
Fast-acting insulin <sup>5</sup>	246	34%
Human insulin	577	4%
<b>Total insulin</b>	<b>1,443</b>	<b>18%</b>
GLP-1 <sup>6</sup>	392	29%
Other diabetes care <sup>7</sup>	48	38%
<b>Diabetes care</b>	<b>1,883</b>	<b>20%</b>
Obesity (Saxenda®)	277	69%
<b>Biopharm<sup>8</sup></b>	<b>876</b>	<b>72%</b>
<b>Total</b>	<b>3,036</b>	<b>35%</b>

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

Source: International Diabetes Federation: Diabetes Atlas 1<sup>st</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 for insulin as of Aug 2018: Sanofi 32% and Eli Lilly 19%

Competitor value market share for GLP-1 as of Aug 2018: Eli Lilly 30% and AstraZeneca 1%

OAD: Oral anti-diabetic; MS: Market share

Source: IQVIA MAT Aug, 2018 value figures

<sup>2</sup> Percentage change in local currency from YTD Q3 2017 to YTD Q3 2018

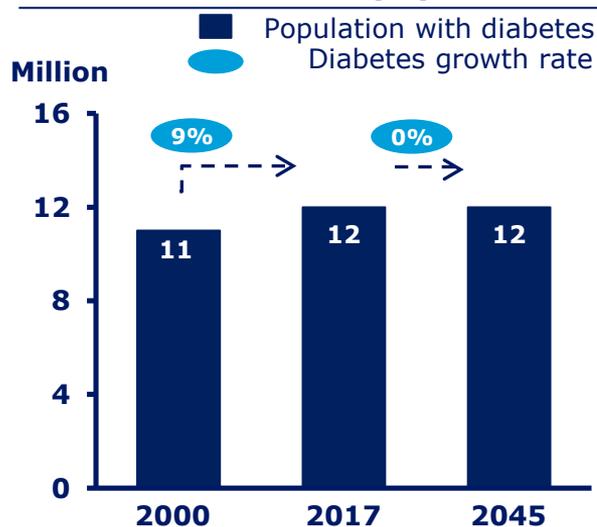
<sup>3</sup> Comprises Tresiba®, Xultophy® and Levemir®; <sup>4</sup> Comprises NovoMix® and Ryzodeg®; <sup>5</sup> Comprises NovoRapid®; <sup>6</sup> Comprises Victoza®;

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

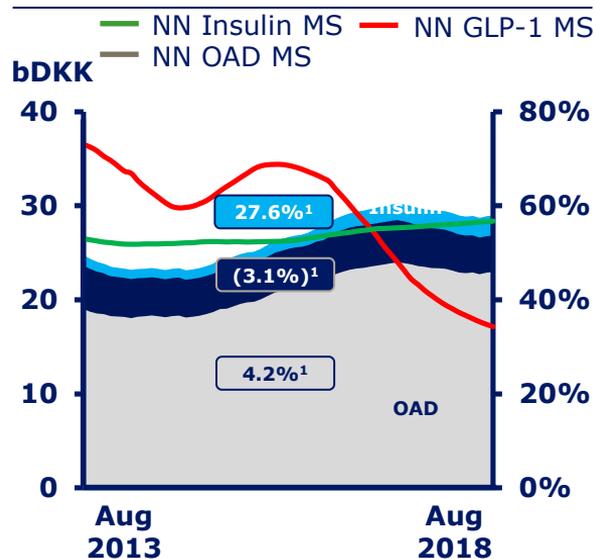


# Region Japan & Korea at a glance

## Diabetes trend in population



## Diabetes market by value and Novo Nordisk market share



## Novo Nordisk reported sales

First nine months of 2018	Sales (mDKK)	YTD growth <sup>2</sup>
Long-acting insulin <sup>3</sup>	637	4%
Premix insulin <sup>4</sup>	483	(1%)
Fast-acting insulin <sup>5</sup>	578	(13%)
Human insulin	140	(17%)
<b>Total insulin</b>	<b>1,838</b>	<b>(5%)</b>
GLP-1 <sup>6</sup>	440	7%
Other diabetes care <sup>7</sup>	274	0%
<b>Diabetes care</b>	<b>2,552</b>	<b>(3%)</b>
Obesity (Saxenda <sup>®</sup> )	72	-
<b>Biopharm<sup>8</sup></b>	<b>1,563</b>	<b>(7%)</b>
<b>Total</b>	<b>4,187</b>	<b>(3%)</b>

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

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

Competitor value market share for insulin as of Aug 2018: Eli Lilly 22% and Sanofi 21%

Competitor value market share for GLP-1 as of Aug 2018: Eli Lilly 59% and AstraZeneca 4%

OAD: Oral anti-diabetic; MS: Market share

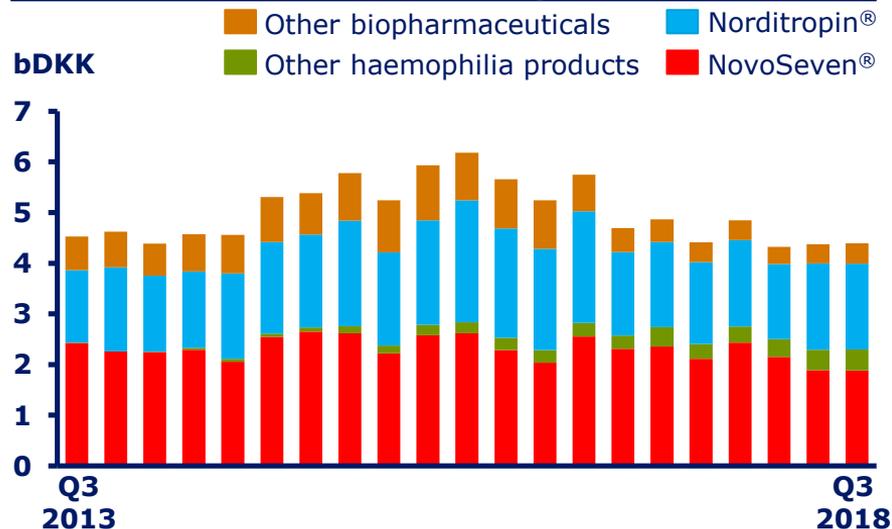
Source: IQVIA MAT Aug, 2018 value figures

<sup>2</sup> Percentage change in local currency from YTD Q3 2017 to YTD Q3 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 a strategy has been defined to return to growth

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



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

**Return to growth  
in Biopharm**



Drive in-market brands beyond current plans 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

<sup>1</sup> Reported sales for the first nine months of 2018

# 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 >15% weight loss



- Pursue subcutaneous delivery of long-acting coagulation factors and bypassing 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

# Significant growth opportunities fuelled by strong pipeline across all four strategic focus areas

## PHASE 1

NN1436 – LAI287  
 NN9023 – OG2023SC  
 NN9838 – Amylin analogue  
 NN9747 – PYY 1562 analogue  
 NN9277 – GG-co-agonist  
 NN9423 – Tri-agonist 1706  
 NN9775 – PYY 1875 analogue  
 NN7170 – Sc N8-GP

## PHASE 2

Anti-IL-21 and liraglutide  
 Concizumab  
 Somapacitan – QW GHD<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> Rebinyn® is the brand name in the USA and Refixia® in the EU  
 QW: Once-weekly; GG: Glucagon GLP-1; Sc: Subcutaneous; QD: Once-daily

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

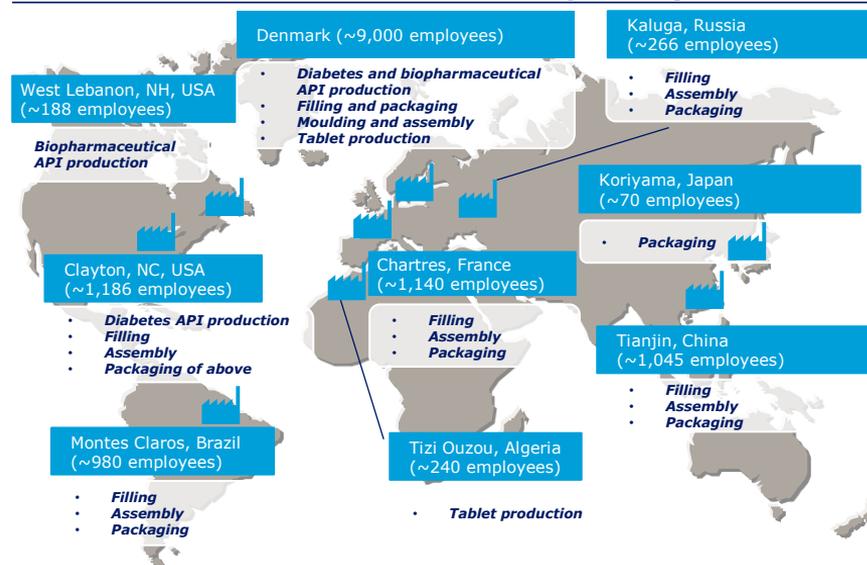
## Employees in sales regions<sup>1</sup>

North America Operations:	~4,700
Region AAMEO:	~4,700
Region China:	~3,200
Region Europe:	~2,900
Region Japan & Korea:	~1,200
Region Latin America:	~970

**Total non-HQ/manufacturing employees: ~19,000<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 September 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	2032 <sup>3</sup>
<b>Fiasp</b> fast-acting insulin aspart	2030	2030
<b>Xultophy</b> insulin degludec/liraglutide U100 combination injection	2028 <sup>2</sup>	2029 <sup>2</sup>
<b>TRESIBA</b> insulin degludec/GMA origin injection	2028	2029
<b>RYZODEG</b> 30% insulin degludec and 70% insulin aspart U100 combination injection	2028	2029
<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 the 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



TONGYUAN LIU  
China  
Tongyuan Liu has type 2 diabetes

1. Diabetes at a glance 46
2. Diabetes treatment classes 49
3. Branded diabetes market 50
4. Diabetes market segments 51
5. Novo Nordisk Diabetes product portfolio 53
6. Insulin market growth and market share 54
7. Tresiba® 68

# 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

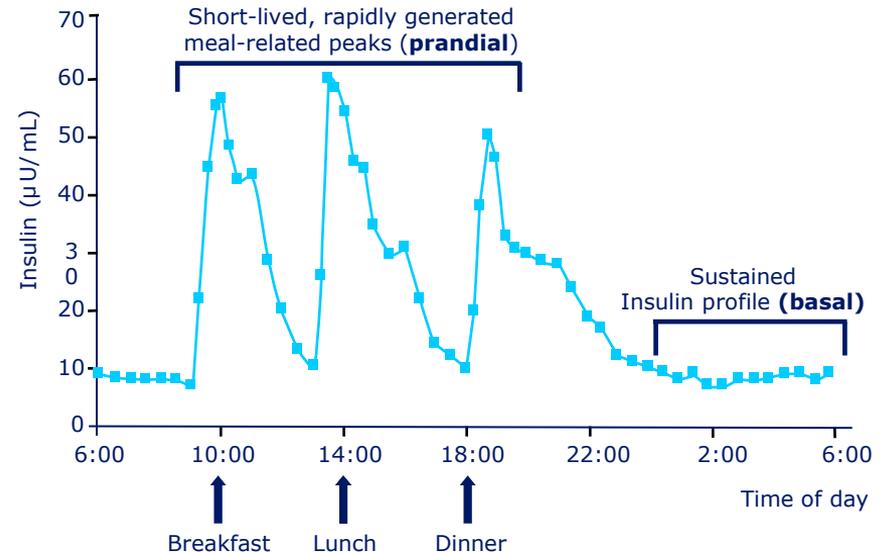
**Type 2 diabetes:** Characterised by some degree of insulin resistance and insulin deficiency

### Insulin:

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

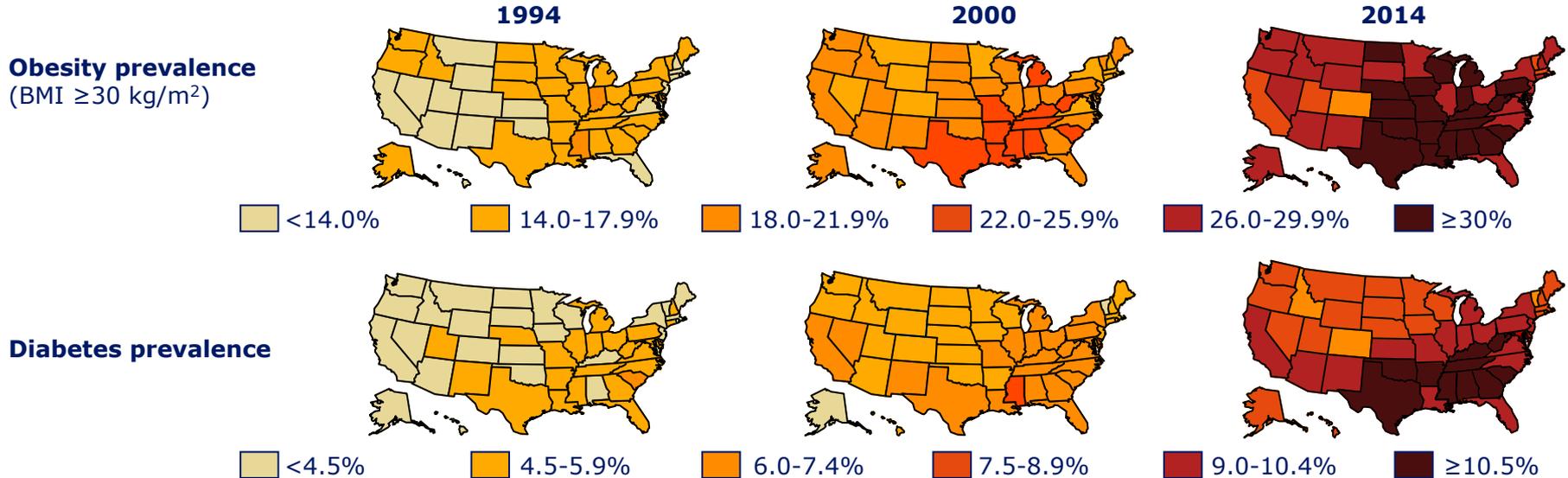


## The aim of insulin therapy is to recreate normal blood insulin profile



# Diabetes pandemic is fuelled by growing rates of obesity

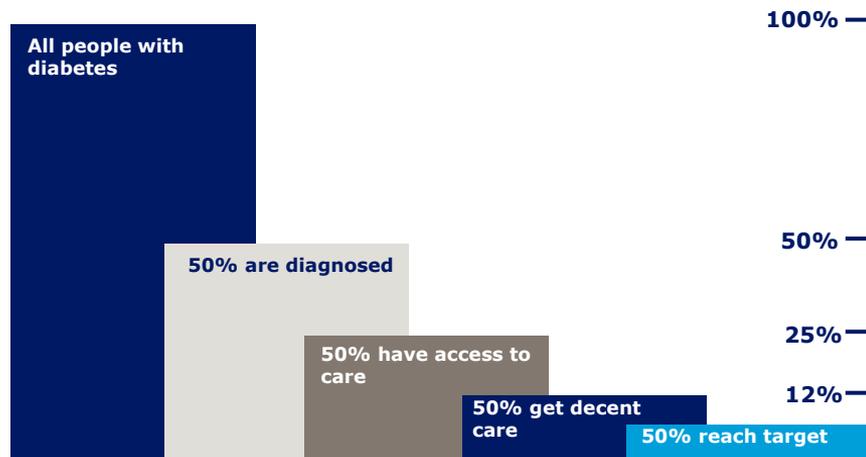
## USA CDC data on obesity and diabetes prevalence among adults



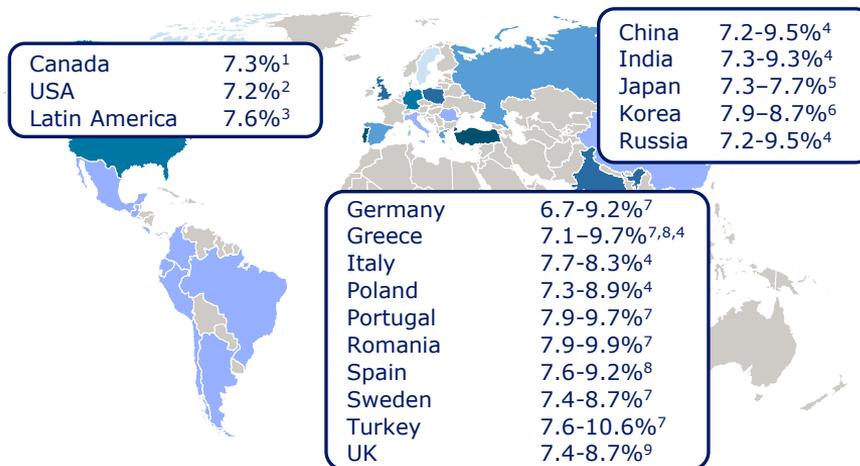
CDC: Centers for Disease Control and Prevention  
Source: CDC's Division of Diabetes Translation. National Diabetes Surveillance System available at <http://www.cdc.gov/diabetes>

# 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



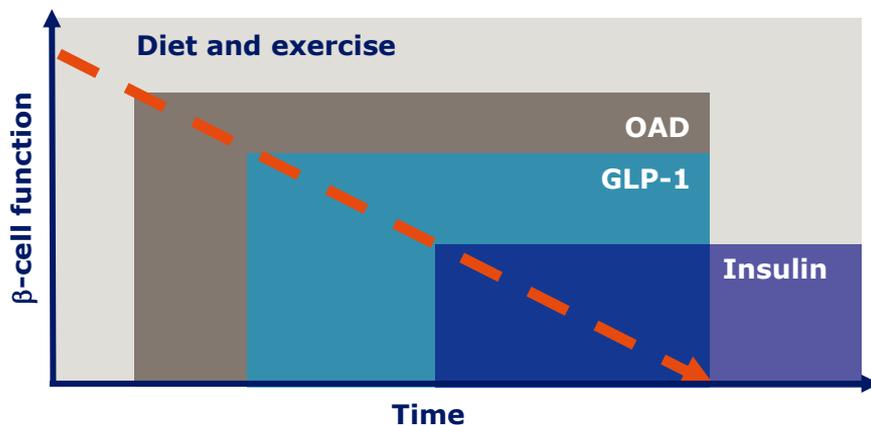
## The worldwide challenge of glycaemic control: Mean HbA<sub>1c</sub> in type 2 diabetes



<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

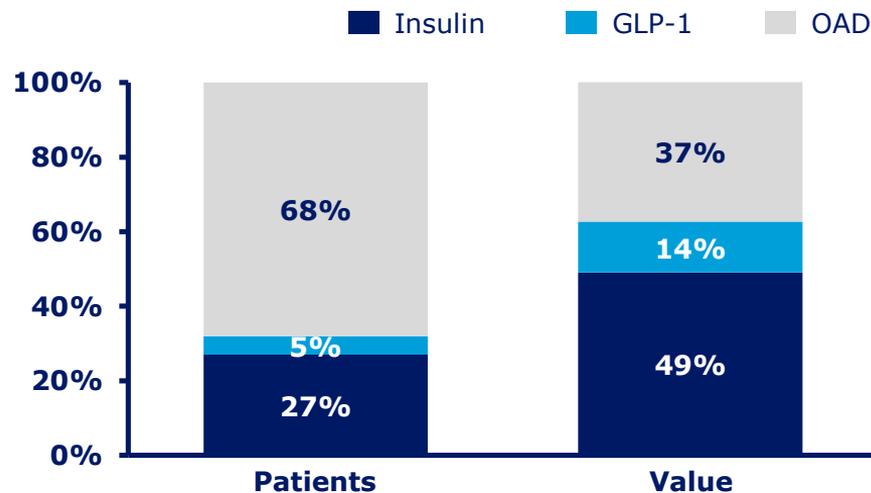
# Insulin is the ultimate care for people with diabetes

## Progression of type 2 diabetes and treatment intensification



OAD: Oral anti-diabetic

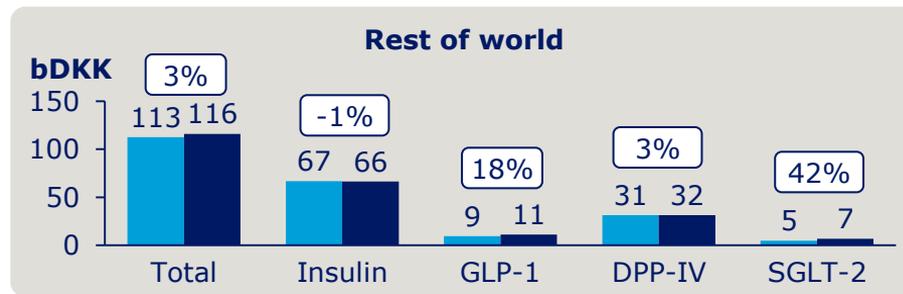
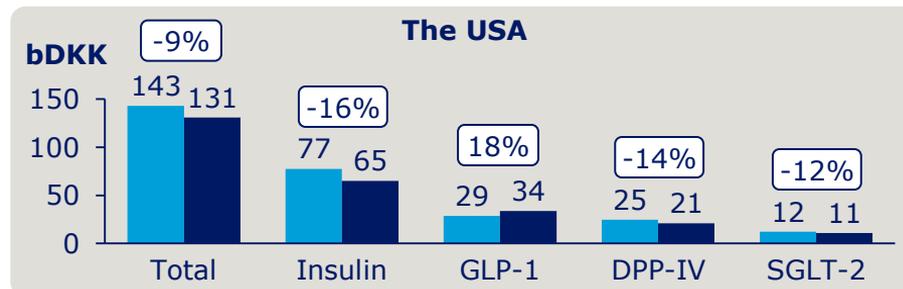
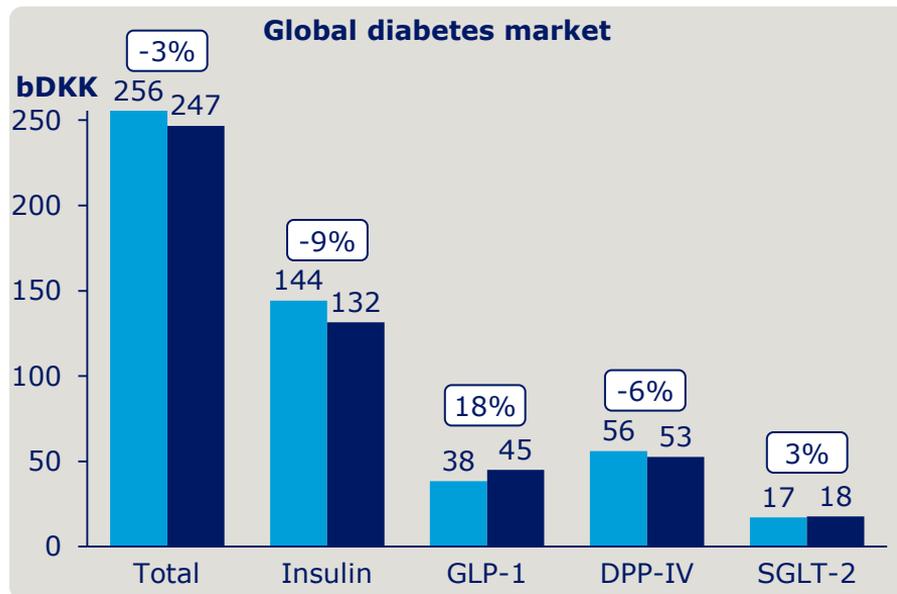
## Distribution of patients and value across treatment classes



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 Aug, 2018  
Source: IQVIA PharMetrix claims data, IQVIA disease analyser, IQVIA MIDAS

# The branded diabetes market has a global value of DKK ~250 billion annually

■ 2016/17 ■ 2017/18 □ Growth



2016/17: Covers the four quarters from Q3 2016 to Q2 2017

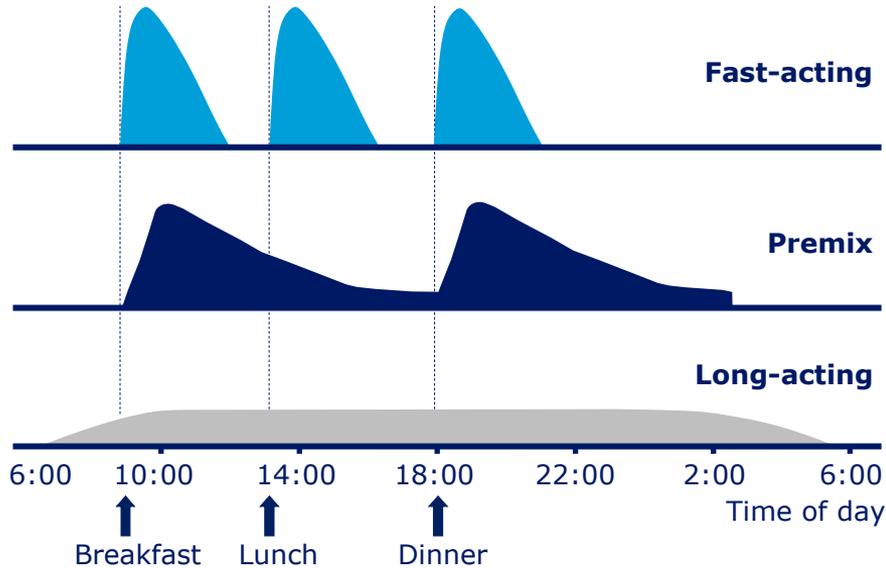
2017/18: Covers the four quarters from Q3 2017 to Q2 2018

Note: Constant exchange rates between periods

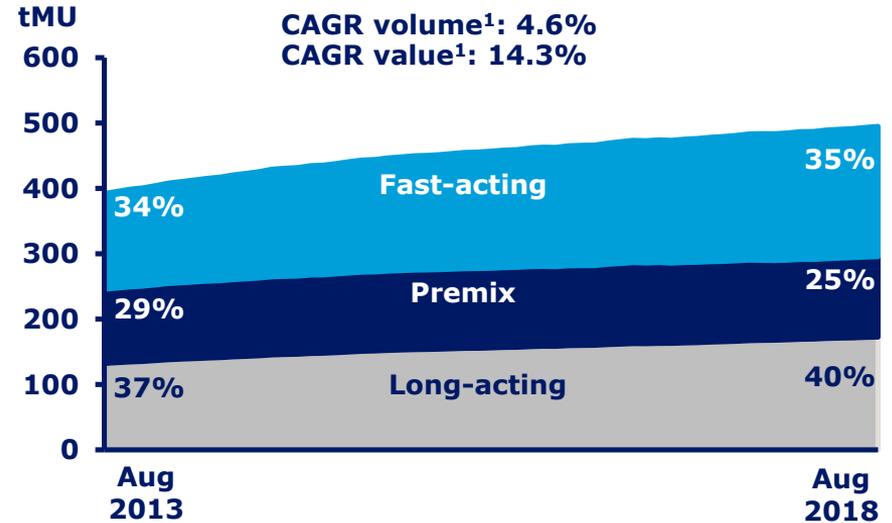
Source: Company reported sales

# The insulin market is comprised of three segments

## Insulin action profiles



## Global insulin volume market by segment



<sup>1</sup> CAGR for 5-year period. Value in DKK  
Source: IQVIA monthly MAT volume and value Aug 2018 (DKK) figures

# Medications used for the 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>

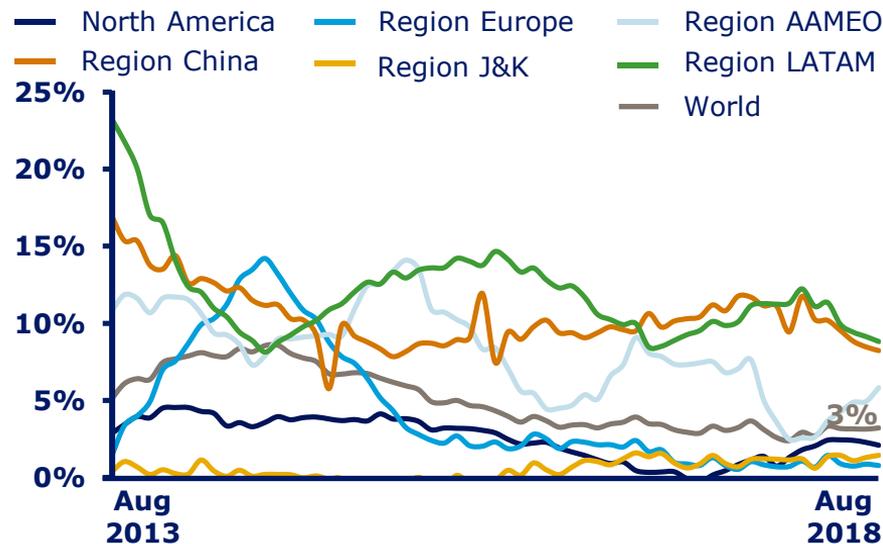
## Overview of current and future products in Novo Nordisk's diabetes portfolio



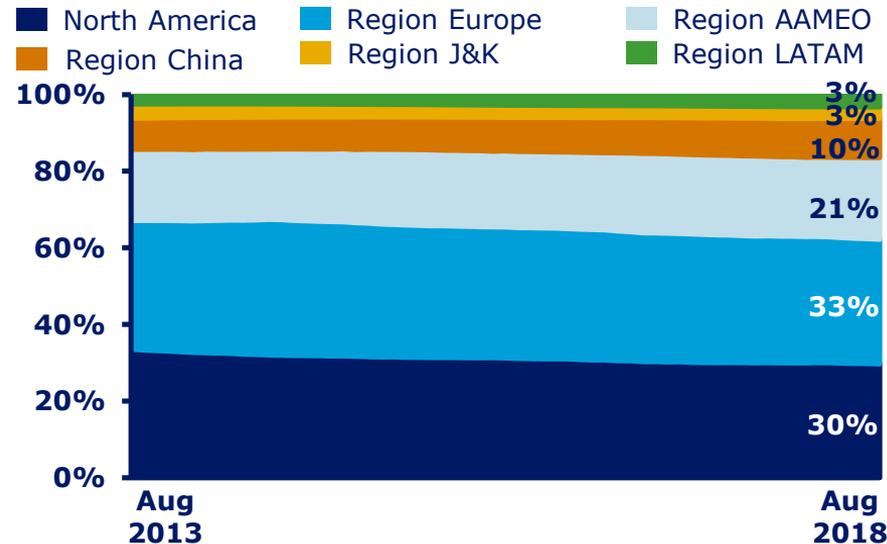
<sup>1</sup> Pending clinical development programmes and regulatory processes for oral semaglutide

# Stable global insulin volume growth

## Regional insulin volume growth



## Regional insulin volume market split

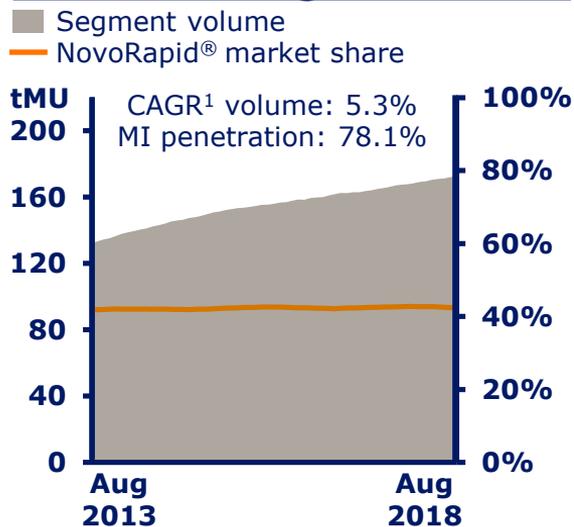


Reg: Region; J&K: Japan & Korea; AAMEO: Africa, Asia, the Middle-East and Oceania; LATAM: Latin America  
 Note: Data is sensitive to changes in IQVIA data collection and reporting methodology  
 Source: IQVIA monthly MAT Aug, 2018 volume figures

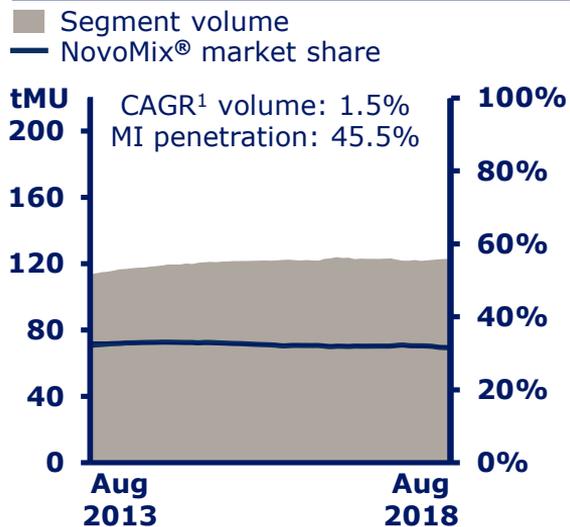
Note: Data is sensitive to changes in IQVIA data collection and reporting methodology  
 Source: IQVIA monthly MAT Aug, 2018 volume figures

# Continued single digit volume growth within the insulin segments globally

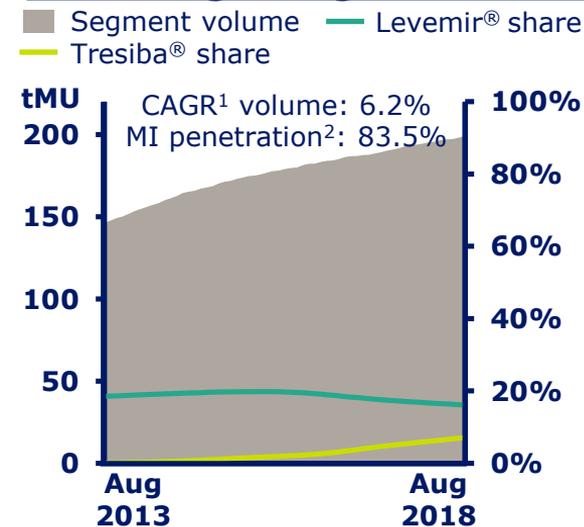
## Fast-acting insulin



## Premix insulin



## Long-acting insulin



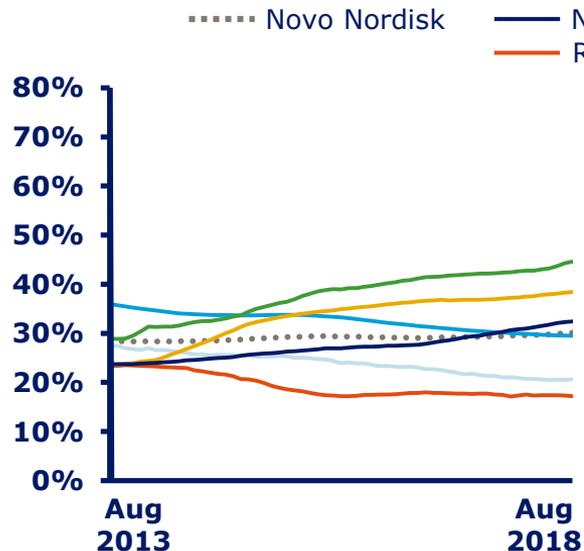
<sup>1</sup> CAGR for 5-year period; <sup>2</sup> Includes new-generation insulin. tMU: Thousand mega units

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

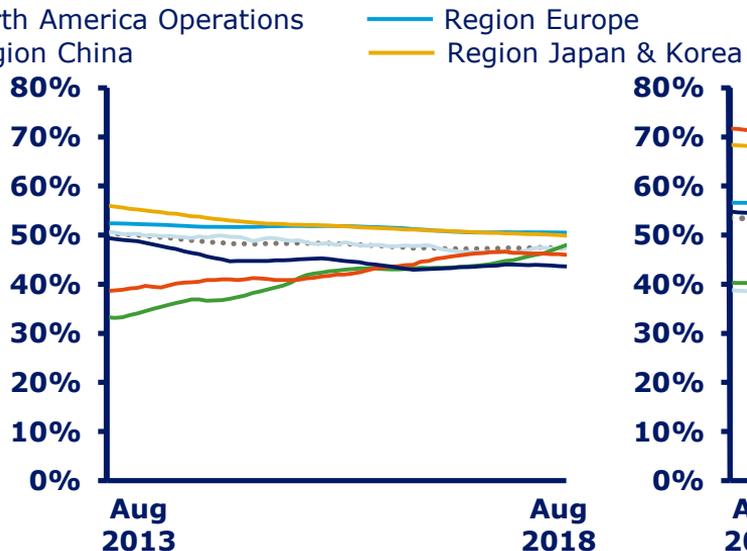
Source: IQVIA MAT Aug, 2018 volume figures

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

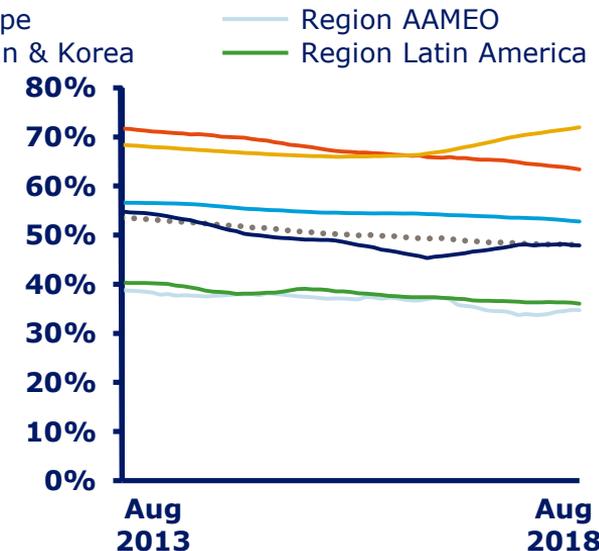
## Long-acting insulin<sup>1</sup> volume market share across regions



## 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

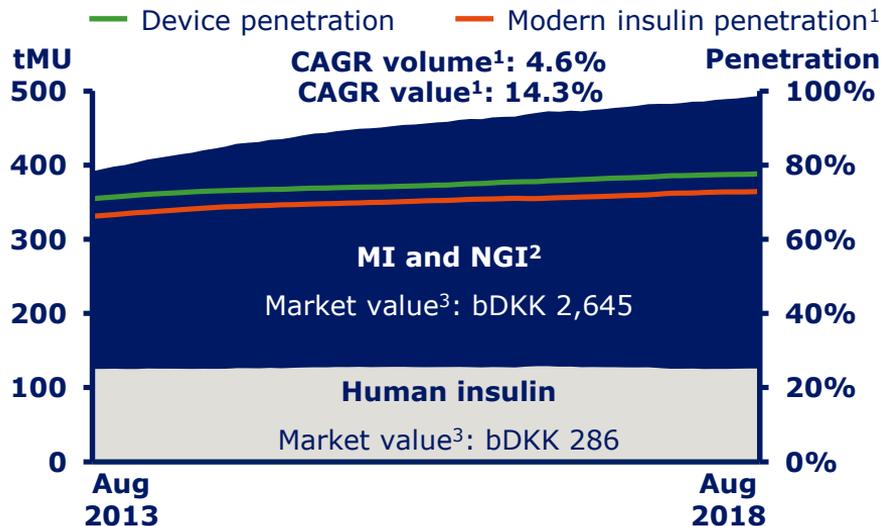
<sup>3</sup> Premix insulin includes: Ryzodeg®, NovoMix® and Mixtard® 30 (premix human insulin). Please note that not all products are launched in all markets

Source: IQVIA monthly MAT Aug, 2018 volume figures

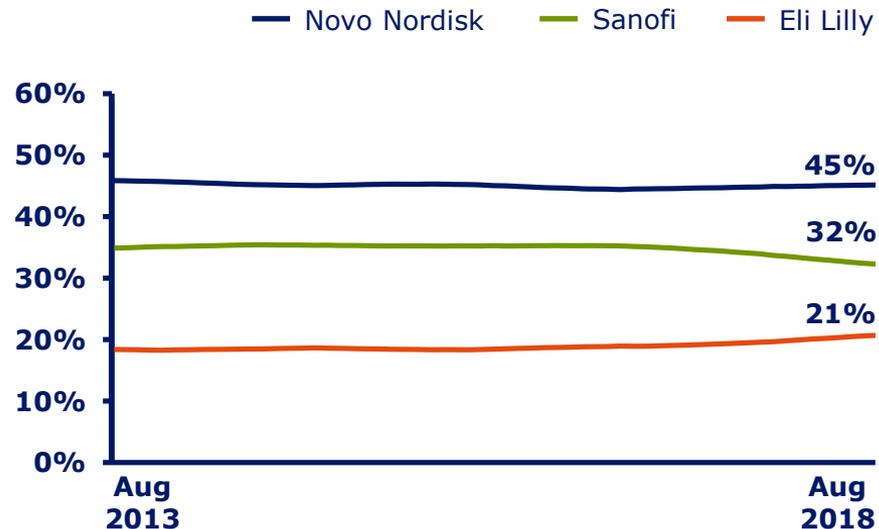
AAMEO: Africa, Asia, Middle-East and Oceania

# 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 value of total insulin class

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

Source: IQVIA monthly MAT Aug, 2018 volume and value (DKK) figures

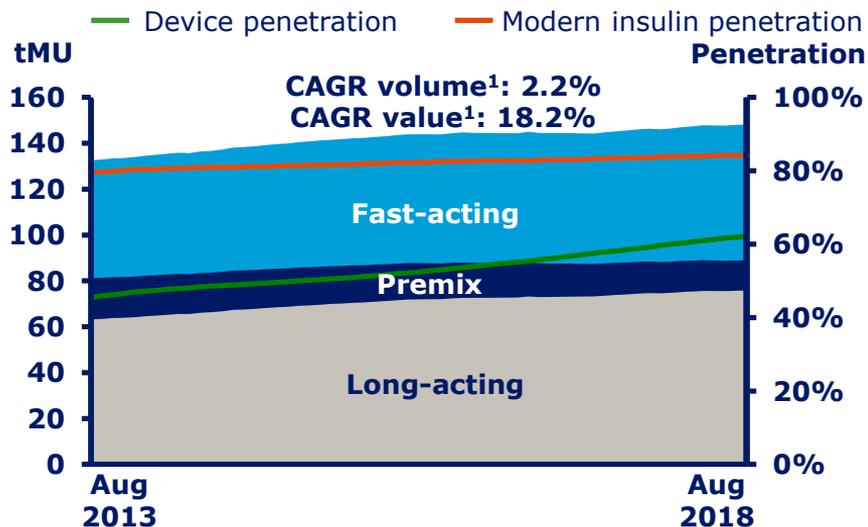
Note: Data is sensitive to changes in IQVIA data collection and reporting methodology, does not add up to 100% as only selected pharmaceutical companies are included

Source: IQVIA monthly MAT Aug, 2018 volume figures

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



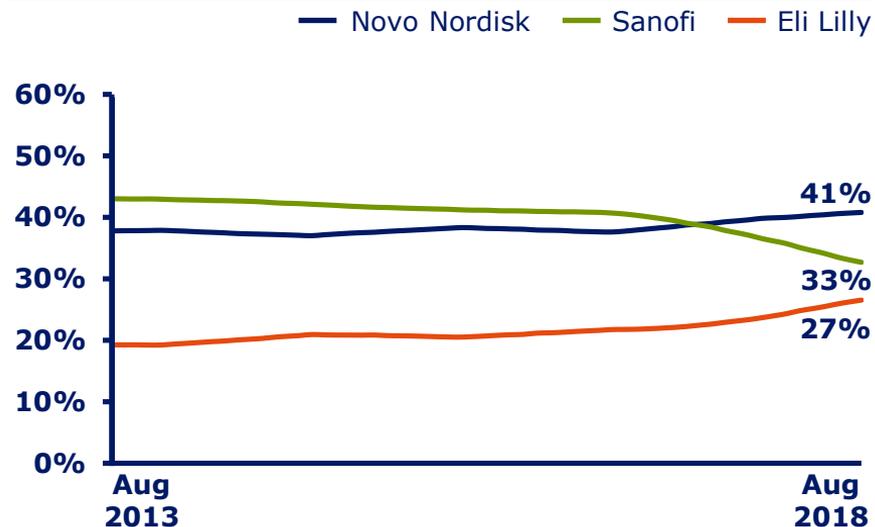
## USA insulin market by segment



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

Source: IQVIA monthly MAT Aug, 2018 volume and value (DKK) figures

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



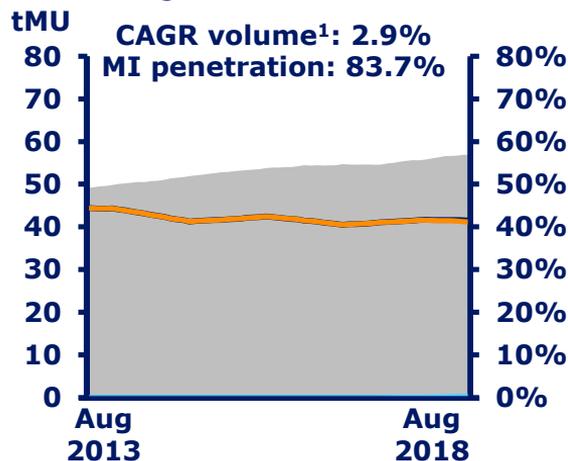
Source: IQVIA monthly MAT Aug, 2018 volume figures

# Novo Nordisk's modern and new generation insulins have a stable market position in the USA



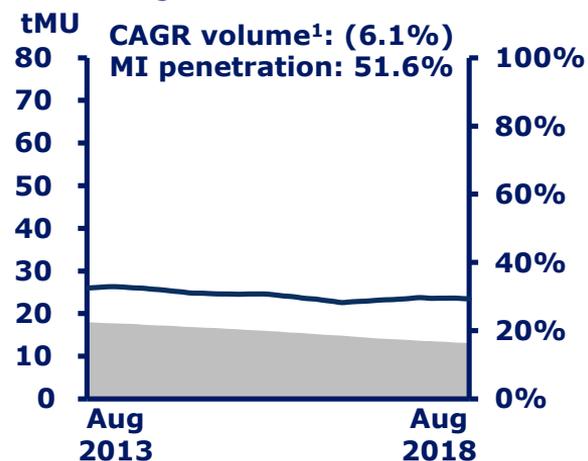
## USA fast-acting insulin

■ Segment volume    — FIASP® share  
— NovoLog® share    — Combined NN



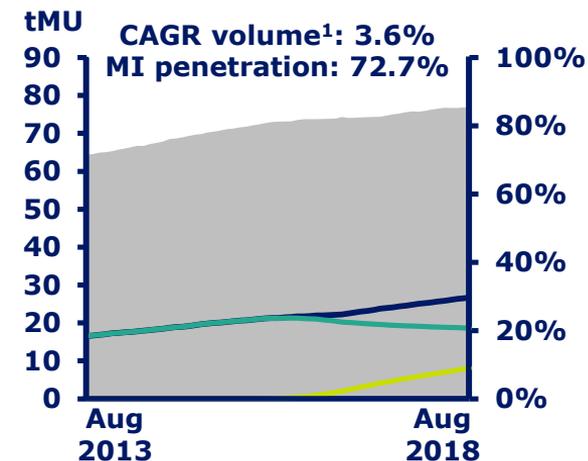
## USA premix insulin

■ Segment volume    — NovoLog® Mix 70/30 share



## USA long-acting insulin

■ Segment volume    — Levemir® share  
— Tresiba® share    — Combined NN



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

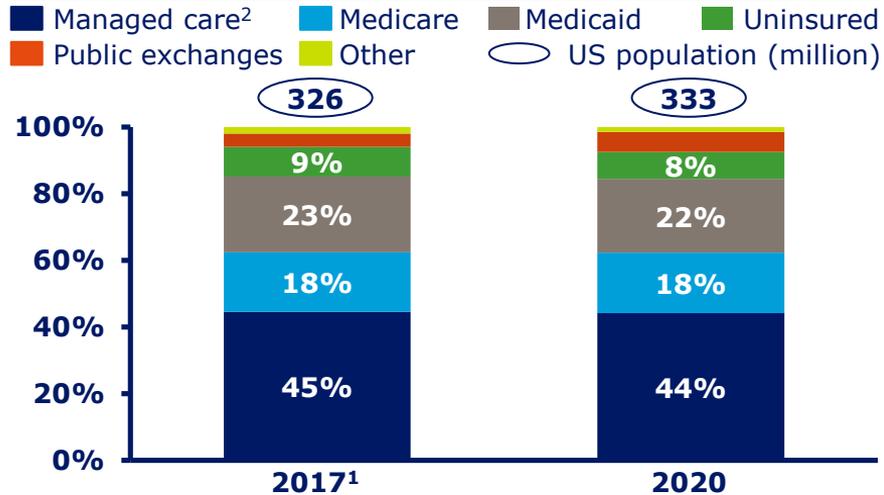
Source: IQVIA monthly MAT Aug, 2018 volume figures

NN: Novo Nordisk

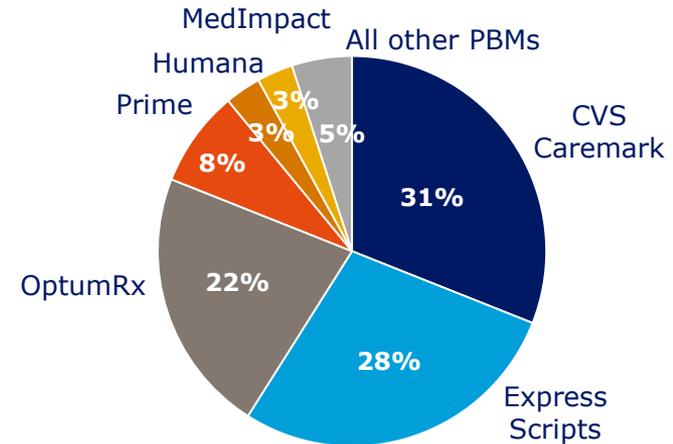
# US health insurance is dominated by few large commercial payers with slow expansion of public insurance coverage



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



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



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

<sup>2</sup> Managed care population is slightly underestimated as only population under 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

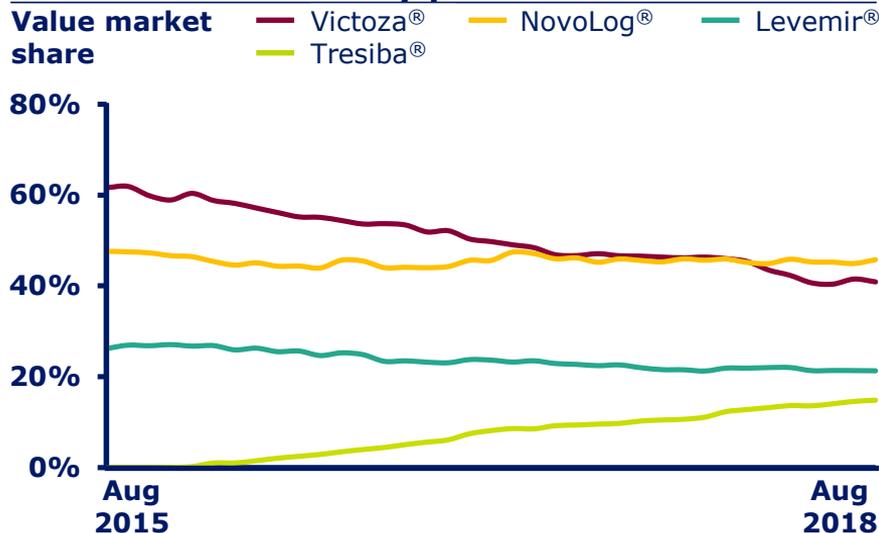
Note: Covers all main channels (Managed Care, Medicare Part D, and Medicaid); market share based on claim adjudication coverage, i.e. not on formulary/rebate decision power  
Sources: Cleveland Research



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



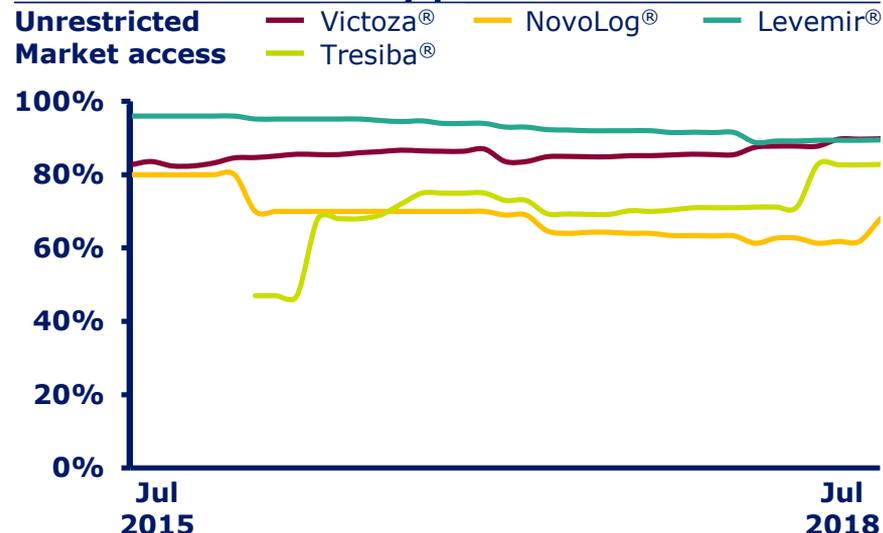
## Value market shares of Novo Nordisk key products in the USA



Source: IQVIA NSP August 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

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



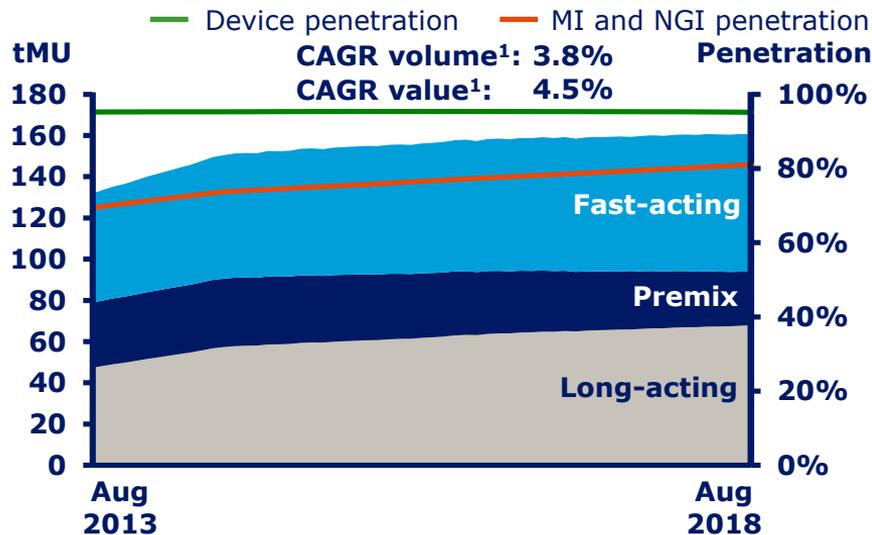
Source: FingerTip Formulary bridge, July 2018 Nomenclature and Xponent PlanTrak; only considers bridged volume; excludes cash and mail order data;

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 January 2016

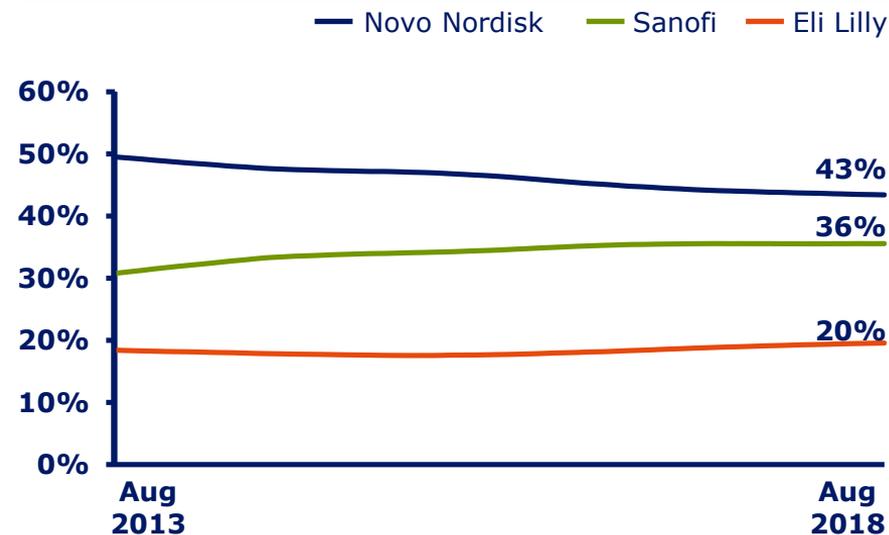
# Sustained leadership position in the European modern and new-generation insulin market



## 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

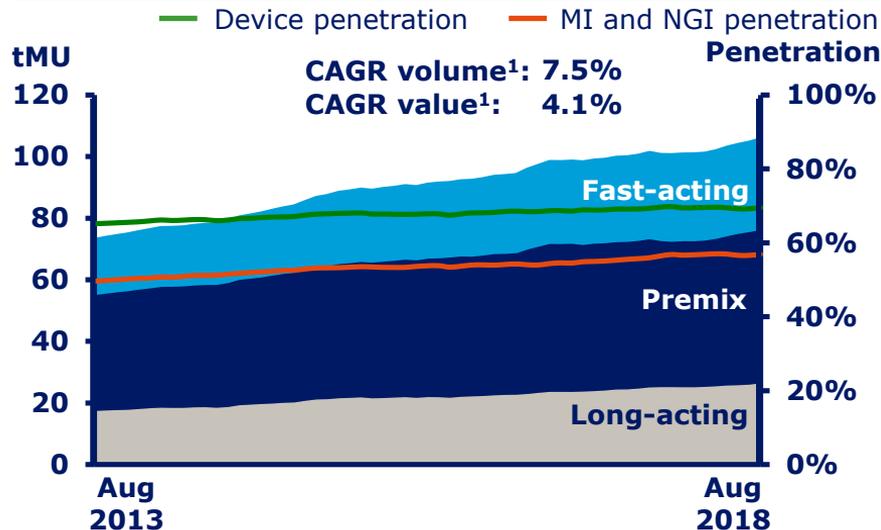
Source: IQVIA monthly MAT Aug, 2018 volume and value (DKK) figures

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

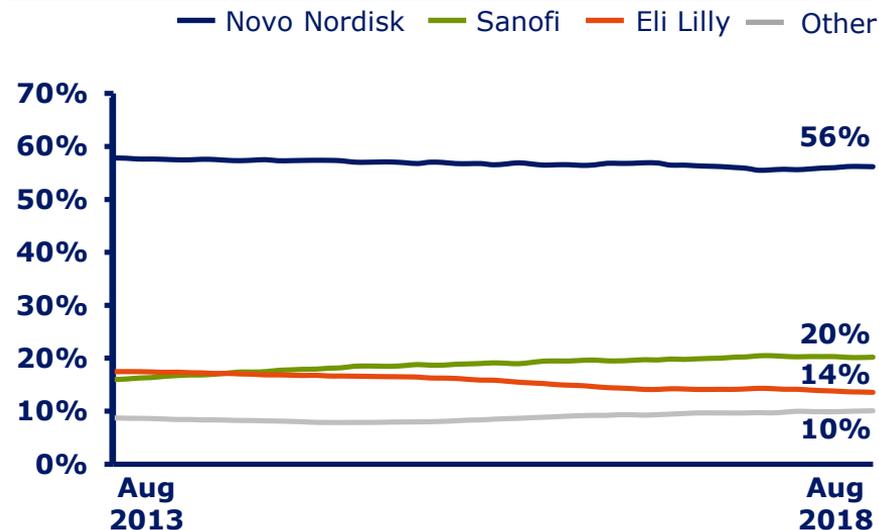
# Stable insulin leadership position in Region AAMEO



## 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 Aug, 2018 volume and value (DKK) figures

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

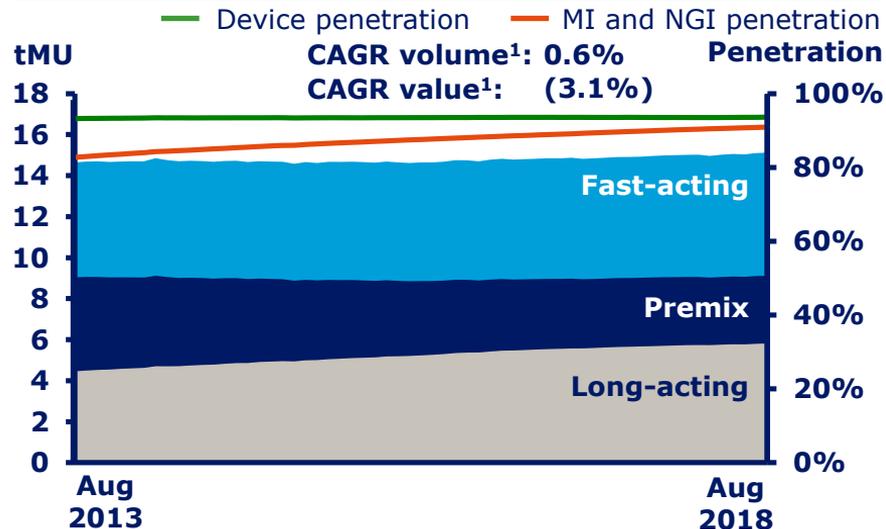
Source: IQVIA monthly MAT Aug, 2018 volume figures



# Solid insulin market leadership position in Region Japan & Korea



## Region Japan & Korea insulin market by segment

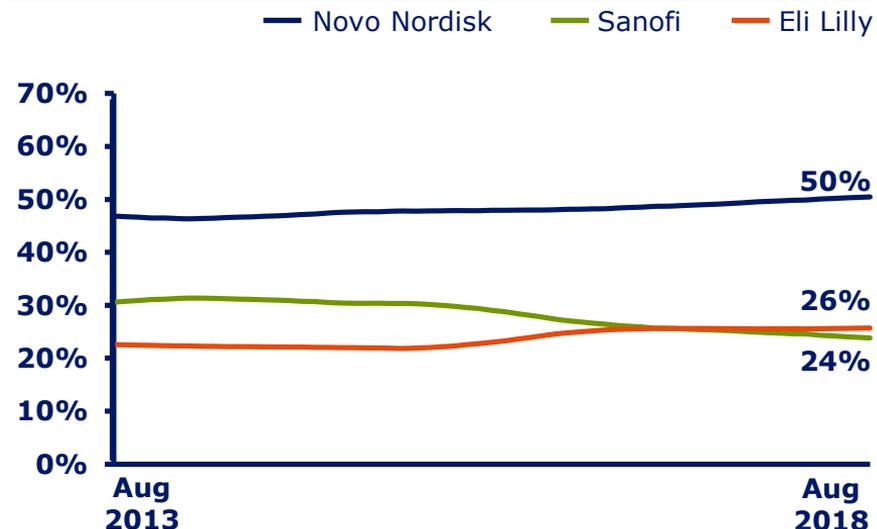


<sup>1</sup> CAGR for 5-year period

MI: Modern insulin; NGI: New-generation insulin

Source: IQVIA monthly MAT Aug, 2018 volume and value (DKK) figures

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

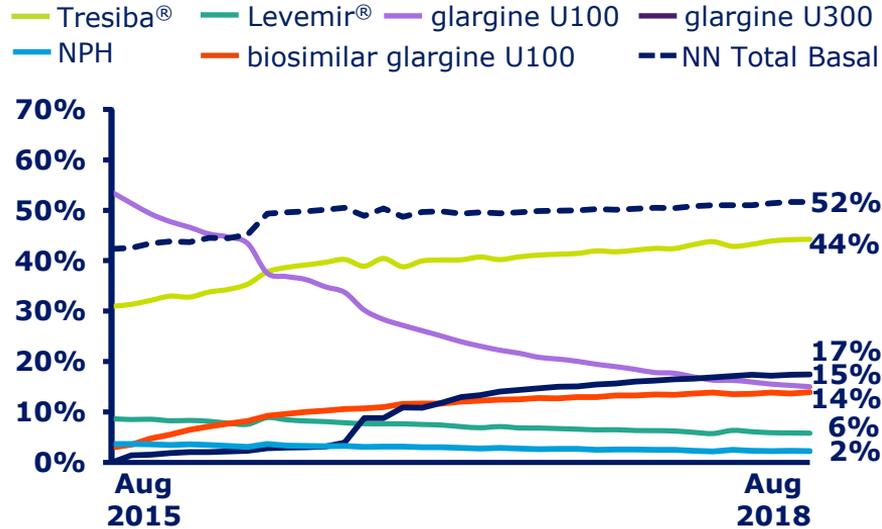


Source: IQVIA monthly MAT Aug, 2018 volume figures

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

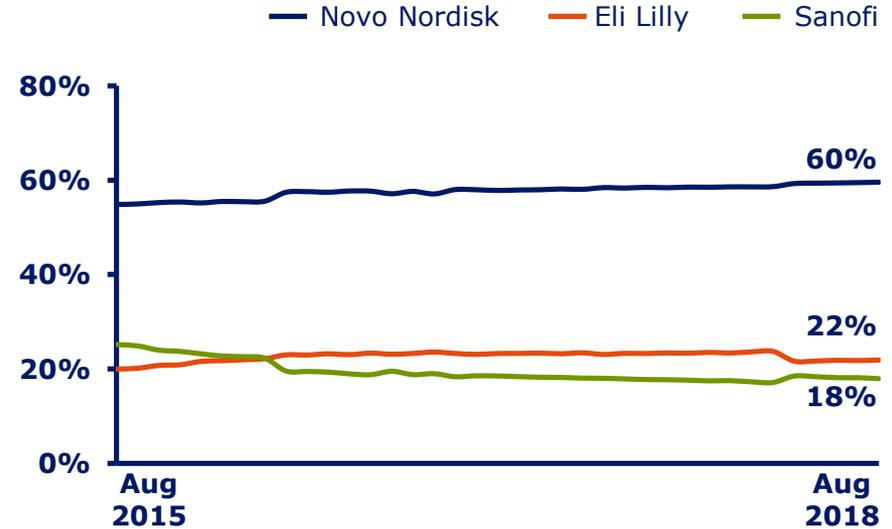


## Japanese basal value market shares



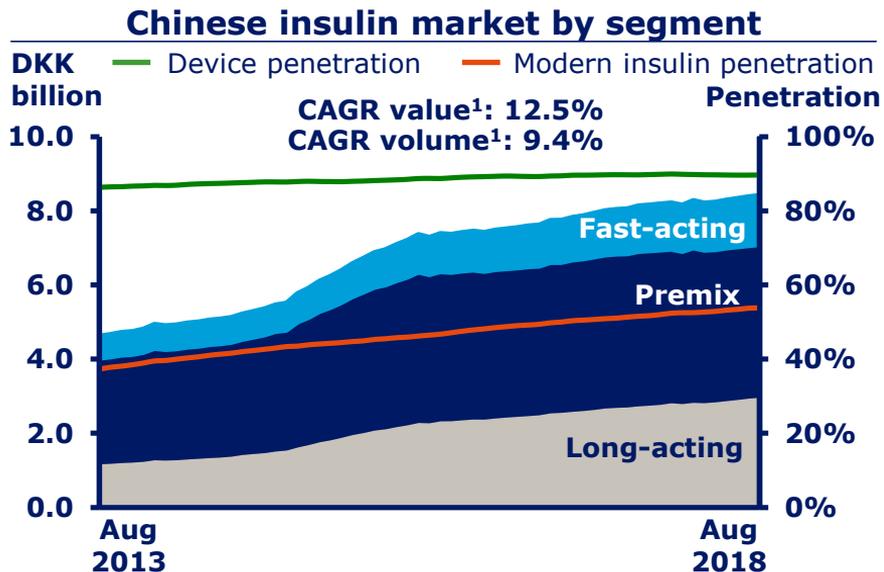
Source: IQVIA monthly MAT Aug, 2018 value figures

## Japanese total insulin value market shares

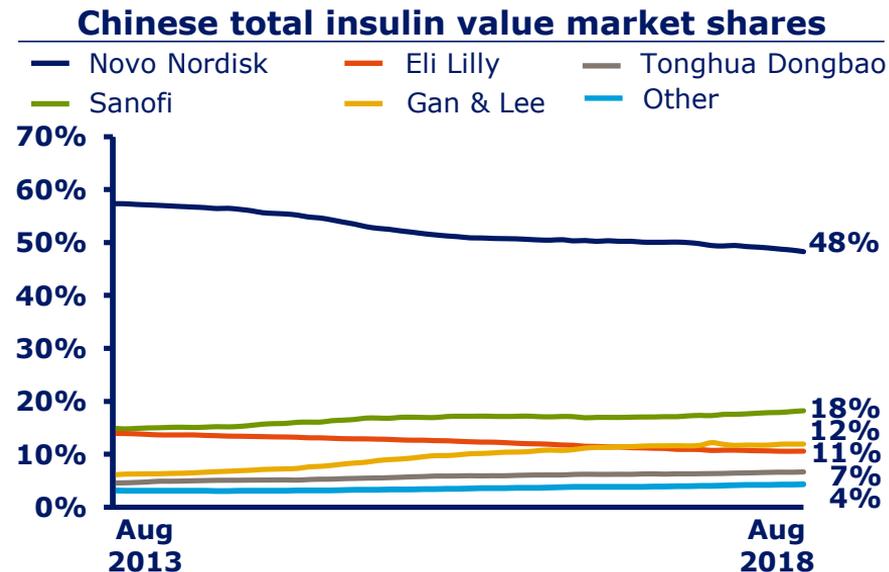


Source: IQVIA monthly MAT Aug, 2018 value figures

# Continued value growth in the Chinese long-acting insulin segment



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

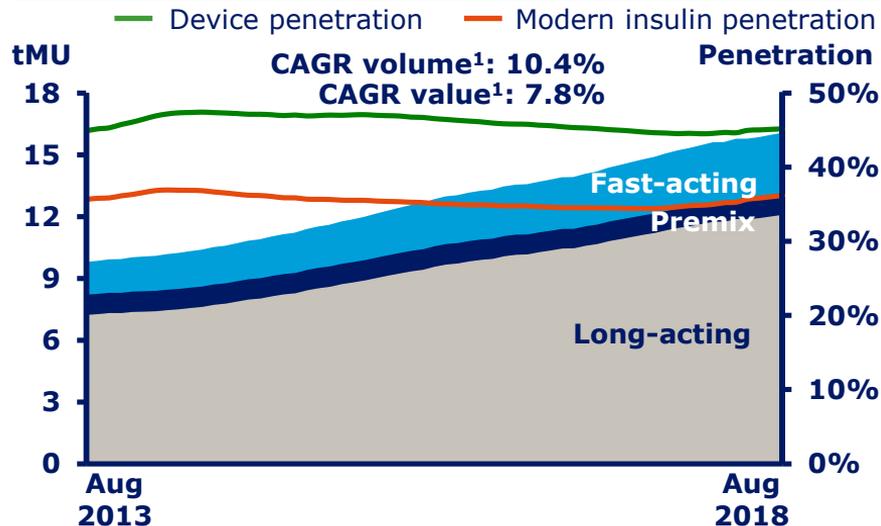


Note: Only selected competitors  
Source: IQVIA Rolling MAT Aug, 2018 value figures

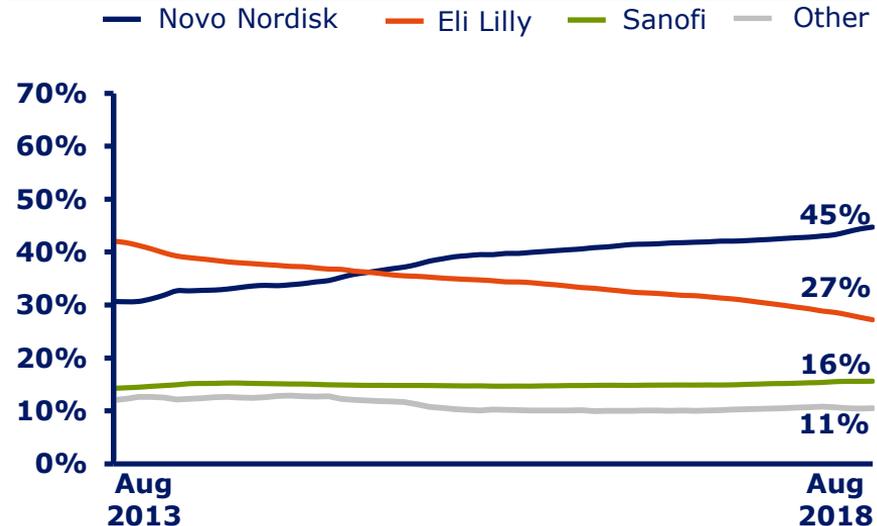
# Novo Nordisk has strengthened its insulin volume market share in Region Latin America



## 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 Aug, 2018 volume and value (DKK) figures

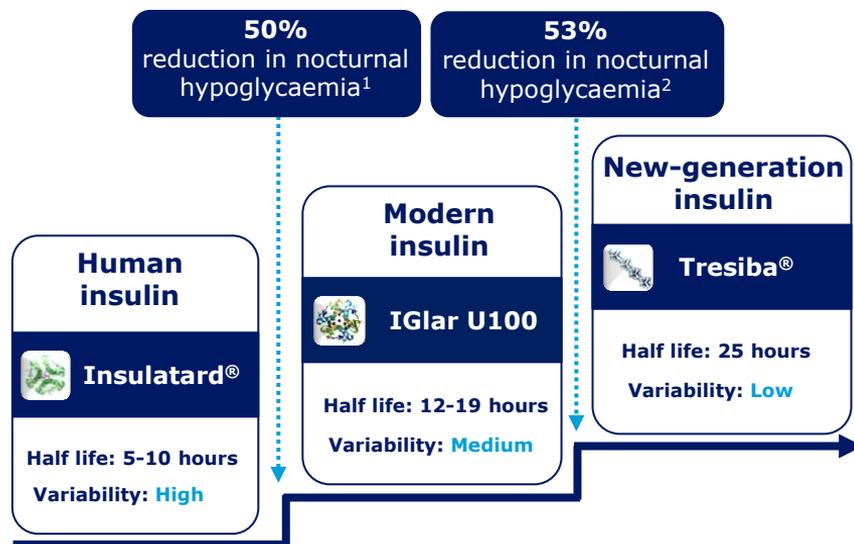
Note: Only top-3 shown

Source: IQVIA monthly MAT data Aug, 2018 volume figures, numbers do not add up to 100% due to roundings



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

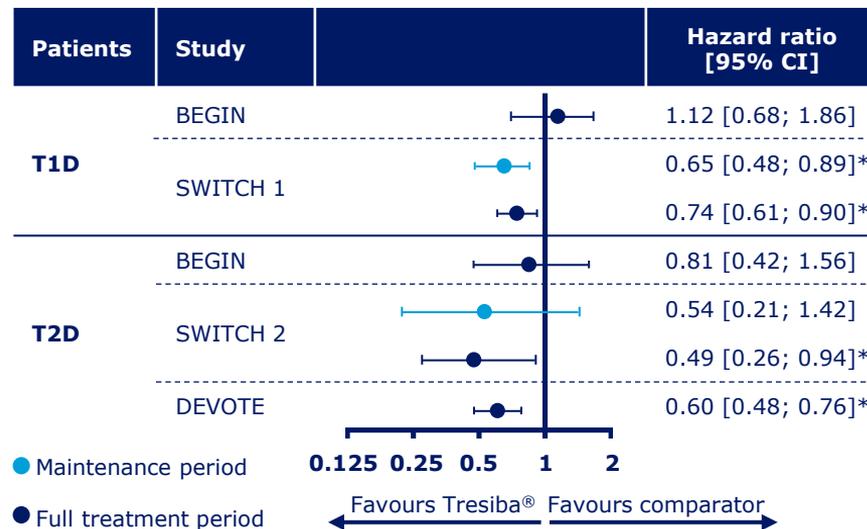
Tresiba® is a leap on the innovation ladder by further reducing nocturnal hypoglycaemia



<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, June 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 3a 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, June 12 2017

# GLP-1



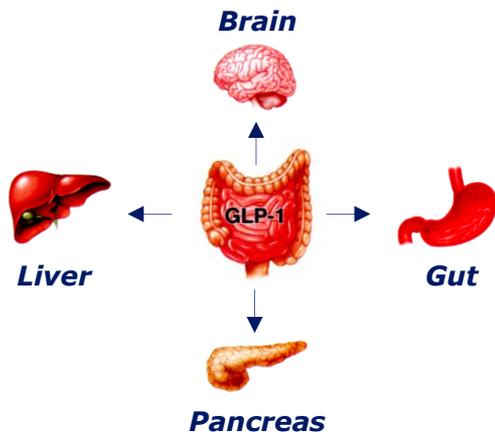
REN YANXIA  
Ren has type 2 diabetes  
China

- |                                        |       |
|----------------------------------------|-------|
| 1. GLP-1 treatment                     | 70    |
| 2. GLP-1 growth and market share       | 71    |
| 3. GLP-1 pipeline                      | 75    |
| 4. Ozempic®                            | 76    |
| 5. GLP-1 market value in Regions       | 77-82 |
| 6. Clinical trials (SUSTAIN & PIONEER) | 83    |

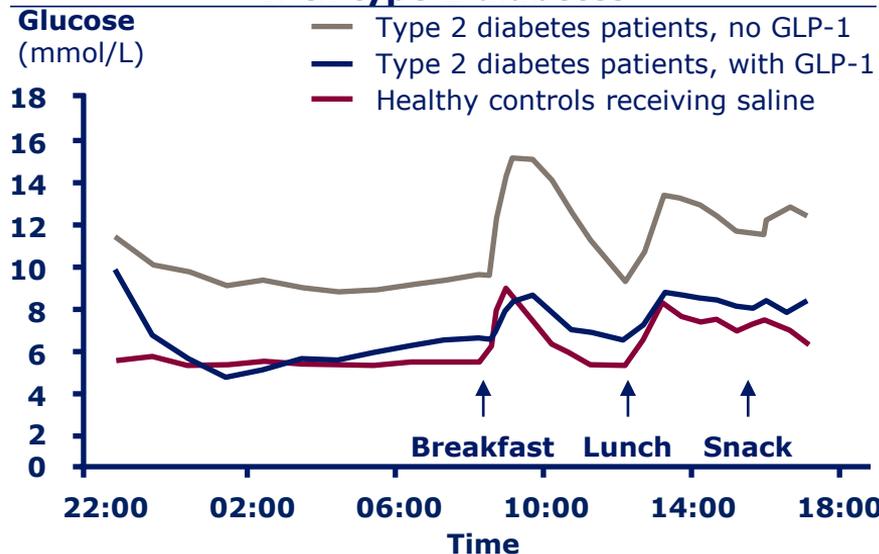
# GLP-1 effect dependent on level of blood glucose

## 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

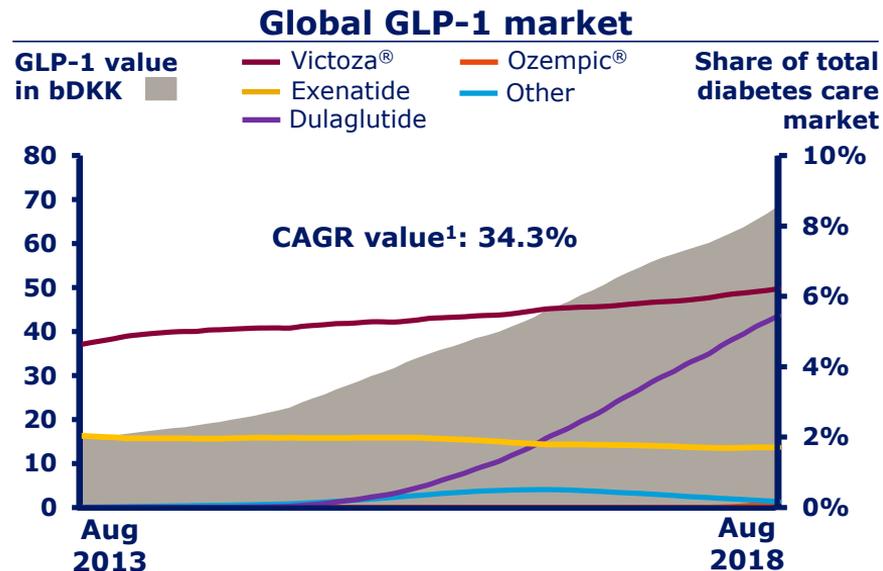


## GLP-1 lowers blood glucose in patients with type 2 diabetes

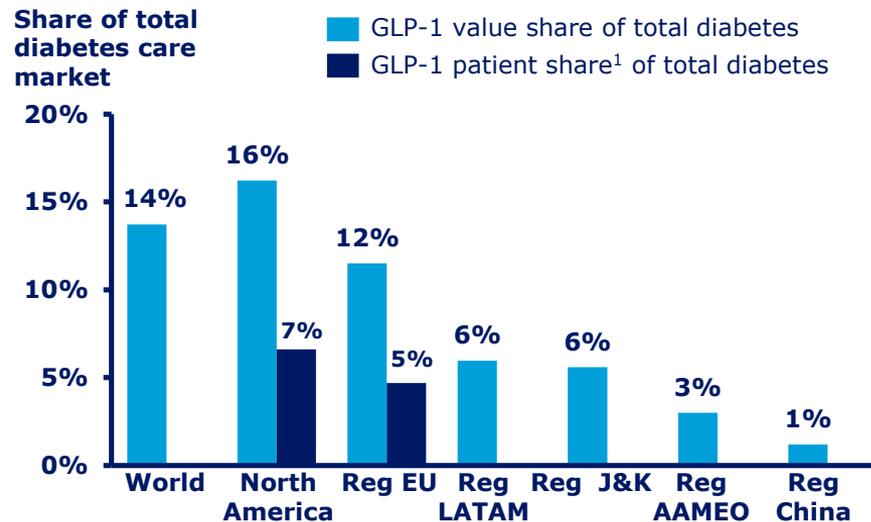


Source: Rachman et al. Diabetologia 1997;40:205-11

# 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 Aug, 2018 value figures (DKK)

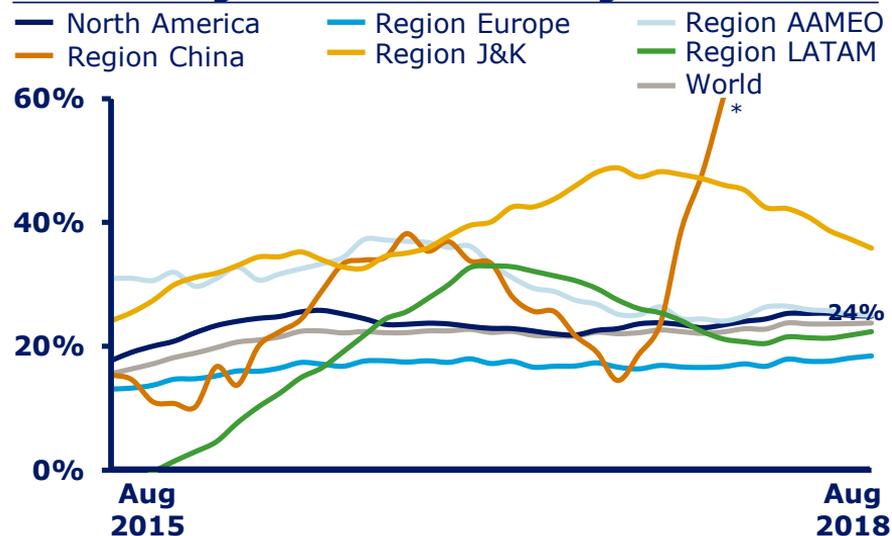
Reg: Region; AAMEO: Africa, Asia, the Middle-East and Oceania; J&K: Japan & Korea; LATAM: Latin America

<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 Aug, 2018. Patient data; IQVIA Disease Analyser (DE, FR, UK), Quintiles IQVIA LRx (USA), Aug 2018

# Strong GLP-1 volume growth in all regions

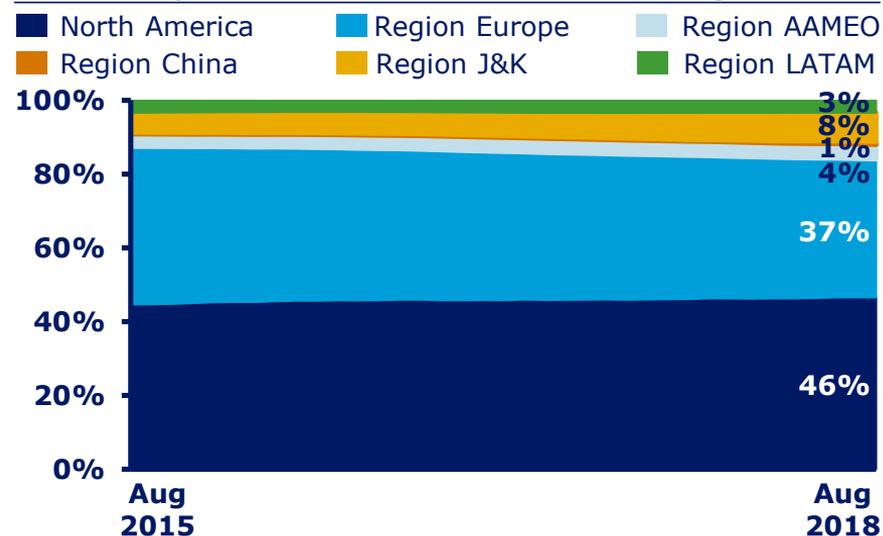
## Regional GLP-1 volume growth



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 163% MAT Aug, 2018; \* increases to 163% in latest observation  
 Source: IQVIA monthly MAT Aug, 2018 volume figures

changing  
diabetes®

## Regional GLP-1 volume market split



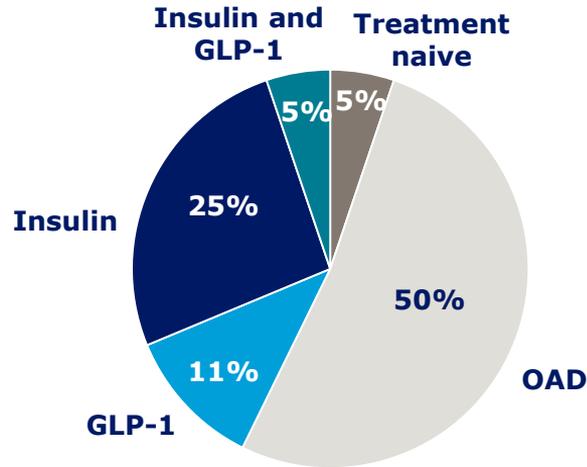
Note: Data is sensitive to changes in IQVIA data collection and reporting methodology; Numbers does not add up to 100% due to rounding

Source: IQVIA monthly MAT Aug, 2018 volume figures

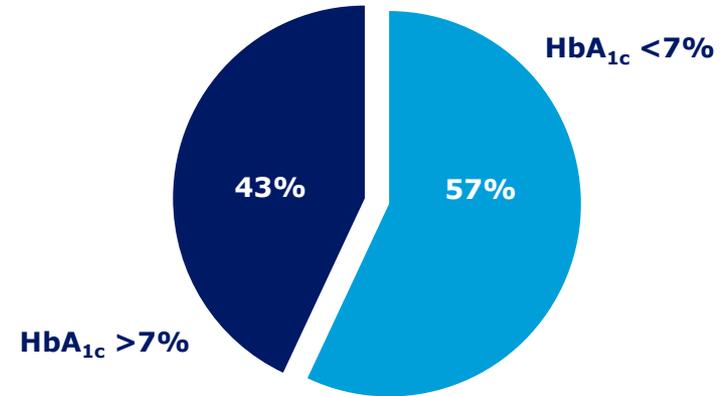


# GLP-1 patients primarily switch from OADs and untapped potential is large with many OAD patients not in control

**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**

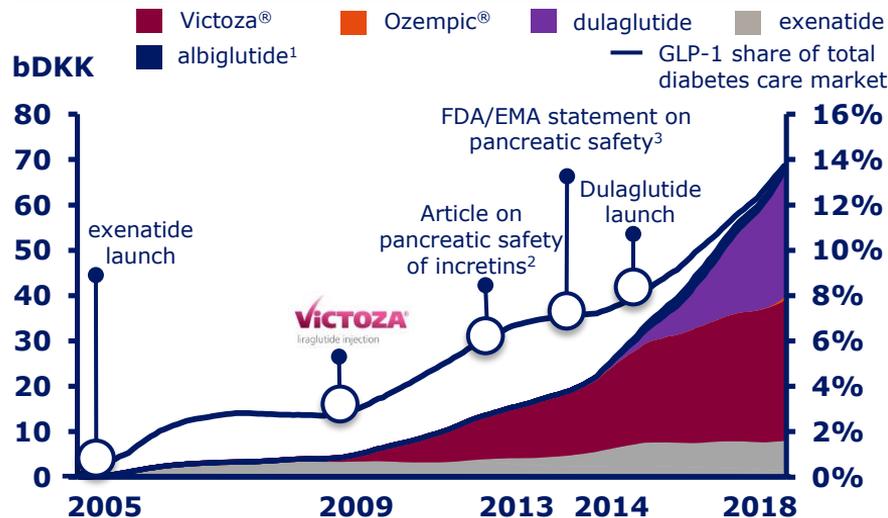


Note: Data based on data from France, Germany, UK and USA only  
 OAD: Oral anti-diabetic (includes but is not limited to DPP-IV, SGLT-2, metformin and sulfonylurea)  
 Source: IQVIA Disease Analyser (France, Germany and UK) and IQVIA (formerly IMS) LRx (USA), Jun 2018

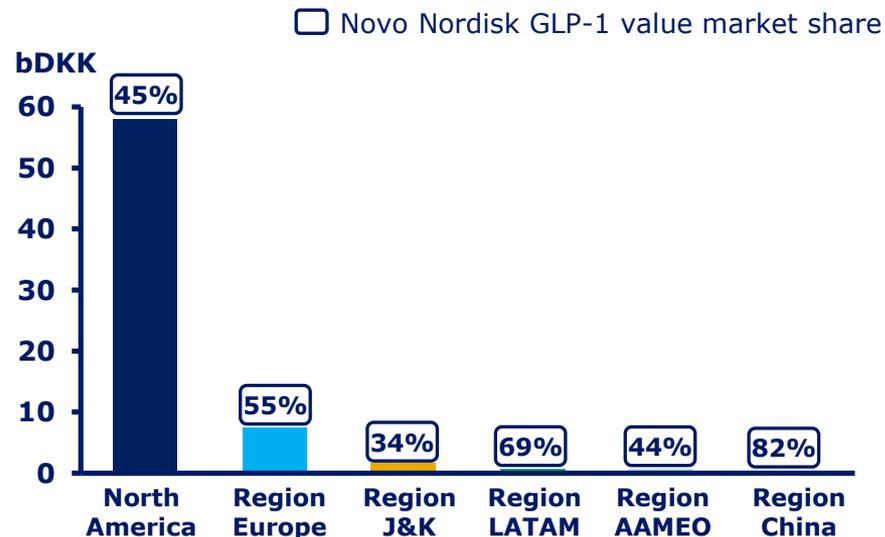
Note: Data based on data from France, Germany and UK only  
 Source: IQVIA Disease Analyser (France, Germany and UK), Sep 2017

# 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 July 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, Aug 2018 (Note: IQVIA data does not adequately capture rebates resulting in an overstatement of market value)

FDA: 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 August 2018; IQVIA MIDAS, Aug 2018



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

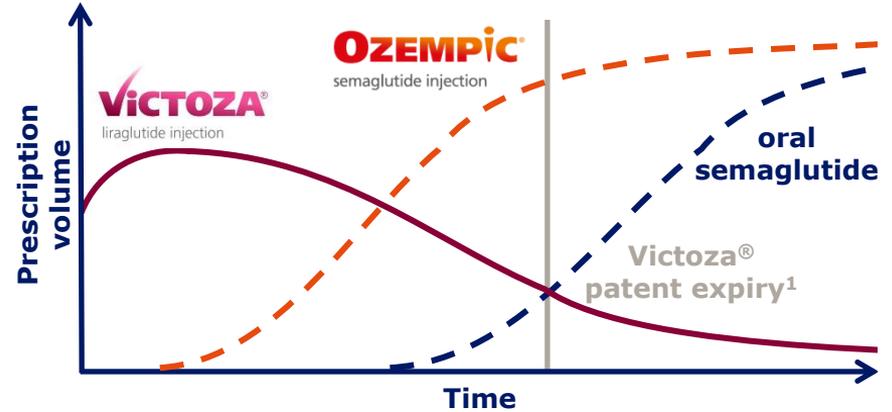
Promotional focus to shift from Victoza® towards Ozempic® as market access emerges

*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

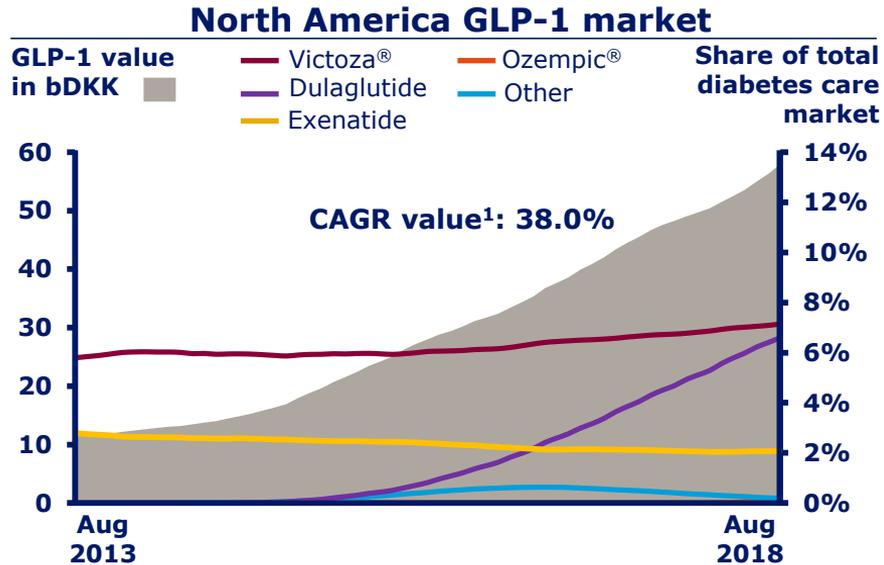


## CV data from SUSTAIN 6 trial in Ozempic® EU label

	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 16% of total diabetes care market value in North America



## Key observations for Victoza® and Ozempic® in the USA

- Victoza® and Ozempic® value market share within the GLP-1 segment is 45%<sup>2</sup>
- Around 94% of new patients who start on Victoza® transition from outside of GLP-1 segment. Around 71% of new patients who start on Ozempic® transition from outside of GLP-1 segment<sup>3</sup>
- Unrestricted access for Ozempic® is more than 2/3 for Commercial and Medicare Part D combined
- Around 70% of Victoza® prescriptions are for the higher dose 1.8 mg. Around 36% 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 Aug, 2018 value figures (DKK)

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

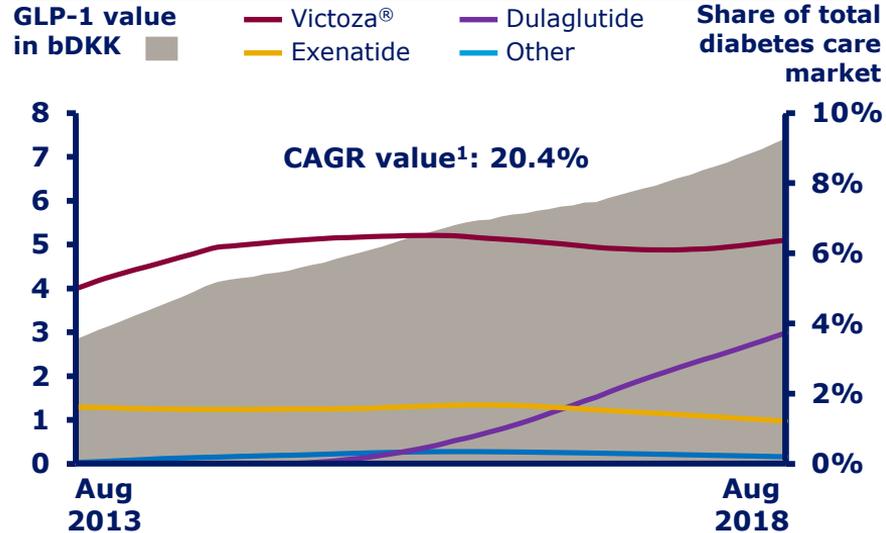
<sup>3</sup> IQVIA SOB, week 14 September 2018 (based on 4 week average)

<sup>4</sup> IQVIA, NPA, August 2018

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

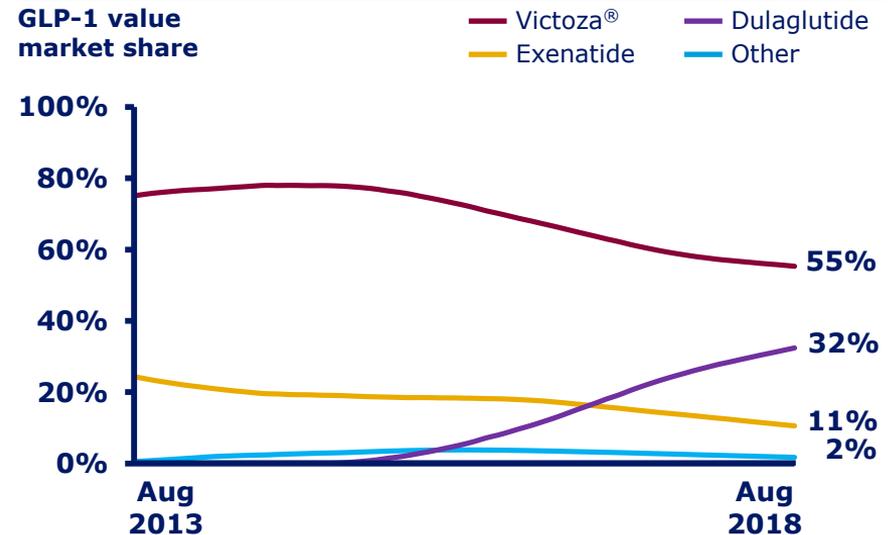


## European GLP-1 market



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

## Victoza® value market share in Region Europe



Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

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

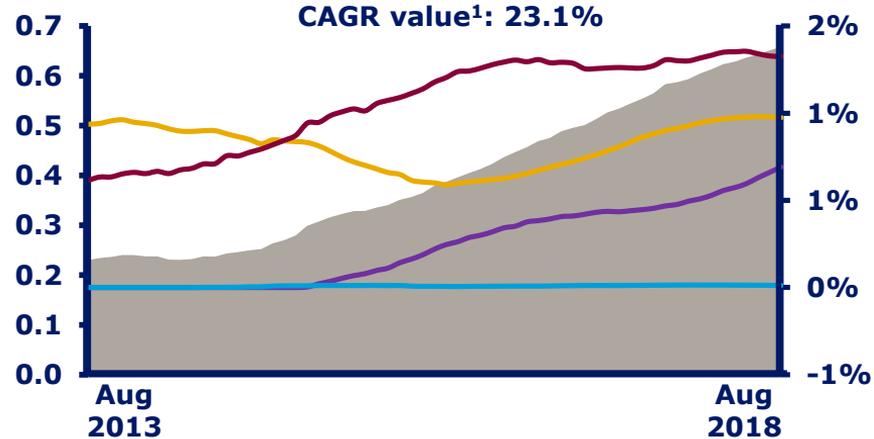


## Region AAMEO GLP-1 market

GLP-1 value in bDKK

Victoza® Exenatide Dulaglutide Lixisenatide

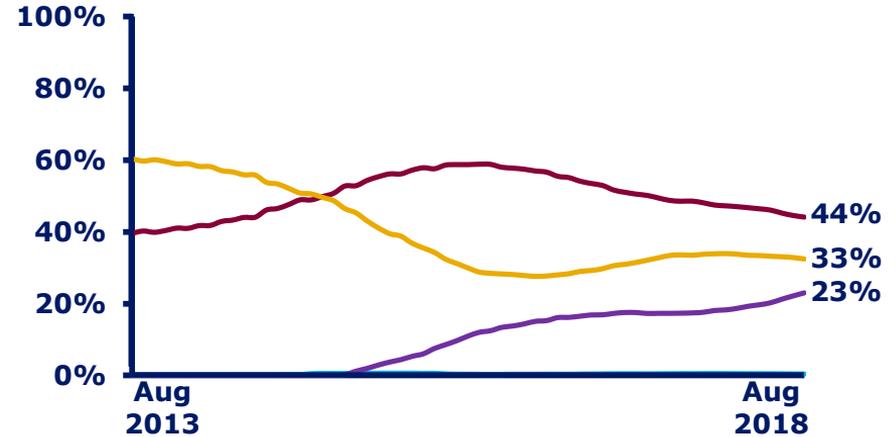
Share of total diabetes care market



## Victoza® value market share in Region AAMEO

GLP-1 value market share

Victoza® Exenatide Dulaglutide Lixisenatide



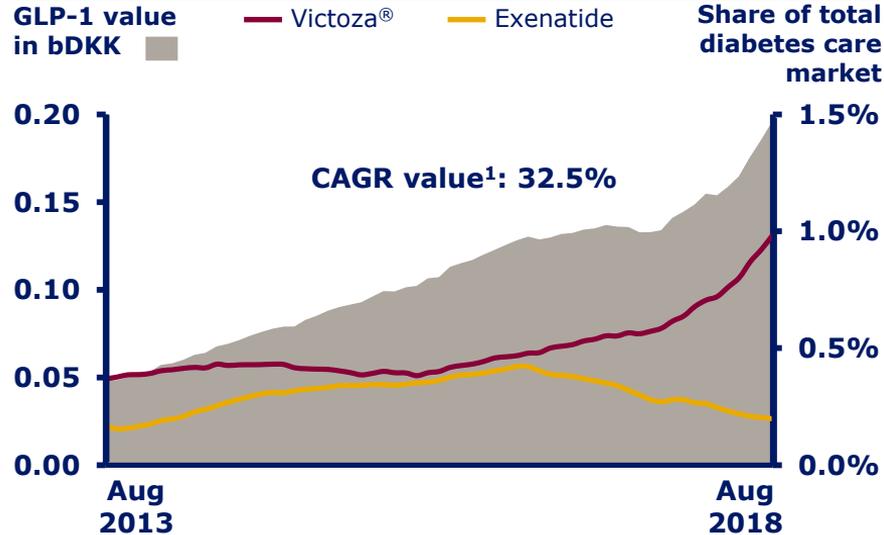
<sup>1</sup> CAGR for 5-year period  
 AAMEO: Africa, Asia, the Middle East and Oceania  
 Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

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

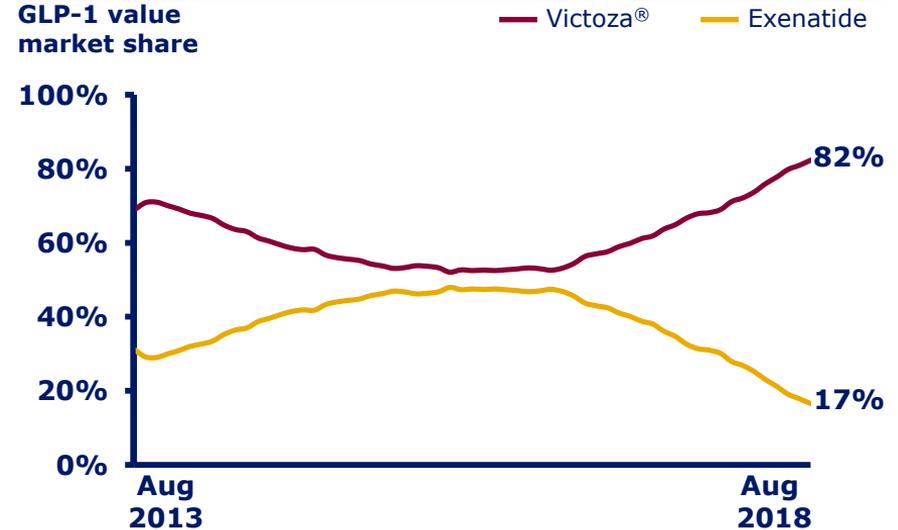


## Chinese GLP-1 market



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

## Victoza® value market share in Region China

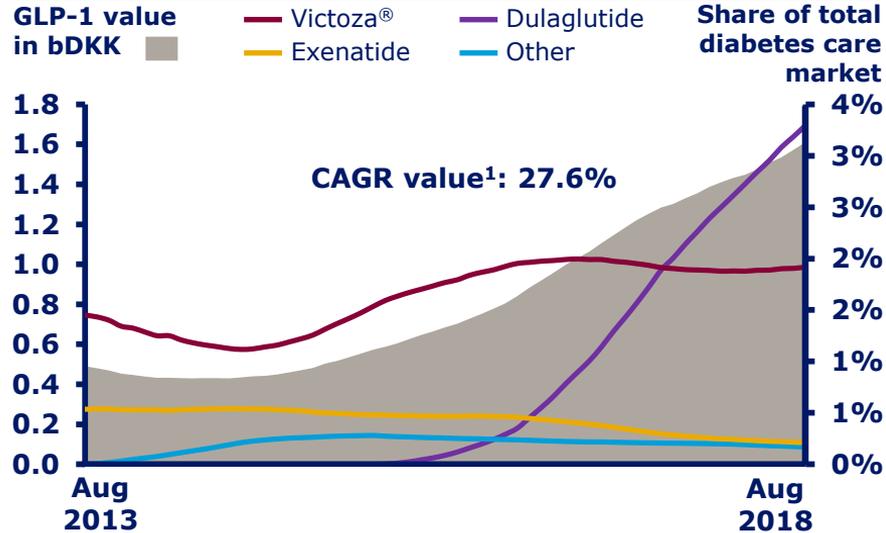


Source: IQVIA monthly MAT Aug, 2018 value figures (DKK), market share does not add up to 100% due to rounding

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

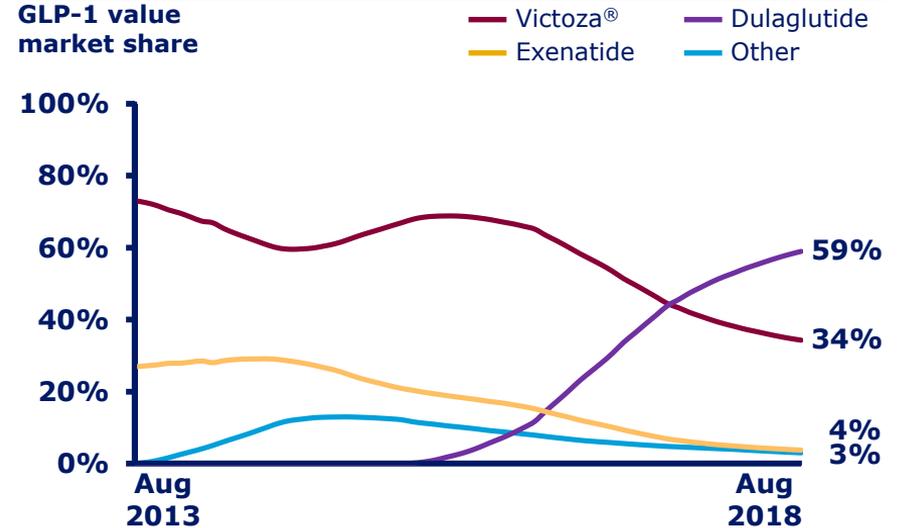


## Region Japan & Korea GLP-1 market



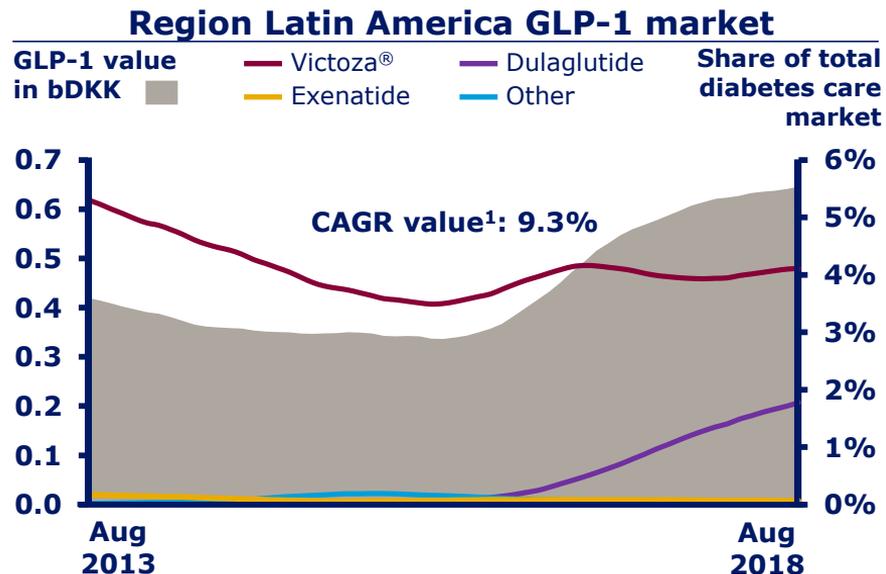
<sup>1</sup> CAGR for 5-year period  
Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

## Victoza® value market share in Region Japan & Korea



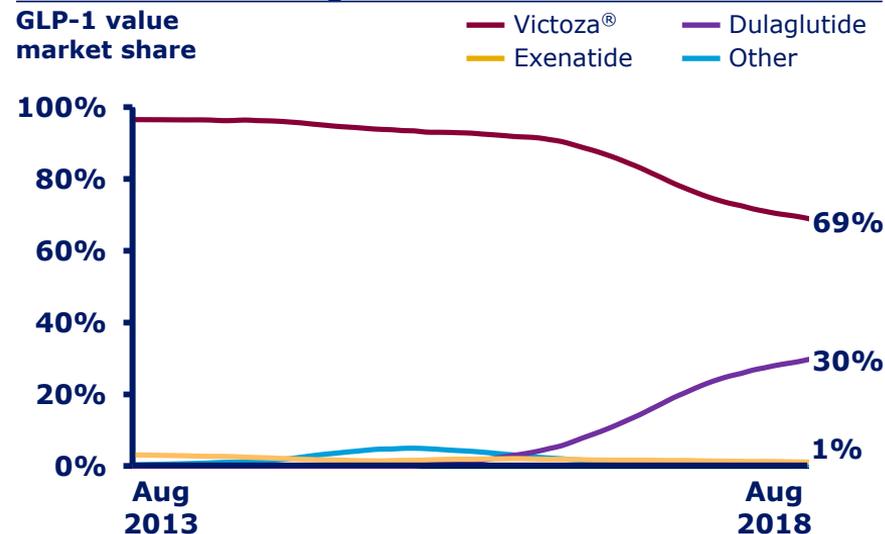
Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

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



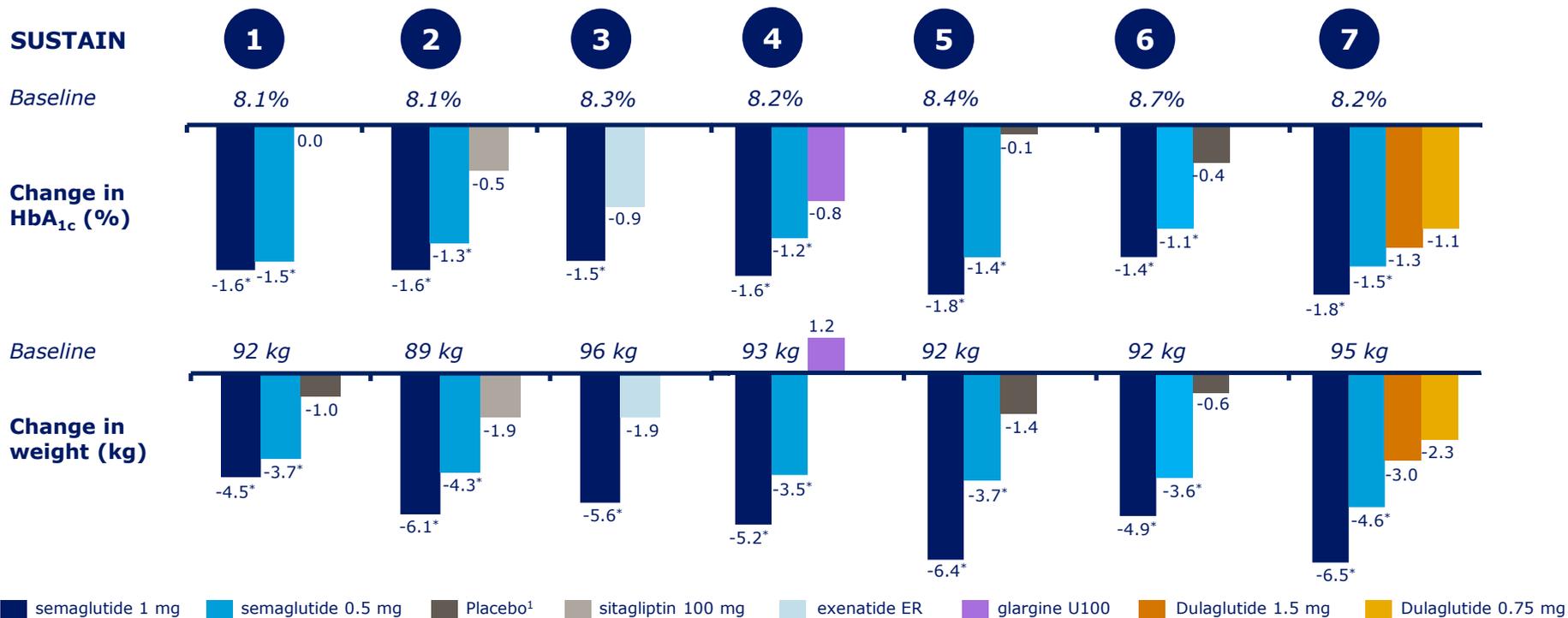
<sup>1</sup> CAGR for 5-year period  
Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

### Victoza® value market share in Region Latin America



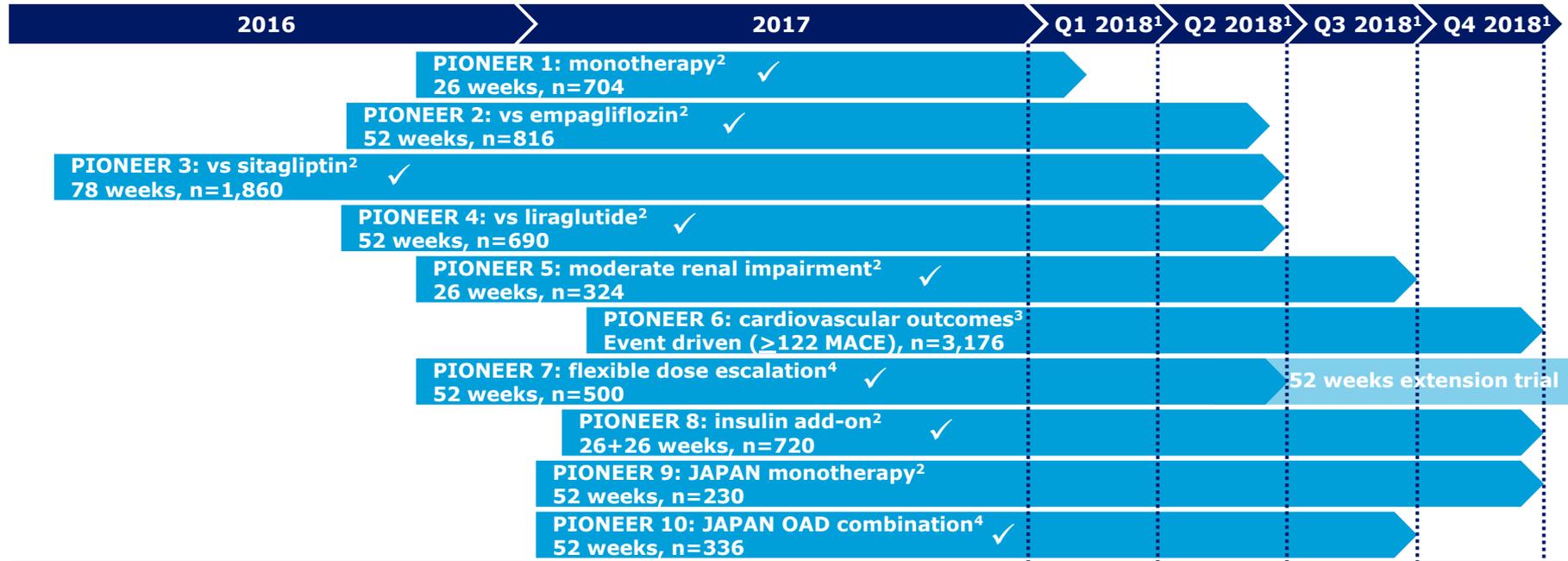
Source: IQVIA monthly MAT Aug, 2018 value figures (DKK)

# 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

# 8 out of 10 PIONEER trials for oral semaglutide are completed, rest are expected to read out during Q4 2018



<sup>1</sup> Expected to be published in the given quarter or in the subsequent quarterly company announcement. Estimated timing from first patient first visit to completion of trial

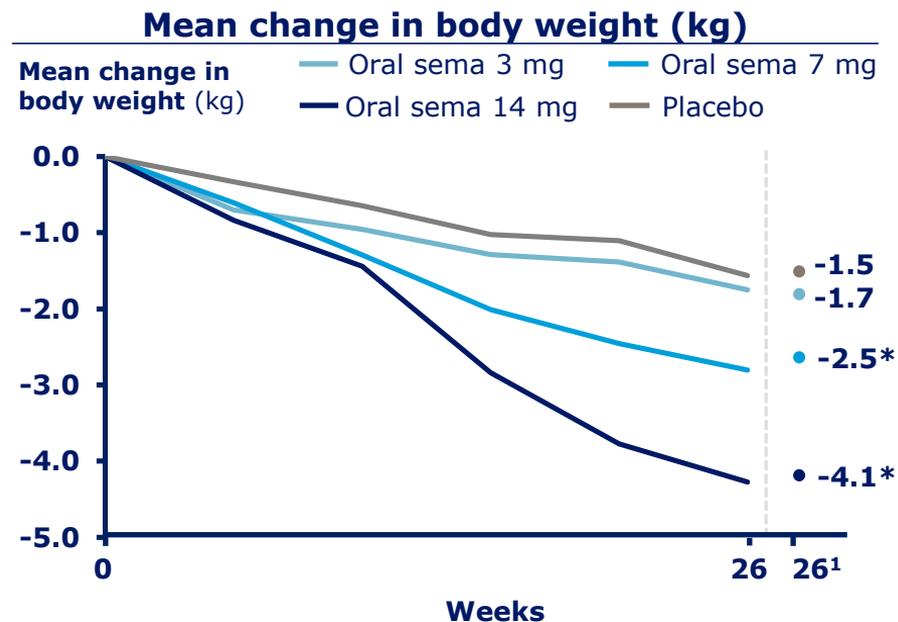
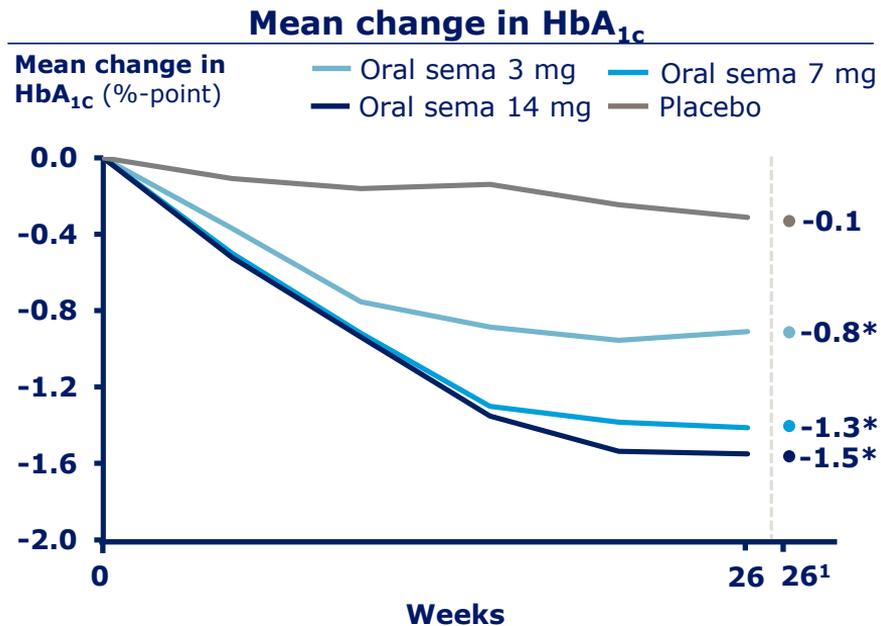
<sup>2</sup> Primary endpoint after 26 weeks of treatment by using the statistical method: Treatment policy estimand approach

<sup>3</sup> Primary endpoint after  $\geq 122$  major adverse cardiovascular events (MACE), defined by non-fatal stroke, non-fatal myocardial infarction or CV death

<sup>4</sup> Primary endpoint after 52 weeks of treatment by using the statistical method: Treatment policy estimand approach

Note: n = approximate number of randomised people; OAD: Oral anti-diabetic; CV: Cardio vascular

# In PIONEER 1, oral semaglutide demonstrated a superior reduction in HbA<sub>1c</sub> and body weight at week 26 vs placebo



<sup>1</sup> Results illustrated by using the secondary statistical method called hypothetical estimand after 26 weeks of treatment: Treatment effect, if all participants followed the treatment without rescue medication (analysed by using Mixed Models for Repeated Measurements (MMRM)). The statistical method is consistent with e.g. the statistical method used for the SUSTAIN programme for subcutaneous semaglutide

\* Statistically significant versus placebo

Note: Mean baseline HbA<sub>1c</sub>: 8.0%

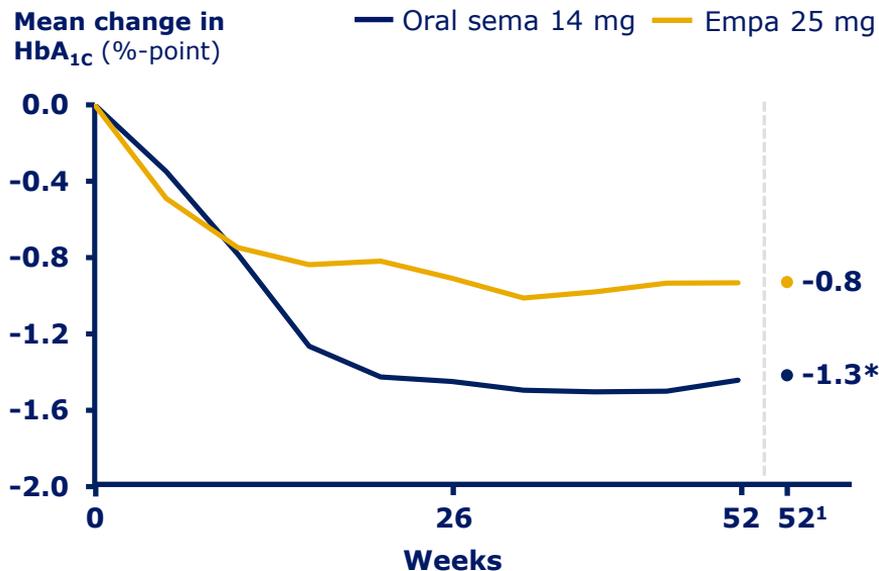
sema: semaglutide

Source: Presented at the Novo Nordisk investor event at American Diabetes Association, 78<sup>th</sup> Annual Scientific Sessions, Orlando, FL, USA

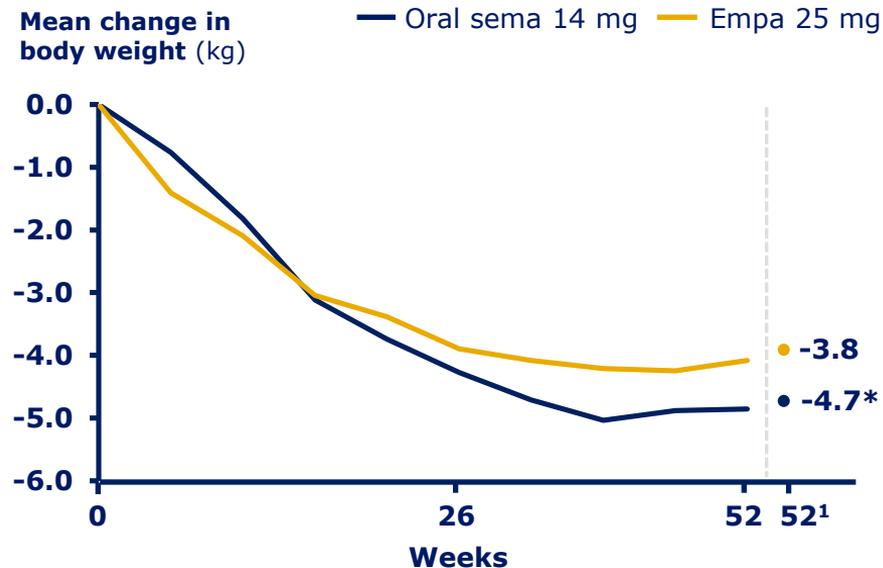


# In PIONEER 2, oral sema proved a statistically significant reduction in HbA<sub>1c</sub> and weight at week 52 vs empagliflozin

## Mean change in HbA<sub>1c</sub>



## Mean change in body weight (kg)



<sup>1</sup> Results illustrated by using the secondary statistical method called hypothetical estimand after 52 weeks of treatment: Treatment effect, if all participants followed the treatment without rescue medication (analysed by using Mixed Models for Repeated Measurements (MMRM)). The statistical method is consistent with e.g. the statistical method used for the SUSTAIN programme for subcutaneous semaglutide

\* Statistically significant versus empagliflozin

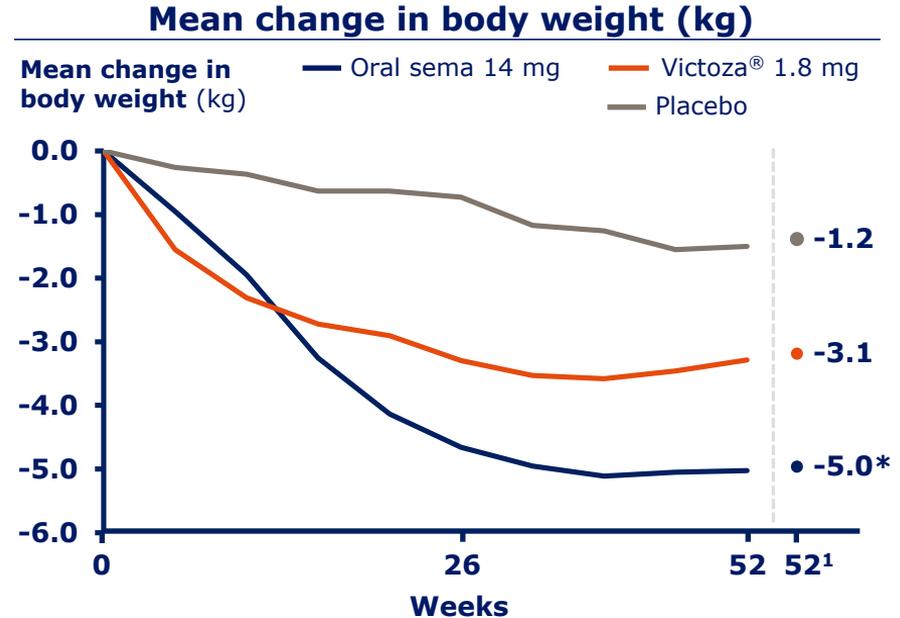
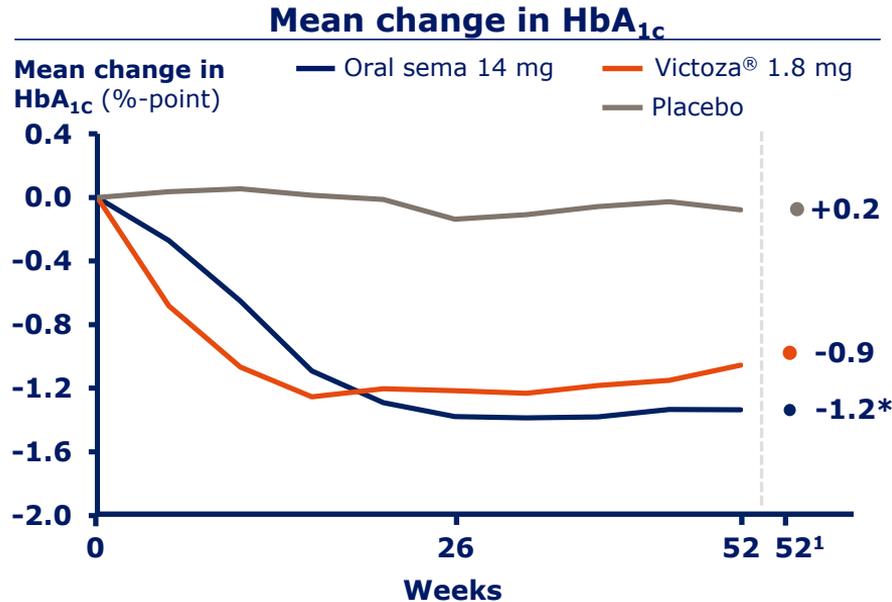
Note: Mean baseline HbA<sub>1c</sub>: 8.1%

sema: semaglutide; empa: empagliflozin

Source: Presented at the Novo Nordisk investor event at American Diabetes Association, 78<sup>th</sup> Annual Scientific Sessions, Orlando, FL, USA



# In PIONEER 4, oral sema proved a statistically significant reduction in HbA<sub>1c</sub> and body weight at week 52 vs Victoza®



<sup>1</sup> Results illustrated by using the secondary statistical method called hypothetical estimand after 52 weeks of treatment: Treatment effect, if all participants followed the treatment without rescue medication (analysed by using Mixed Models for Repeated Measurements (MMRM)). The statistical method is consistent with e.g. the statistical method used for the SUSTAIN programme for subcutaneous semaglutide

\* Statistically significant versus Victoza®

Note: Mean baseline HbA<sub>1c</sub>: 8.0%

sema: semaglutide

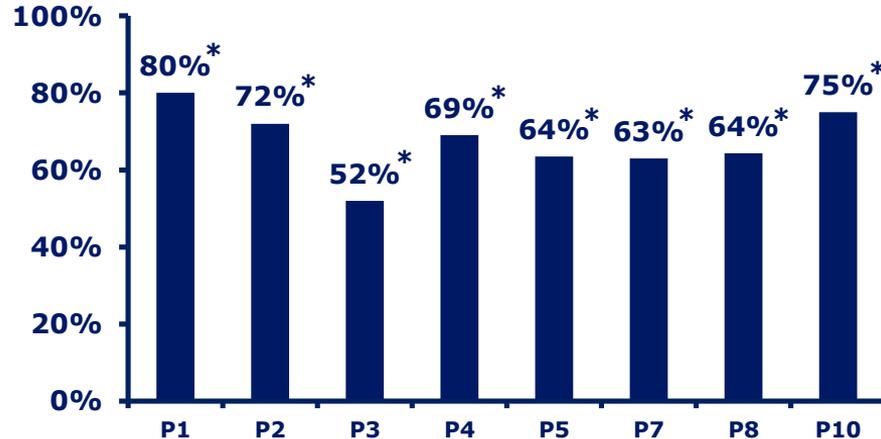
Source: Presented at the Novo Nordisk investor event at American Diabetes Association, 78<sup>th</sup> Annual Scientific Sessions, Orlando, FL, USA



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

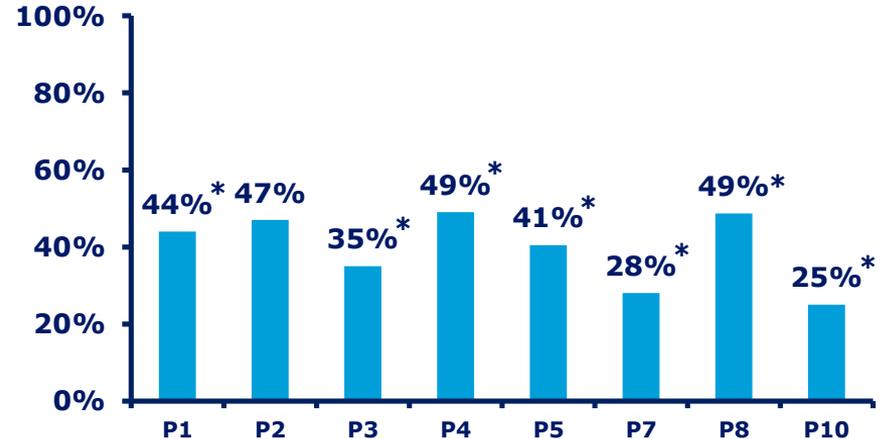
In completed PIONEER trials 52–80% of patients achieved an HbA<sub>1c</sub> level <7.0% (ADA guidance)<sup>1</sup>

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 and 4 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

T2DM: Type 2 diabetes mellitus

Source: Novo Nordisk data on file

# Obesity



**1. Obesity as a chronic disease** 90

**2. Obesity treatment** 91

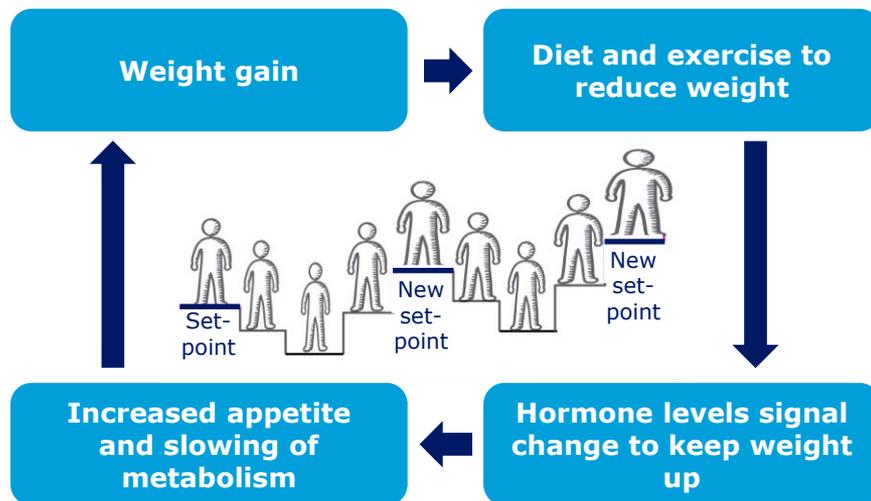
**3. Saxenda®** 93

**4. Obesity pipeline** 95

**5. STEP and SELECT** 96

# 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

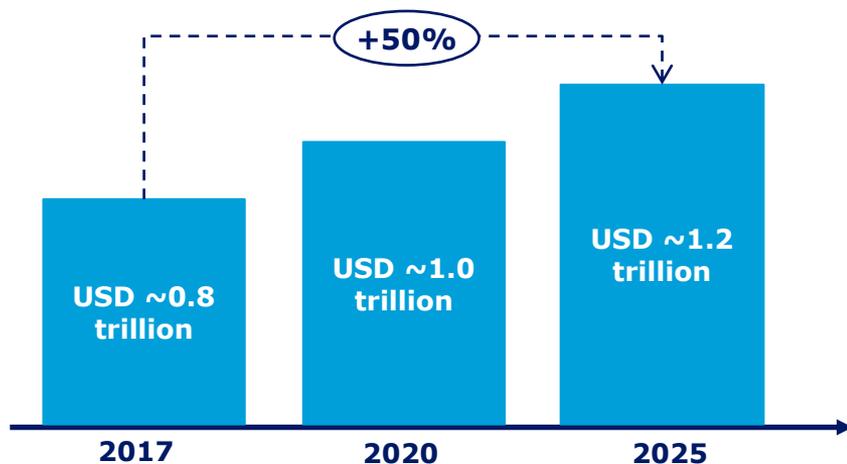
- Physicians not equipped to engage in and treat obesity

### 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

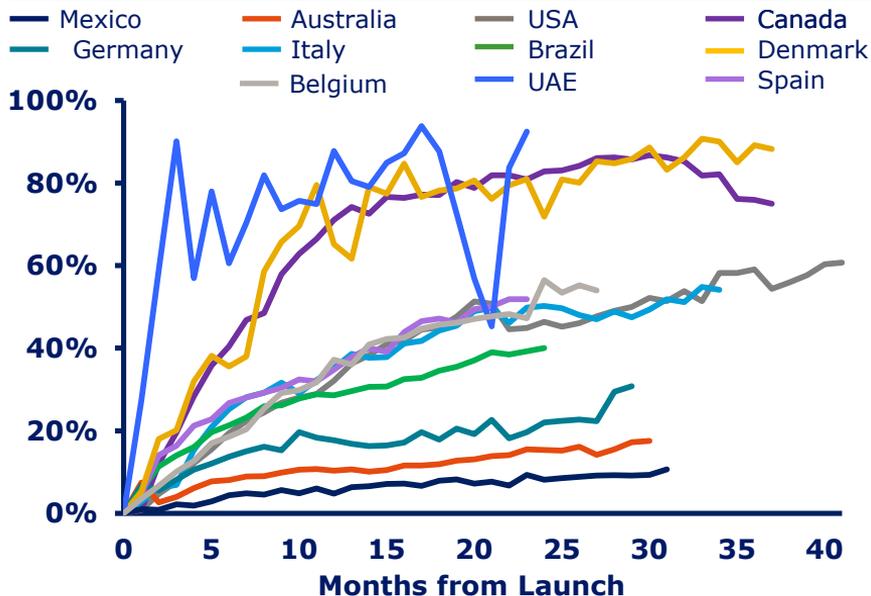
## Increase in healthcare costs primarily driven by obesity-related comorbidities

- 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, October 2017; World Obesity Federation, 2017

# Saxenda® now launched in 37 countries

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

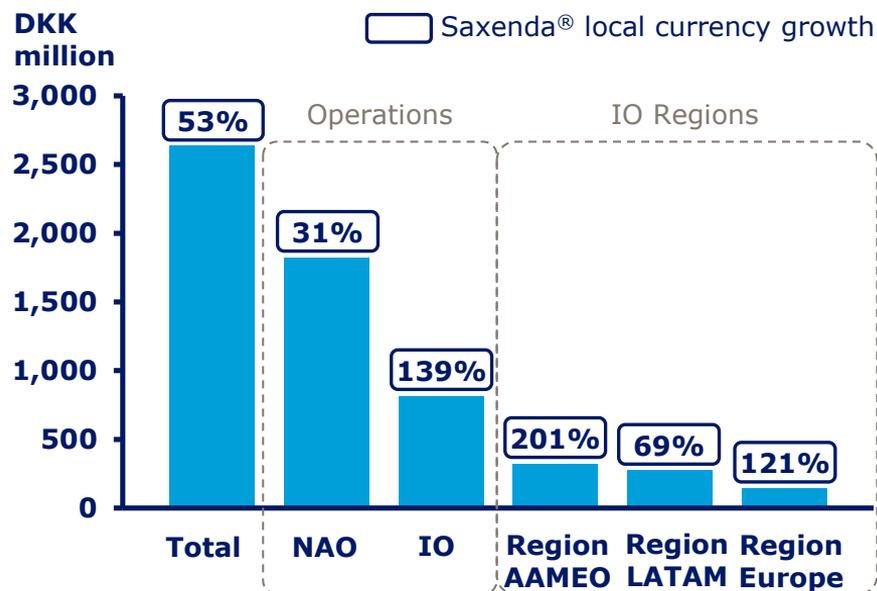


Source: IQVIA Aug 2018

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

changing  
diabetes®

## Saxenda® sales in first nine months of 2018<sup>1</sup>



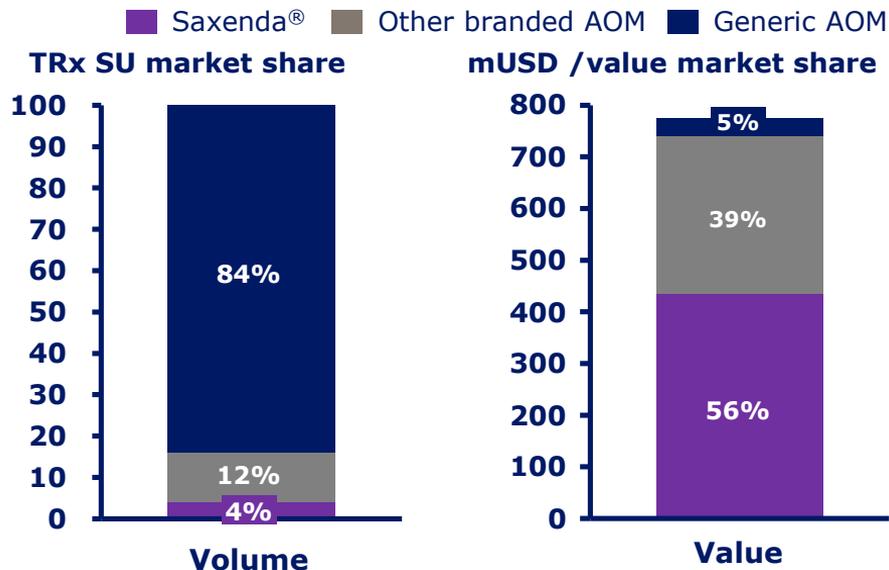
NAO: North America Operations; AAMEO: Africa, Asia, Middle East & Oceania; LATAM: Latin America; J&K: Japan & Korea

<sup>1</sup> Reported sales for first nine months of 2018

Saxenda® was launched in South Korea within Region Japan & Korea during 2018

# 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 800 million



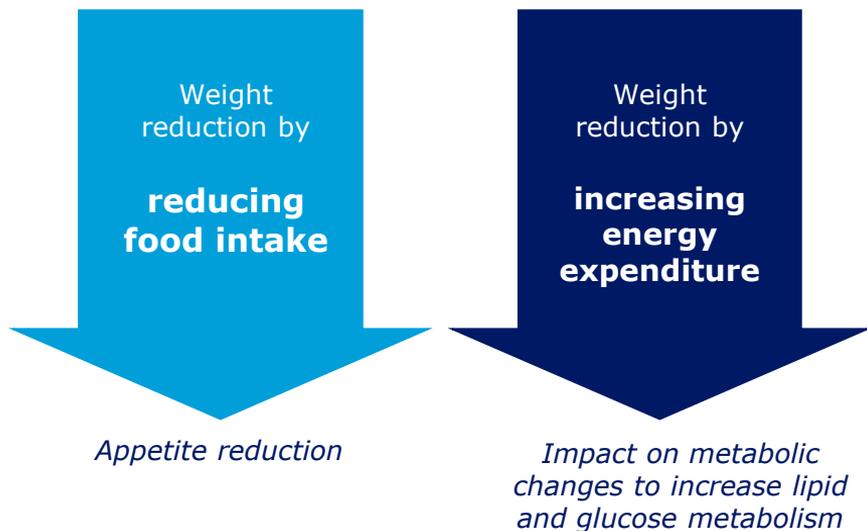
Novo Nordisk is investing in overcoming the barriers preventing effective obesity care

	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 SU Volume  
Source: IQVIA NPA moving annual total through Aug 2018; NSP moving annual total through Aug 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:	Status:	2018 expected:
Saxenda®	Launched	
semaglutide – QW GLP-1	Phase 3	
AM833 – amylin analogue	Phase 1b	→ Phase 2 ready
PYY1562 – PYY analogue	Phase 1b	→ Phase 1b <sup>1</sup>
NN9277 – GG-co-agonist	Phase 1a	→ Phase 1b
NN9423 – Tri-agonist 1706	Phase 1a	→ Phase 1b
PYY1875 – PYY analogue	New	→ Phase 1a <sup>2</sup>

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

<sup>1</sup> Phase 1b completed with monotherapy, phase 1b in combination with semaglutide planned for 2018

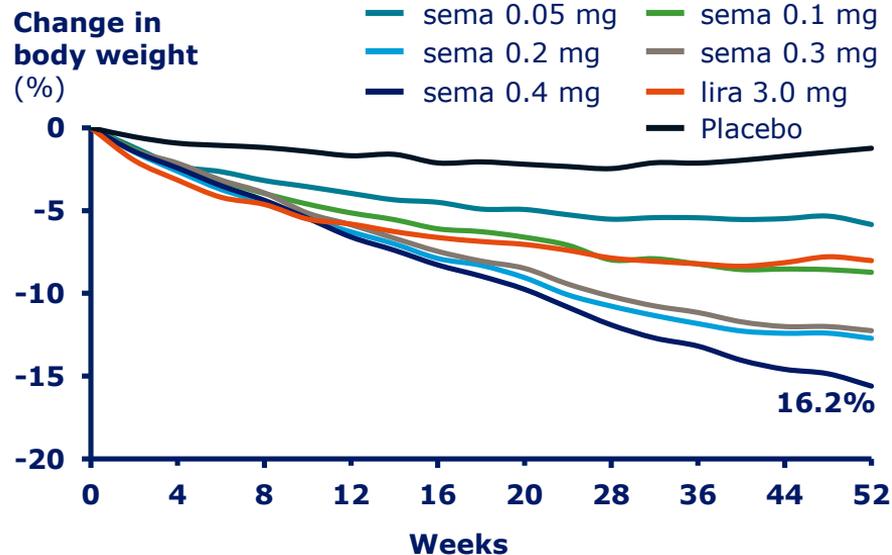
<sup>2</sup> Monotherapy and in combination with semaglutide

Phase 1a: Single-dose trials; Phase 1b: Multiple-dose trials

QW: Once-weekly

# Semaglutide demonstrated unprecedented weight loss in phase 2 obesity trial

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



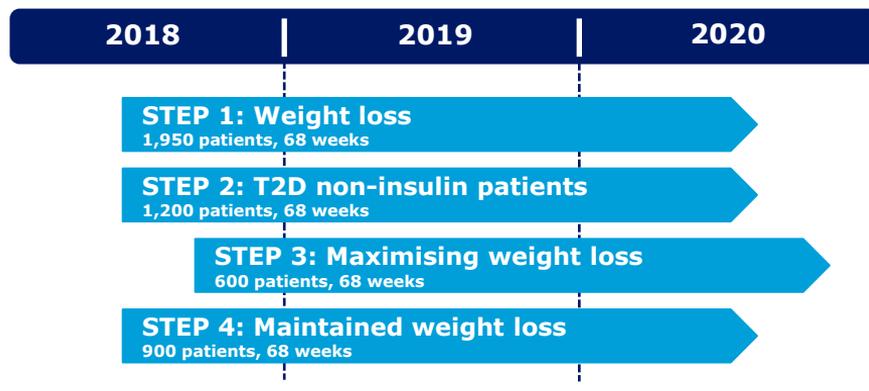
Note: All treatment arms are adjunct to diet and exercise  
 QD: Once-daily; sema: Semaglutide; lira: Liraglutide

## 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 have been initiated in 2018

# Phase 3a programme STEP and CV outcomes study SELECT have been initiated during 2018

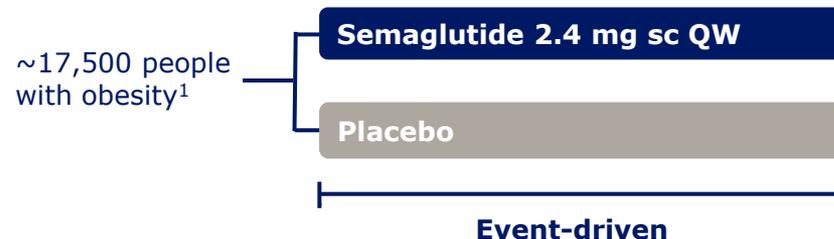
**Semaglutide in obesity phase 3a programme, STEP, expected to include ~4,500 patients<sup>1</sup>**



**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



LIAM CLEMENS  
Liam has Haemophilia A  
USA

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# 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 delivery of long-acting coagulation factors and bypassing agents

Strengthen leadership in **GROWTH DISORDERS**



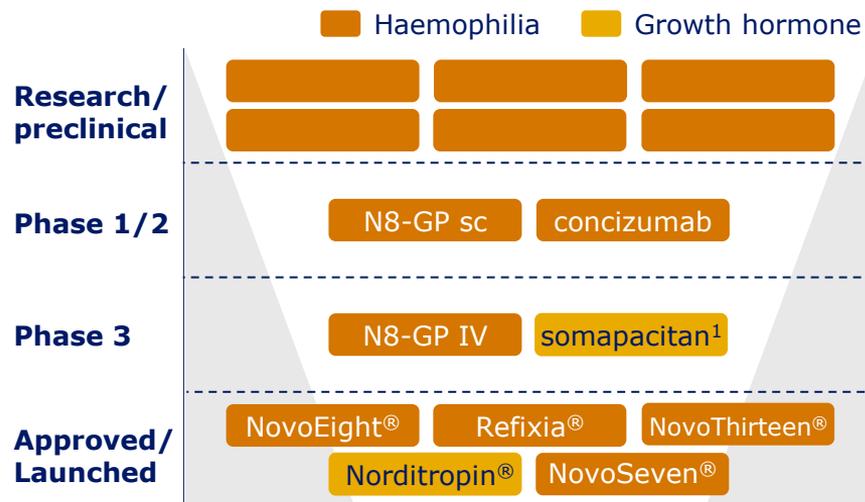
Bring long-acting growth hormone somapacitan to market and expand indications

Pursue **bolt-on opportunities**



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

## Novo Nordisk Biopharm portfolio

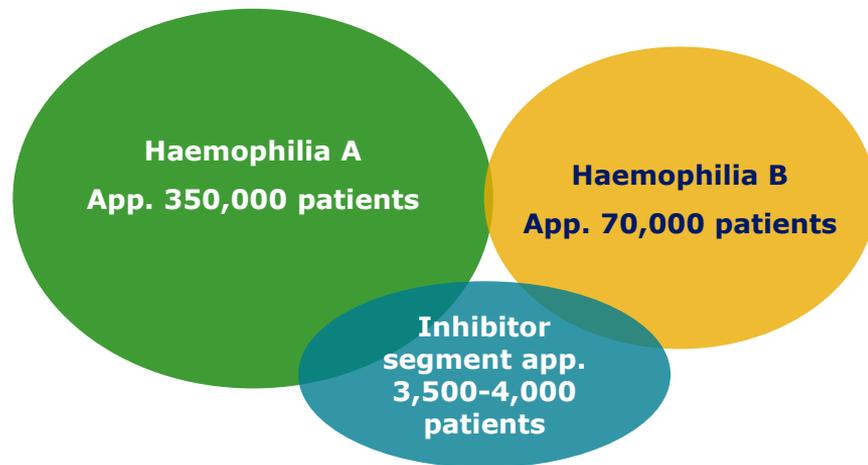


<sup>1</sup> Somapacitan is currently in phase 3 for adult growth hormone deficiency and have completed phase 2 for growth hormone deficiency in children

Note: NovoThirteen® and Refixia® are the brand names in the majority of countries, whereas these products are marketed as TRETEN® and Rebyn® respectively in the USA  
sc: Subcutaneous; IV: Intravenous

# Haemophilia is a rare disease with severe unmet medical needs

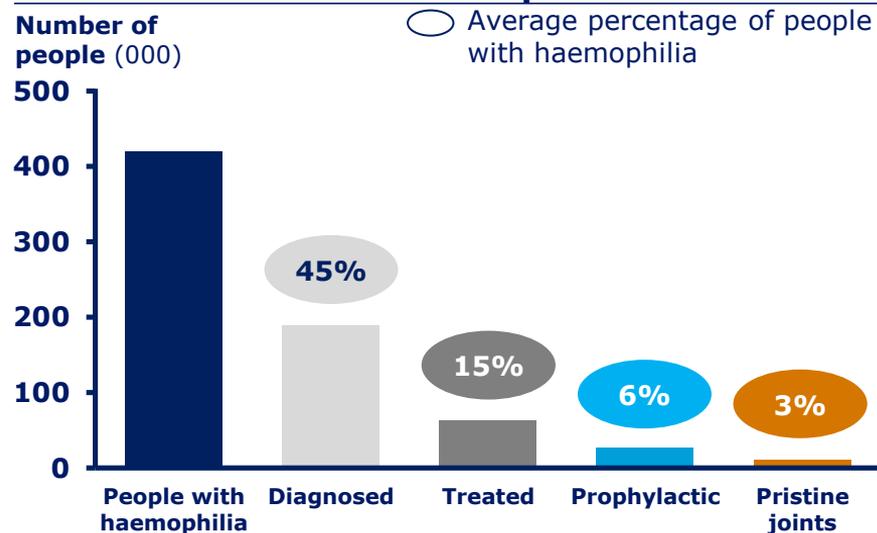
## Number of people with haemophilia A and B and haemophilia with inhibitors



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

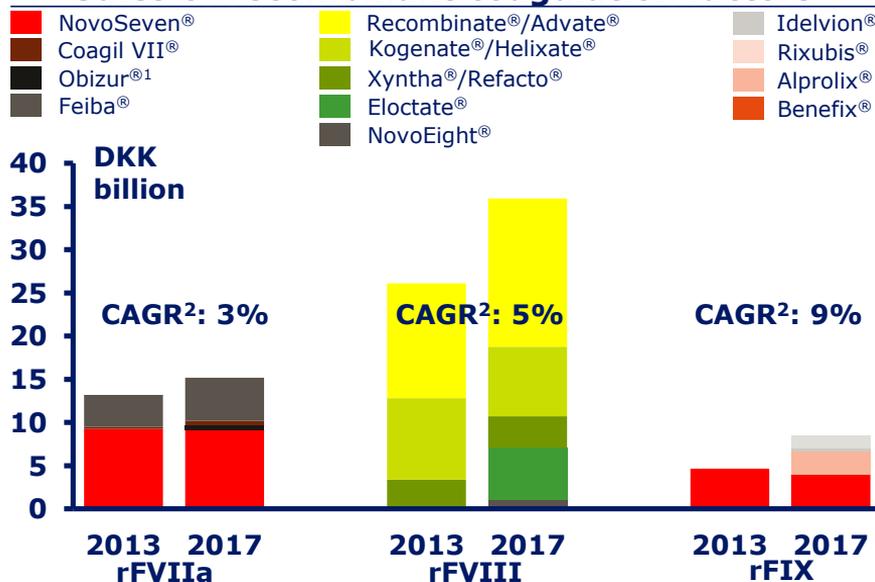
## Low diagnosis and treatment rates within haemophilia



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

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

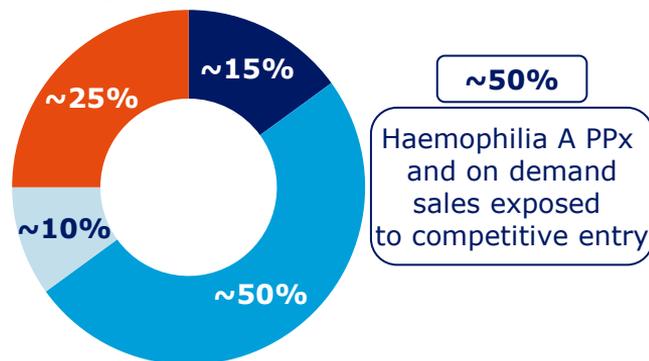
<sup>3</sup> Submitted in the USA, the EU and Japan

<sup>4</sup> Refixia® is the brand name for N9-GP in the EU and Japan, and Rebinyn® is the brand name in the USA



# ~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 9.2 billion<sup>3</sup>**

## 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

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

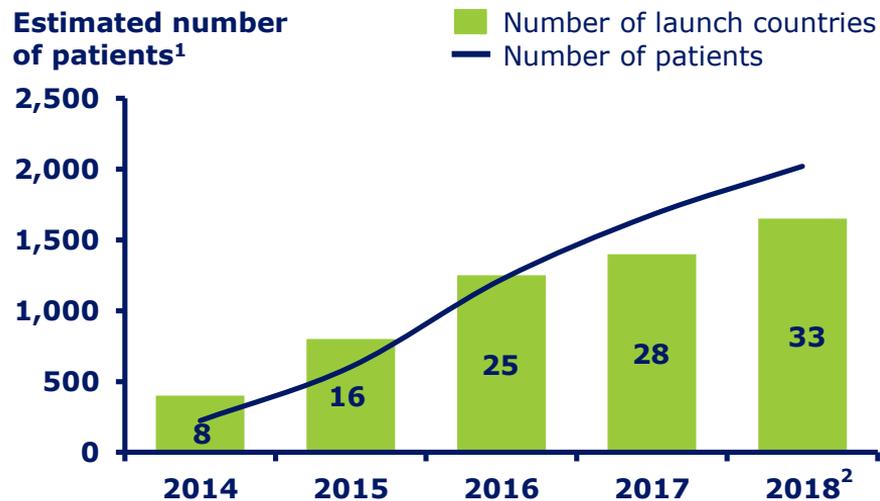
<sup>2</sup> Other indications include areas like acquired haemophilia, Glanzmann's thrombastenia and congenital FVII deficiency

<sup>3</sup> Reported sales for full year 2017

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

# 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



<sup>1</sup> Novo Nordisk estimated accumulated patient number

<sup>2</sup> Novo Nordisk estimated accumulated patient number as of March 2018

FVIII: Coagulation factor VIII

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

### Competitive positioning for NovoEight®

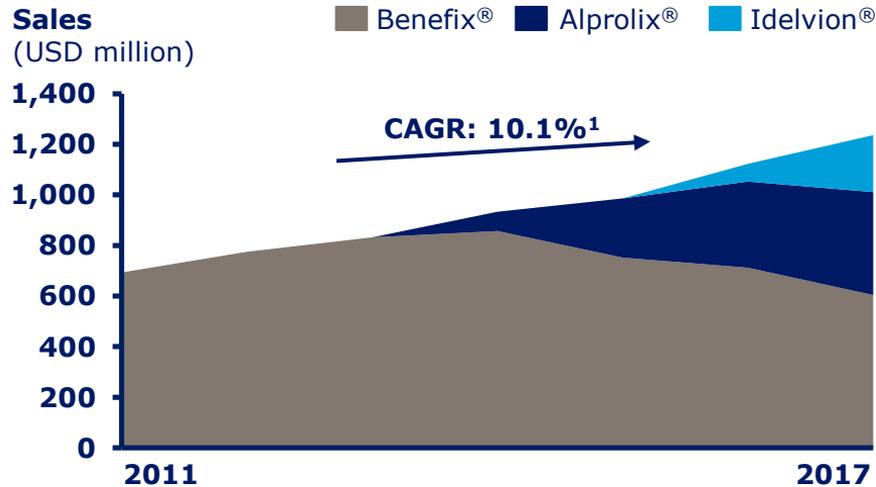
- Temperature stability at high room temperature and best-in-class portability
- Uptake driven by Novo Nordisk's strong customer focus and company recognition within the haemophilia community
- Continued volume growth especially in less mature markets with tender opportunities, despite increasing penetration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

### Next generation

- Global roll-out of NovoEight® and N8-GP to pave the way for subcutaneous N8-GP

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

## Reported recombinant FIX sales



<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)

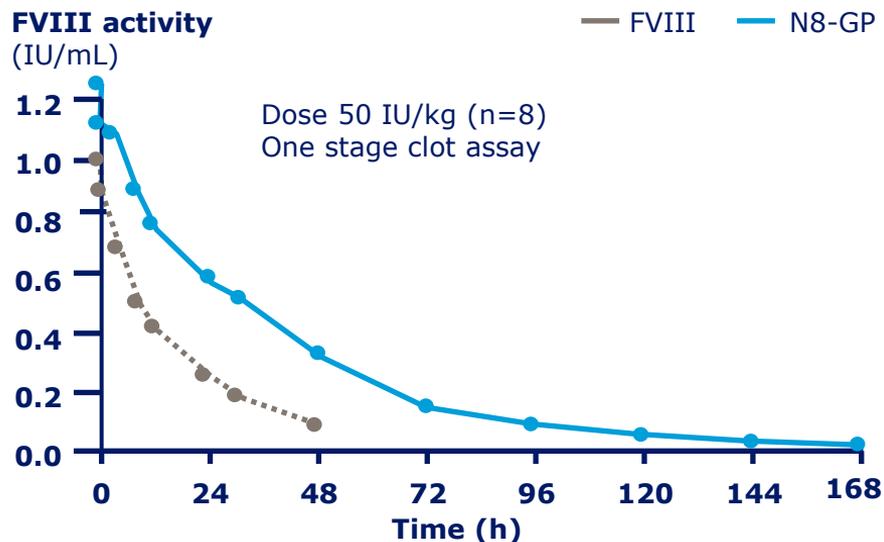
## Refixia<sup>®</sup>/Rebinyn<sup>®</sup> launched in seven countries

- 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

FDA: US Food and Drug Administration; EMA: European Medicines Agency  
 rFIX: Recombinant coagulation factor IX

# 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

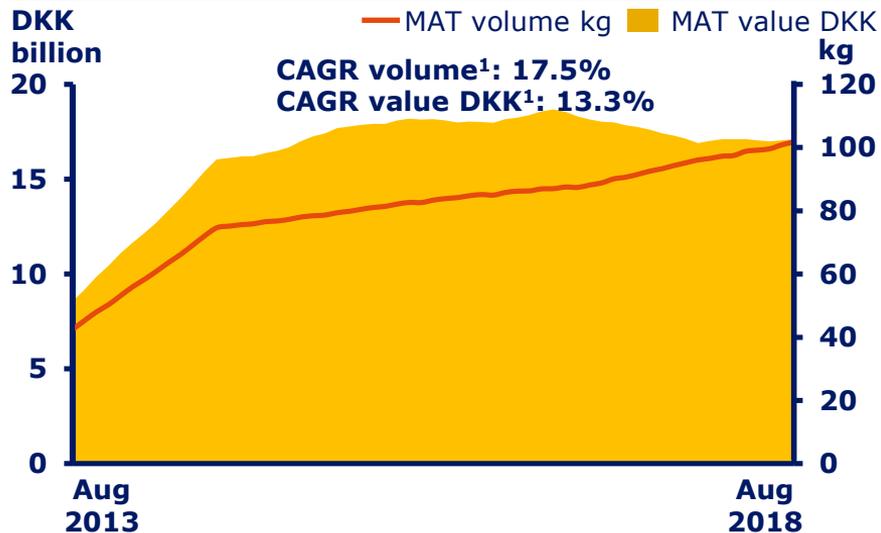
- Awaiting regulatory decisions in the USA, the EU and Japan

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

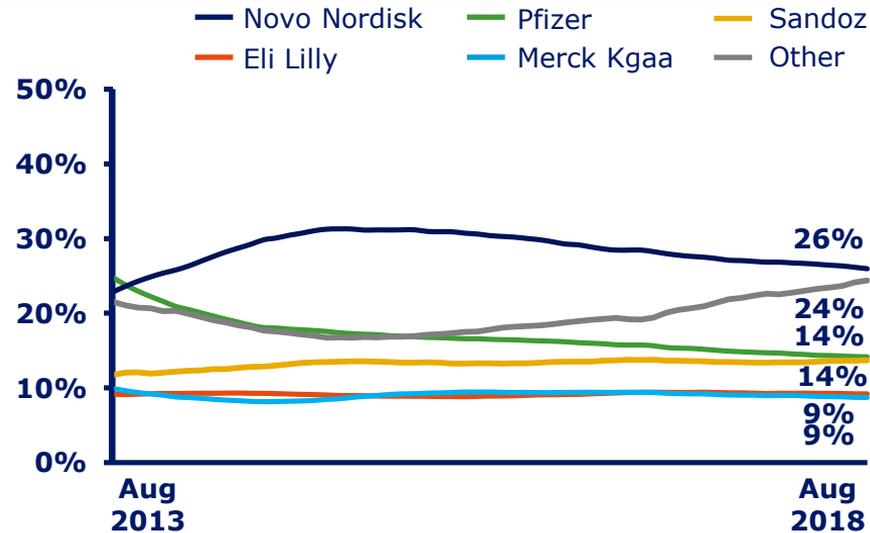
## Development in global growth disorder market



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

Source: IQVIA monthly MAT Aug, 2018 volume figures and value (DKK) figures

## Growth disorder volume market share

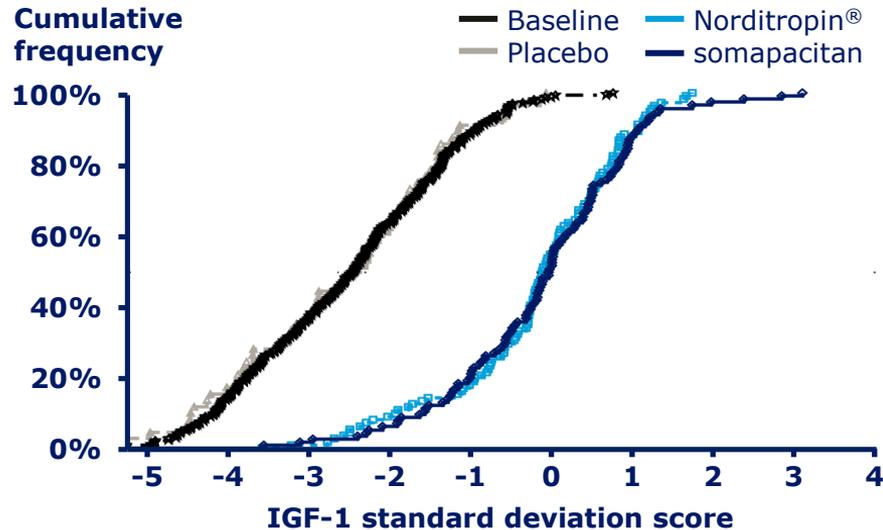


Source: IQVIA monthly MAT Aug, 2018 volume figures

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

# 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



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

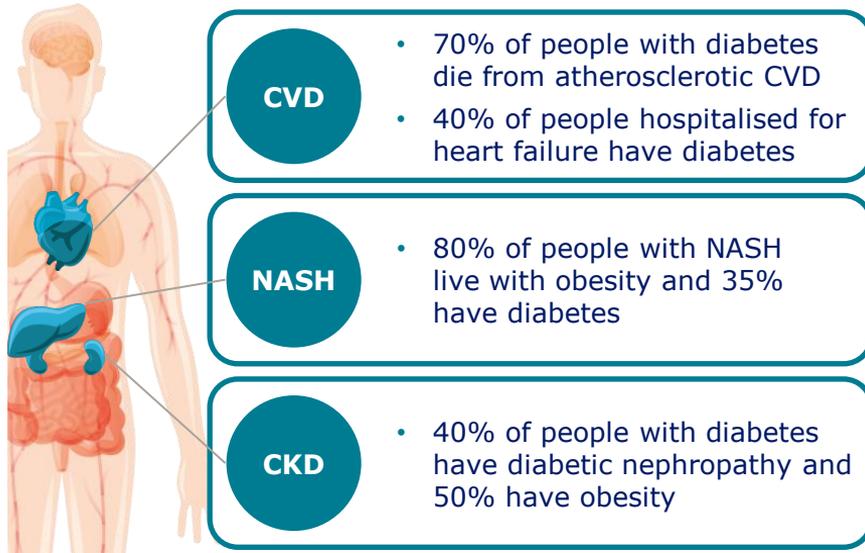
## Phase 3a AGHD extension trial and phase 2 GHD successfully completed



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%

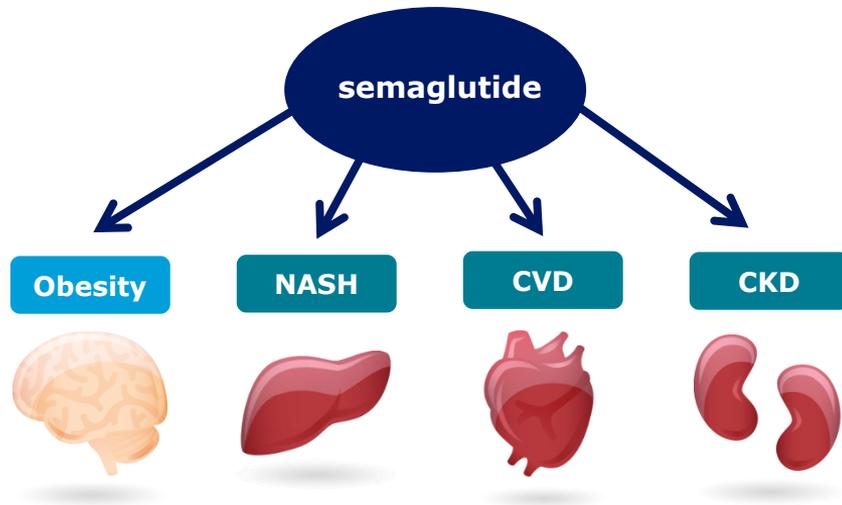
<sup>1</sup> Internal forecast comprising the USA, Europe and Japan

<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

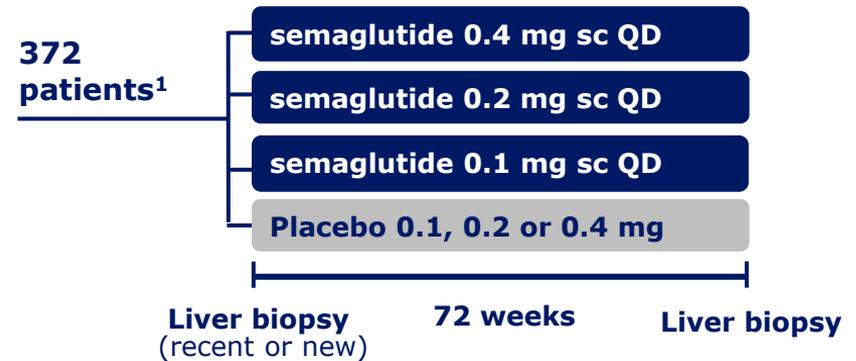
# Trials in obesity and other serious chronic disease areas building on the semaglutide molecule

## 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



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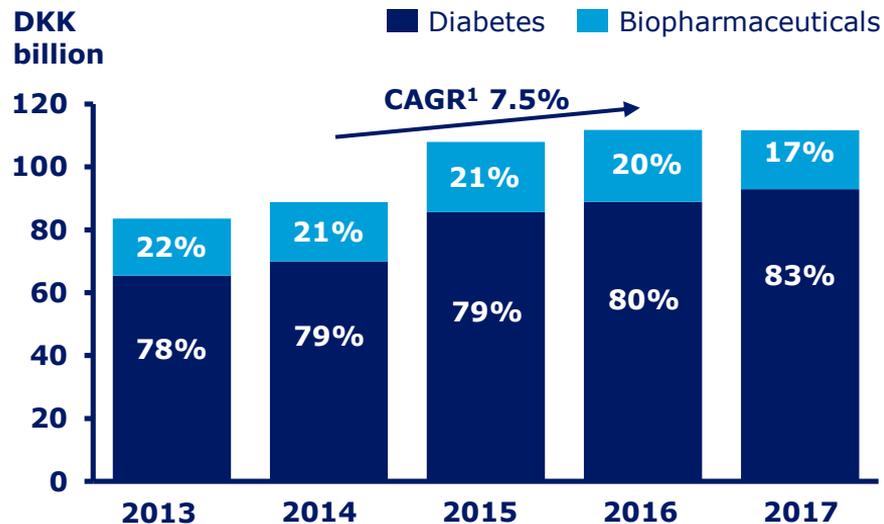
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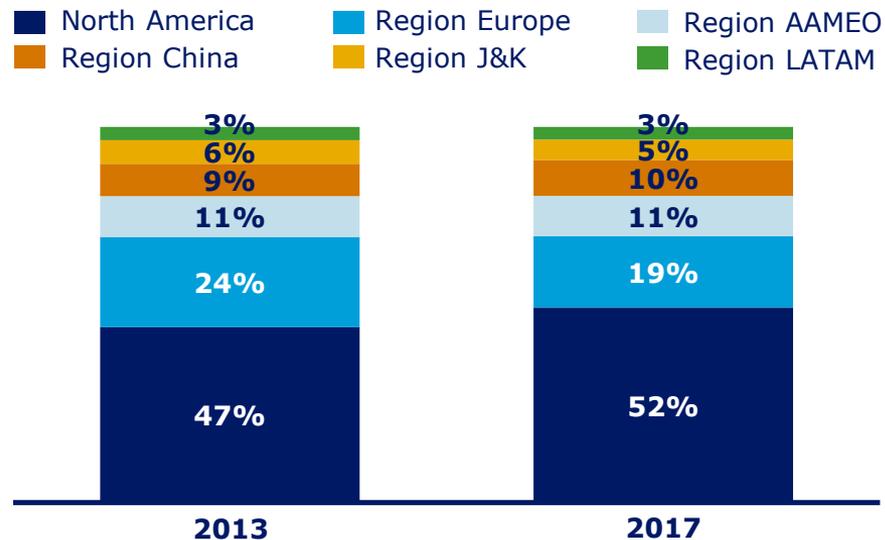
# Solid sales growth driven by diabetes care

## Reported annual sales 2013-2017



<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

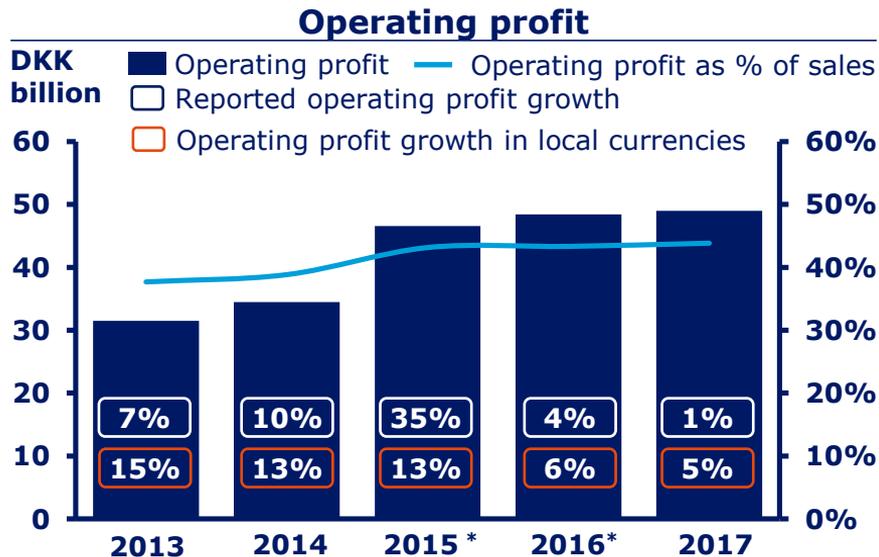
# Sales per key product for Q3 2018 and the first nine months of 2018

Reported currencies	Sales Q3 2018 (mDKK)	Sales split	Sales 9M 2018 (mDKK)	Sales split
Tresiba®	2,156	8%	5,863	7%
Levemir®	2,560	9%	8,363	13%
NovoRapid®	4,445	16%	13,939	18%
NovoMix®	2,332	8%	7,241	9%
Victoza®	6,115	22%	17,833	20%
Ozempic®	540	2%	804	0%
Saxenda®	987	4%	2,640	2%
<b>Diabetes care and obesity<sup>1</sup></b>	<b>23,366</b>	<b>84%</b>	<b>66,367</b>	<b>83%</b>
NovoSeven®	1,885	7%	5,925	8%
Norditropin®	1,688	6%	4,872	6%
<b>Biopharmaceuticals<sup>1</sup></b>	<b>4,396</b>	<b>16%</b>	<b>13,092</b>	<b>17%</b>
<b>Total<sup>1</sup></b>	<b>27,762</b>	<b>100%</b>	<b>82,099</b>	<b>100%</b>

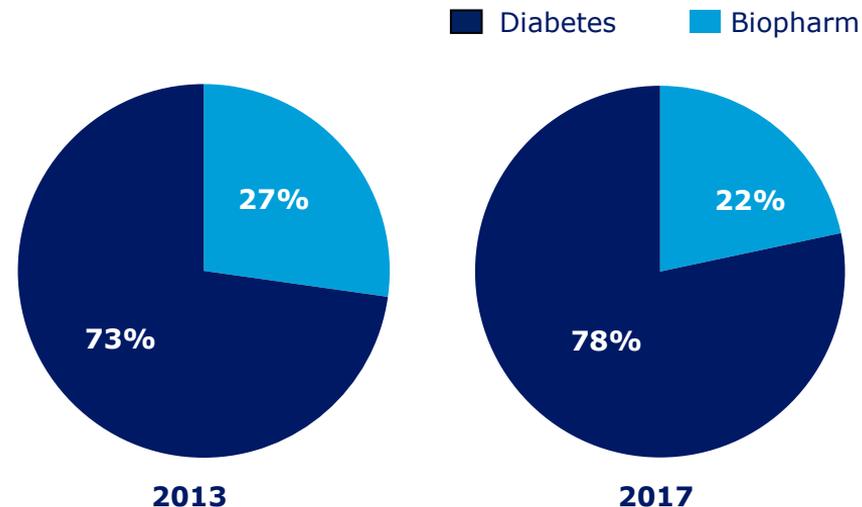
<sup>1</sup> Values are higher than the sum of the total elements listed due to residual values from products not listed

9M: First nine months of 2018

# Solid operating profit growth driven by diabetes



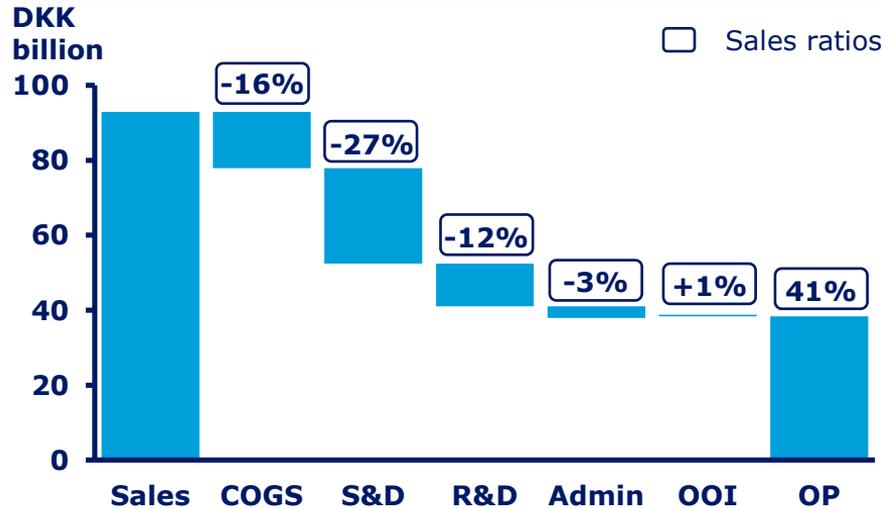
### Operating profit therapy split



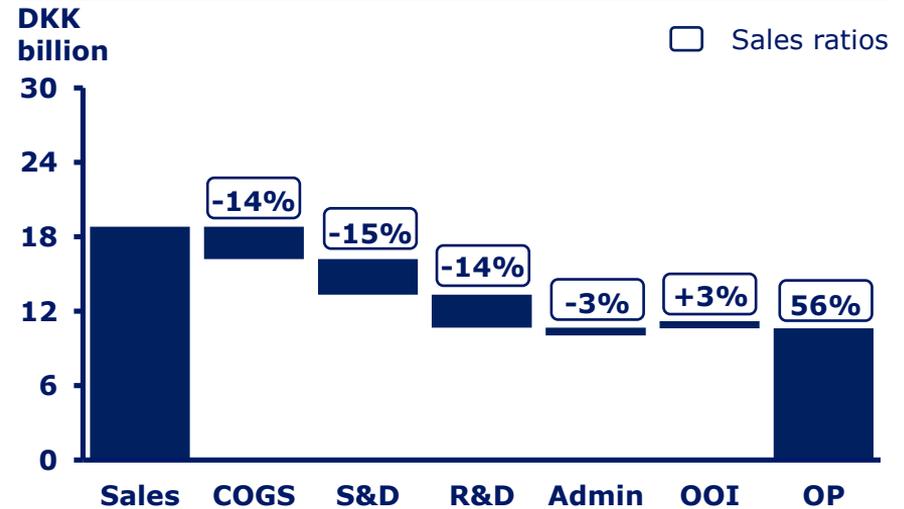
\* Adjusted for the partial divestment of NNIT A/S and inflammatory out-licensing in 2015

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

## Diabetes & Obesity P&L – full year 2017

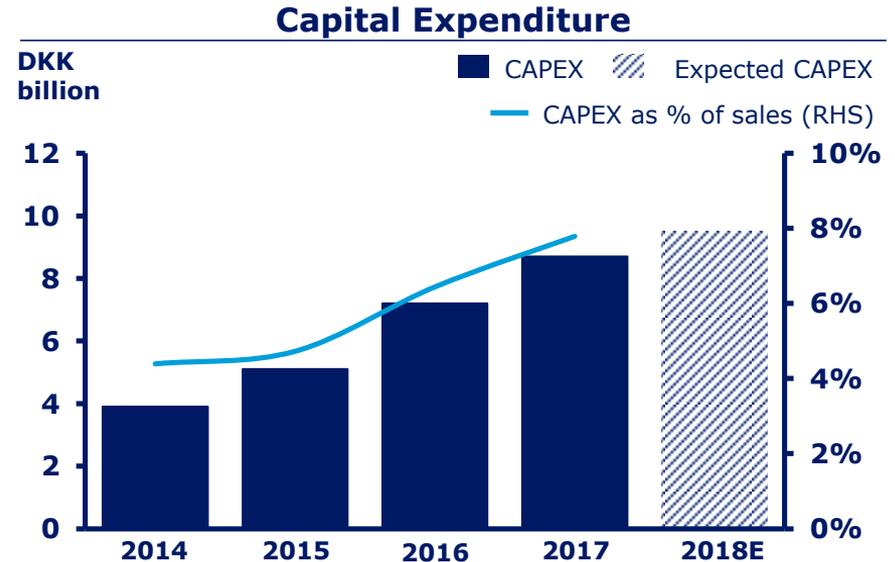
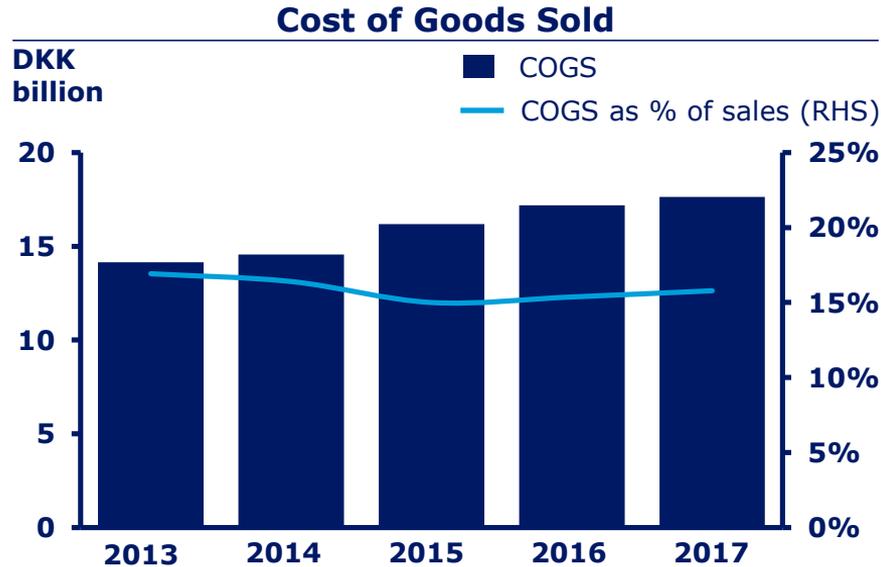


## Biopharmaceuticals P&L – full year 2017



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

# Stable COGS level as % of sales and increasing CAPEX level

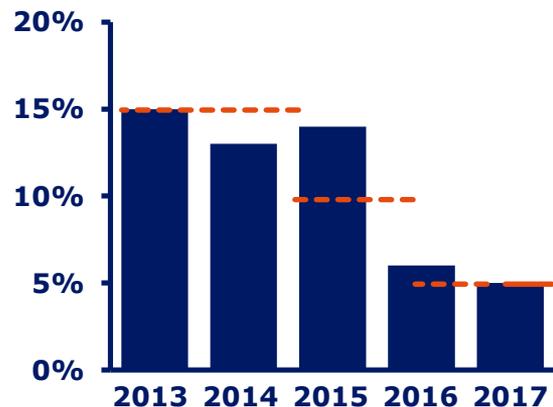


COGS: Cost of goods sold; CAPEX: Capital expenditure; RHS: Right hand side

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

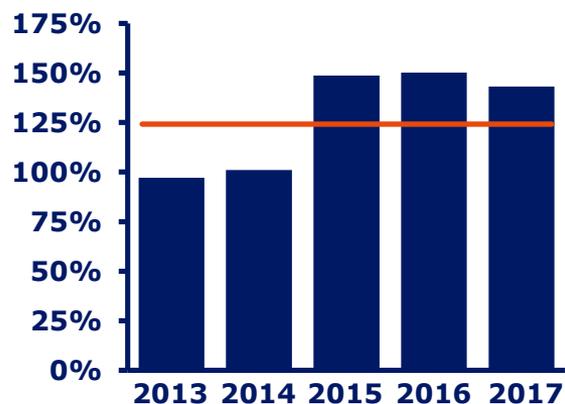
## Operating profit growth in local currencies

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



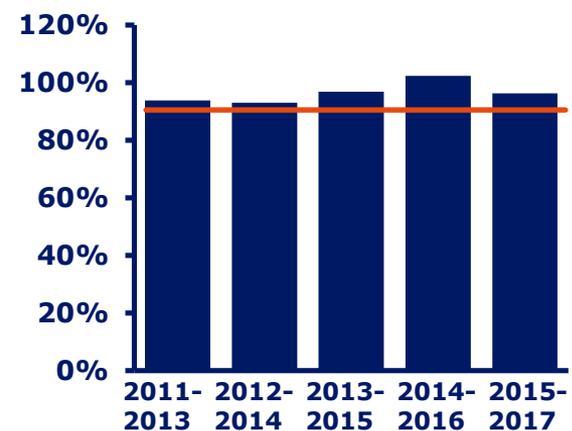
## Operating profit after tax to net operating assets

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



## Cash to earnings (three-year average)

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

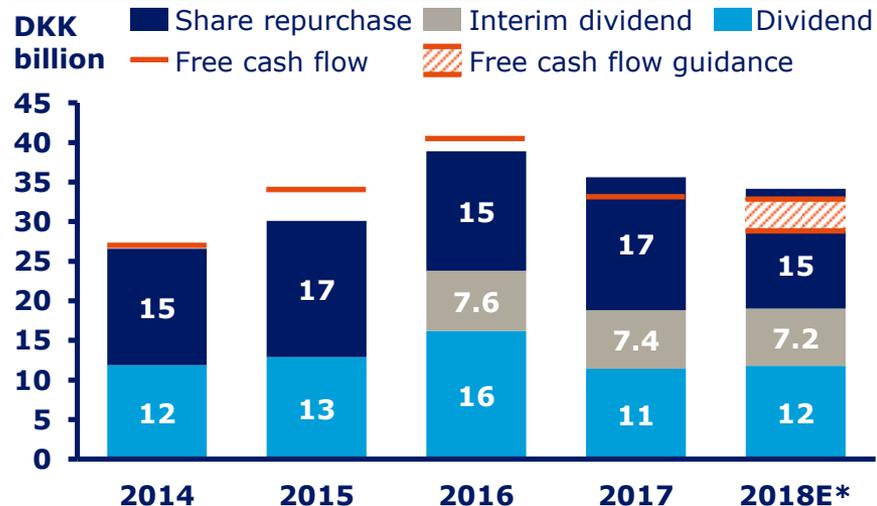


<sup>1</sup> Long-term target established in connection with the Q3 2016 report. The target of an average operating profit growth of 5% is an average for the period of 3-5 years, with 2015 as the base year. Operating profit after tax to net operating assets target unchanged at 125% and Cash to earnings (three year average) target unchanged at 90%

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 2018

## Annual cash return to shareholders



Note: For 2018 expected free cash flow is DKK 29-33 billion. Share repurchase programmes run for 12 months starting February until end January of the following year.

## Cash return priorities

- Based on the increased expectations for cash flow generation in 2018, the Board of Directors approved an expansion of the 2018 share repurchase programme with DKK 1.0 billion to DKK 15 billion in October 2018
- Total programme may be reduced in size if significant product in-licensing or bolt-on acquisition opportunities arise during 2018
- Dividend distributed twice a year as interim dividend in August and final dividend in March the following year
- For 2017, the total dividend increased to DKK 7.85 per share of DKK 0.20
- For 2018, the interim dividend of DKK 3.00 was paid in August 2018

# 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 75-85% of the total currency exposure
- No hedging effects are included in the operating profit

PROFIT AND LOSS	2017	2016
<i>DKK million</i>		
<b>Net sales</b>	<b>111,696</b>	<b>111,780</b>
<b>Gross profit</b>	<b>94,064</b>	<b>94,597</b>
<i>Gross margin</i>	84.2%	84.6%
Sales and distribution costs	28,340	28,377
<i>Percentage of sales</i>	25.4%	25.4%
Research and development costs	14,014	14,563
<i>Percentage of sales</i>	12.5%	13.0%
Administrative costs	3,784	3,962
<i>Percentage of sales</i>	3.4%	3.5%
Other operating income, net <i>- Non-recurring income from the partial divestment of NNIT A/S</i>	1,041	737
<b>Operating profit</b>	<b>48,967</b>	<b>48,432</b>
<i>Operating margin</i>	43.8%	43.3%
<i>Operating margin adjusted for the partial divestment of NNIT A/S</i>	43.8%	43.3%
<b>Net financials</b>	<b>(287)</b>	<b>(634)</b>
<b>Profit before income taxes</b>	<b>48,680</b>	<b>47,798</b>
Income taxes	10,550	9,873
<i>Effective tax rate</i>	21.7%	20.7%
<b>Net profit</b>	<b>38,130</b>	<b>37,925</b>
<i>Net profit margin</i>	34.1%	33.9%

## 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 10 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 2017

# Currency impact on operating profit

## Operational currency impact

### Operational currency impact in 2017

- 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 2017 the operating profit was:
  - In Danish kroner: 48,967 million
  - In local currencies: 50,737 million
  - Currency impact: **-1,770 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 75-85% 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 2017, the depreciation of the ARS and TRY had an additional negative impact on the operational currency exposure.

Key currencies	Avg FX rate 2016	Avg FX rate 2017	%-change	Yearly impact of 5% change (mDKK)	Estimated impact from key currencies
USD	6.733	6.602	-1.9%	2,100	-816
CNY	1.013	0.976	-3.7%	320	-235
JPY	6.200	5.884	-5.1%	200	-204
GBP	9.121	8.496	-6.9%	90	-123
CAD	5.081	5.084	0.0%	80	1
<b>Total estimated currency impact from key currencies in 2017</b>					<b>-1,378</b>
ARS	0.5	0.4	-20.0%		
TRY	223	181	-18.8%		
INR	10.0	10.1	1.0%		
RUB	10.1	11.3	11.9%		
BRL	195	207	6.2%		
<b>Total currency impact from other currencies in 2017 (residual)</b>					<b>-392</b>
<b>Total currency impact in 2017</b>					<b>-1,770</b>

<sup>1</sup> Yearly impact on operating profit for next 12 month. Estimates reflected in Annual Report 2017  
FX: Foreign exchange

# Quarterly currency development for key currencies

Average FX rates <sup>1</sup>	Q1 2017	Q1 2018	Q1 Change	Q2 2017	Q2 2018	Q2 Change	Q3 2017	Q3 2018	Q3 Change	Q4 2017	Q4 <sup>2</sup> 2018	Q4 Change	FY 2017	FY 2018 <sup>3</sup>	FY Change
USD/DKK	698	606	-13%	676	625	-8%	633	641	1%	632	655	4%	660	632	-4%
JPY/DKK	6.1	5.6	-8%	6.1	5.7	-7%	5.7	5.8	2%	5.6	5.8	4%	5.9	5.7	-3%
GBP/DKK	865	843	-3%	864	850	-2%	829	835	1%	839	843	0%	849	843	-1%
CNY/DKK	101	95	-6%	98	98	0%	95	94	-1%	96	94	-2%	98	95	-3%
CAD/DKK	527	480	-9%	502	484	-4%	505	490	-3%	498	500	0%	508	489	-4%

Note: Spot rates as per 26 October 2018

<sup>1</sup> DKK per 100

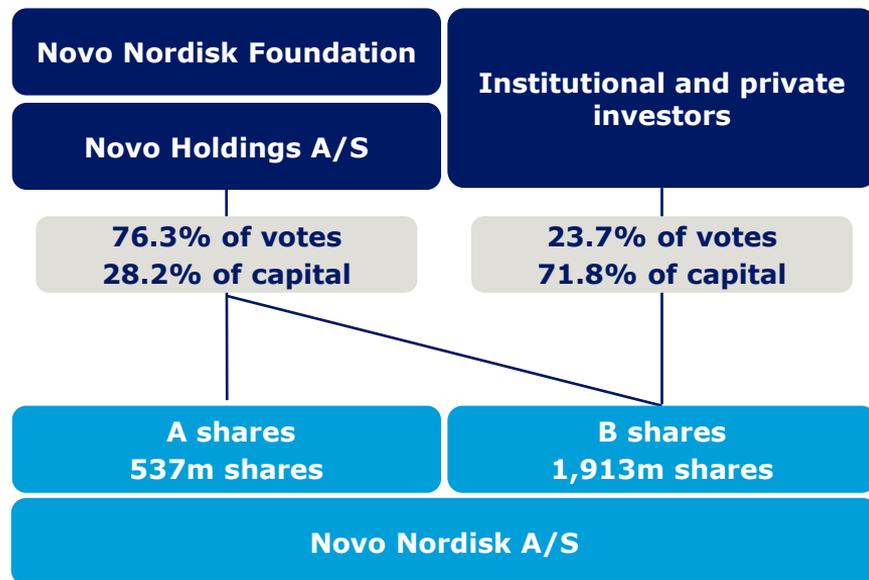
<sup>2</sup> Q4 average is calculated as realised exchange rates from 1 October 2018 to 26 October 2018 + current spot rate applied from 26 October 2018 to 31 December 2018

<sup>3</sup> FY 2018 average is calculated as realised exchange rates from 1 January 2018 to 26 October 2018 + spot rate applied from 26 October 2018 to 31 December 2018

# Stable ownership structure

- secured through A and B-share structure

## Share structure



Note: As of 10 August 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
  - 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. Novo Nordisk Way and Triple Bottom line 123

2. Employee Health and Safety 124

3. Business Environment 125

4. Novo Nordisk on Natural Resources 126

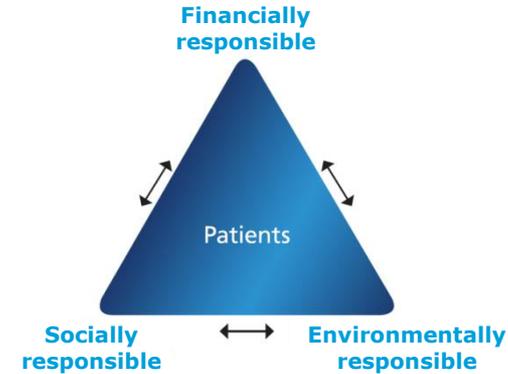
# Sustainable business

## The Novo Nordisk Way



We build on the purpose set by our founders and live by their values: The **Novo Nordisk Way** sets the direction and unites us around a common purpose in the pursuit of our aspirations: *Driving change to defeat diabetes and other serious chronic diseases*

## 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

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

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



~43,700 FTE employees<sup>1</sup>



90% sustainable engagement score



11.0% employee turnover



2.7 accidents with absence per million working hours

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



Note: Full social statements to be found in Novo Nordisk Annual Report 2017

<sup>1</sup> Based on the company announcement for the first nine months of 2018

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

# Shaping and adapting to conditions in the business environment

## Enhancing access to affordable, high quality insulin is a key priority



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



**6** product recalls  
**0** failed inspections



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



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

Note: Full social statements to be found in Novo Nordisk Annual Report 2017

## Cities Changing Diabetes works to bend the curve on urban diabetes



Steno Diabetes Center  
Copenhagen



- Map the challenge in cities across the world with 11 cities enrolled
- Share learnings and best practices on how to bend the diabetes curve, by preventing rise in obesity
- Drive action plans with local partners and experts to act as a catalyst for meaningful action
- Initiate new cross-sector partnerships, eg on climate and health

# Novo Nordisk prioritises minimisation in use of non-depletable or scarce natural resources

**Least possible use of resources, lower emissions and less waste are priorities**



**Slight decrease** in water and energy consumption for production since 2016



**93%** of water consumption is in areas not subject to water stress



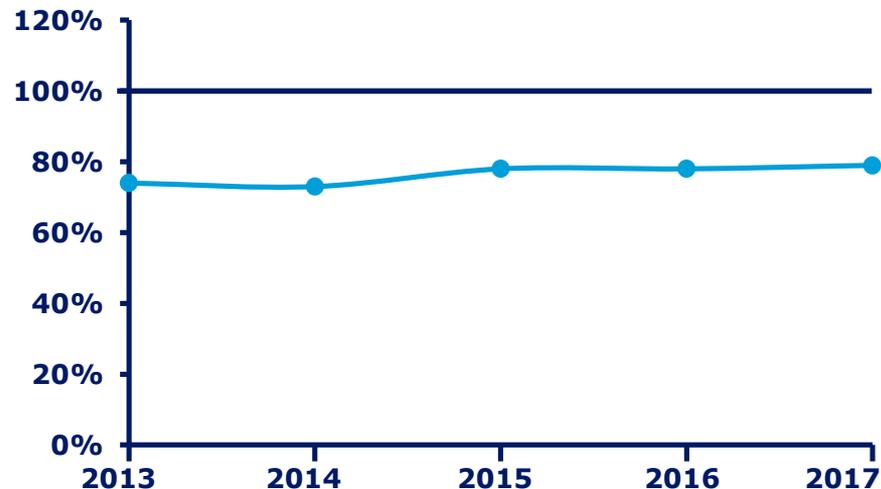
**2%** decrease in CO<sub>2</sub> emissions from production since 2016



**96%** 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 social statements to be found in Novo Nordisk Annual Report 2017