

novo nordisk – a focused healthcare company

Investor presentation First quarter of 2016



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 the company's Annual Report 2015 and Form 20-F, which are both filed with the SEC in February 2016 in continuation of the publication of the Annual Report 2015, and presentations made, 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 recall, 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.

Please also refer to the overview of risk factors in 'Managing risks' on p 42-43 of the Annual Report 2015.

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 & 1.8 mg) is approved for the management of type 2 diabetes only
- Saxenda[®] (liraglutide 3 mg) is approved in the US and EU for the treatment of obesity only



Highlights – First quarter of 2016

Sales development

- Sales increased by 9% in local currencies and 8% in Danish kroner
 - USA and International Operations grew by 12% and 15% in local currencies, respectively
 - Victoza® increased by 15% in local currencies and continues to drive the growth of the GLP-1 market
 - Biopharm increased by 15% in local currencies, driven by non-recurring rebate adjustments for Norditropin® in the US
- New-generation insulin now accounts for 17% share of growth in local currencies

Research and Development

- Victoza[®] significantly reduces the risk of major adverse cardiovascular events in the LEADER trial
- Tresiba[®] shows lower rate of hypoglycaemia than insulin glargine U100 in SWITCH trials in people with type 1 and 2 diabetes
- Semaglutide significantly reduces the risk of major adverse cardiovascular events in the SUSTAIN 6 trial

Financials

- Adjusted operating profit¹ increased by 10% in local currencies and 9% in Danish kroner
- Diluted earnings per share decreased by 2% to 3.71 DKK per share, adjusted for the partial divestment of NNIT it increased by 23%
- 2016 financial outlook:
 - Sales growth is still expected to be 5-9% measured in local currencies (around 3% lower as reported)
 - Adjusted operating profit growth is still expected to be 5-9% measured in local currencies (around 4% lower as reported)

¹ Adjusted operating profit accounts for partial divestment of NNIT and out-licensing of assets for inflammatory disorders, both in 2015



USA is the main contributor to sales growth

Sales as reported – First quarter of 2016 Pacific +7% **Region China** 8% +1% 11% International USA 50% Operations 13% +14%+3% 18% Europe +1%

Sales of DKK 27.2 billion (+8%)

Growth analysis – First quarter of 2016

Local currencies	Growth	Share of growth
USA	12%	64%
Europe	1%	3%
International Operations ¹	15%	23%
Region China	3%	4%
Pacific ²	7%	6%
Total sales	9%	100%

Note: New regional structure as of Q1 2016 ¹ Excludes Oceania ² Comprises Japan, Korea, Canada and Oceania





Sales growth is driven by Victoza[®] and new-generation insulin

Sales as reported – First quarter of 2016 Other Norditropin® +15% +32% Haemophilia +4% 10% 77% Diabetes and obesity care +6%

Sales of DKK 27.2 billion (+8%)

Note: Norditropin $^{\otimes}$ Q1 sales growth is derived primarily from USA reflecting a positive non-recurring adjustment to rebates in the Medicaid patient segment

changing diabetes® Growth analysis – First quarter of 2016

Local currencies	Growth	Share of growth
New-generation insulin ¹	136%	17%
Modern insulin	3%	15%
Human insulin	(3%)	(4%)
Victoza®	15%	27%
Other diabetes and obesity care ²	16%	9%
Diabetes and obesity care	7%	64%
Haemophilia ³	4%	4%
Norditropin®	32%	27%
Other biopharmaceuticals ⁴	15%	5%
Biopharmaceuticals	15%	36%
Total	9%	100%

¹ Comprises Tresiba[®], Ryzodeg[®] and Xultophy[®] ² Primarily NovoNorm[®], needles and Saxenda[®]

² Primarily Novonorine, needles and Saxendae

³ Comprises NovoSeven[®], NovoEight[®] and NovoThirteen[®]

⁴ Primarily Vagifem[®] and Activelle[®]



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Victoza[®] maintains leadership in the faster growing US GLP-1 market



Source: IMS NPA MAT, March 2016

changing diabetes[®] Source: IMS NPA MAT, March 2016

Slide 8

Roll-out of new-generation insulin portfolio is progressing

Key launch observations

- **Tresiba**[®] launched in 43 countries with solid penetration in markets with similar reimbursement as insulin glargine
- **Ryzodeg**[®] commercially launched in Mexico, India, Bangladesh, Japan and now Russia
- **Xultophy**[®] launched in Switzerland, Germany, the United Kingdom, Sweden and now Hungary

Tresiba[®] value share of basal insulin segment in selected countries, excl US

Note: Limited IMS coverage in India Source: IMS Monthly value figures, February 2016

Encouraging uptake of Tresiba® in the US

Note: The graph does not show NPH, which accounts for the residual market share Source: IMS weekly data, 1 April 2016, excludes Medicaid NBRx: New-to-brand prescription counts; MS: Market share

Tresiba[®] launched in the US

- Full commercial launch in January 2016 following specialist engagement in Q4 2015
- Total Novo Nordisk new-to-brand prescription volume market share has increased by 3.4% in 2016 in the basal segment
- Tresiba[®] monthly volume market share has reached 1.4%
- Tresiba[®] U200 accounts for around two-thirds of Tresiba[®] prescriptions
- Wide formulary access has been obtained in both Part D and commercial channels

Source: IMS weekly data, 1 April 2016, excludes Medicaid

Victoza[®] significantly reduces the risk of major adverse cardiovascular events in the LEADER trial

• HbA_{1c} ≥7.0%

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T2DM: Type 2 diabetes mellitus

MI: Myocardial infarct

Tresiba[®] shows lower rate of hypoglycaemia than insulin glargine U100 in SWITCH trials – filing expected Q3 2016

changing Note: The prevalence of hypoglycaemia is measured during the maintenance period; Blood glucose confirmed hypoglycaemia is defined as <56 mg/dL (<3.1 mmol/L); The confirmatory secondary endpoint of proportions of subjects experiencing severe hypoglycaemia during the maintenance period did not reach statistical significance in the SWITCH 2 trial. * Statistically significant; BG: Blood glucose; PYE: Patient years exposed

Semaglutide significantly reduces the risk of major adverse cardiovascular events in the SUSTAIN 6 trial

 1 Inclusion criteria: Age \geq 50 years with clinical evidence of CV disease or \geq 60 years with subclinical evidence of CV disease, HbA_{1c} \geq 7.0 %, standard-of-care treatment 0-2 OAD, basal or pre-mix insulin with/without 0-2 OAD OAD: Oral anti-diabetic

Key development milestones

SUSTAIN 5 comparing semaglutide with insulin glargine U100 successfully completed

Phase 3a trial, PIONEER 3, initiated comparing oral semaglutide (NN9924) with sitagliptin

Advisory Committee meeting scheduled on 24 May 2016 with the FDA to discuss IDegLira (NN9068)

Positive results from phase 3a trial with long-acting growth hormone, somapacitan (NN8640), for treatment of Adult Growth Hormone Deficiency (AGHD)

Strong R&D newsflow expected to continue in 2016

				Results available	Regulatory milestone
Project	Past 6 months	Past 3 months	Within 3 months	In ~3-6 months	In ~6-9 months
Tresiba®	SWITCH 2 🗸	SWITCH 1 🗸	\longrightarrow	Variation application in the US	DEVOTE
Once-weekly	SUSTAIN 2 🗸	SUSTAIN 5 🗸			US and Ell submission
semaglutide	SUSTAIN 4 🛛 🗸	SUSTAIN 6 🗸			os and Eo submission
Victoza®	$ \longrightarrow$	LEADER $$	\longrightarrow	Variation application	on in the US and EU
OI338GT		\rightarrow	Phase 2a		
Xultophy®		\rightarrow	FDA AdComm	FDA regulatory decision	
Faster-acting					FDA regulatory decision
Amylin analogue		>	Phase 1		
Glucagon 530L				>	Phase 1
N9-GP		\longrightarrow	US submission		
Somapacitan	\rightarrow	Phase 3a ¹ \checkmark			
Diabetes	Obesity 📕 Haemophilia	Growth disorders			

Note: Indicated timeline as of financial release of first quarter of 2016 on 29 April 2016; ¹ Study conducted in adult growth hormone disorder

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Financial results – First quarter of 2016

DKK million	Q1 2016	Q1 2015	Change
Sales	27,212	25,200	8%
Gross profit	22,978	21,326	8%
Gross margin	84.4%	84.6%	
Sales and distribution costs	6,741	6,147	10%
Percentage of sales	24.8%	24.4%	
Research and development costs	3,304	3,250	2%
Percentage of sales	12.1%	12.9%	
Administration costs	908	854	6%
Percentage of sales	3.3%	3.4%	
Other operating income, net	284	2,782	N/A
Non-recurring income from the IPO of NNIT	-	2,376	
Operating profit	12,309	13,857	$(11\%)^1$
Financial items (net)	(356)	(1,372)	N/A
Profit before income tax	11,953	12,485	(4%)
Tax	2,498	2,609	(4%)
Effective tax rate	20.9%	20.9%	
Net profit	9,455	9,876	(4%)
Diluted earnings per share (DKK)	3.71	3.79	(2%)
Diluted earnings per share (DKK) adjusted for partial divestment of NNIT	3.71	3.02	23%

¹ Adjusted operating profit, accounting for the partial divestment of NNIT and out-licensing of inflammation assets, increased by 10% in local currencies

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Depreciation of key currencies against the Danish krone drives negative currency impact in 2016

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Hedged Currencies	2015 average	2016 average ²	Spot rate ²	Impact of a 5% move ³	Hedging (months)
USD ¹	673	673	659	2,000	12
CNY ¹	107.0	103.0	101.5	300	114
JPY ¹	5.56	5.90	5.93	160	11
GBP ¹	1,028	962	960	85	12
CAD ¹	526	496	521	70	11

Non-hedged Currencies	2015 average	2016 average ²	Spot rate ²
RUB ¹	11.06	9.23	9.94
INR ¹	10.49	9.99	9.90
ARS ¹	0.73	0.47	0.46
BRL ¹	205	176	186
TRY ¹	248	230	233

 1 DKK per 100; 2 As of 26 April 2016; 3 Operating profit in DKK million per annum; 4 USD and Chinese Yuan traded offshore (CNH) used as proxy

Note: Operating profit impact of one of the non-hedged currencies fluctuating 5% is in the range of DKK -15 to +30 million

Financial outlook for 2016

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	Expectations 29 Apr 2016	Previous expectations 3 Feb 2016
Sales growth - local currencies	5-9%	5-9%
Sales growth - reported	Around 3 percentage points lower	Around 1 percentage point lower
Operating profit growth - local currencies	5-9%	5-9%
Operating profit growth - reported	Around 4 percentage points lower	Around 1 percentage point lower
Financial items (net)	Loss of around DKK 200 million	Loss of around DKK 1.3 billion
Effective tax rate	20-22%	20-22%
Capital expenditure	Around DKK 7.0 billion	Around DKK 7.0 billion
Depreciation, amortisation and impairment losses	Around DKK 3.0 billion	Around DKK 3.0 billion
Free cash flow	Around DKK 35-38 billion	Around DKK 36-39 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 April 2016

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Closing remarks

Solid market performance

- ≥10% annual diabetes care market growth driven by diabetes prevalence
- 27% market share in diabetes care and solid leadership position
- 46% insulin volume market share with leadership position across all regions
- 45% modern and new-generation insulin volume market share
- 64% GLP-1 value market share with strong global leadership position

Promising pipeline

- The only company with a full portfolio of novel insulin products
- Semaglutide portfolio offers expansion opportunity with both injectable and oral administration
- Xultophy[®] supports promising outlook for insulin and GLP-1 combination therapy
- Saxenda[®] and multiple early stage development projects hold potential within obesity
- Broad pipeline within haemophilia and growth hormone disorders

Source: IMS MAT February 2016 volume and value (DKK) figures

Investor contact information

Share information

Novo Nordisk's B shares are listed on the stock exchange in Copenhagen under the symbol 'NOVO B'. Its ADRs are listed on the New York Stock Exchange under the symbol 'NVO'. For further company information, visit Novo Nordisk on the internet at: novonordisk.com

Upcoming events

18 May 2016 Thematic call on Sustainability

- 13 Jun 2016 Investor and analyst event in connection with ADA
- 05 Aug 2016 Financial statement for the first six months of 2016
- 28 Oct 2016 Financial statement for the first nine months of 2016
- 02 Feb 2017 Financial statement for 2016

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Appendix

1. Novo Nordisk at a glance

2. Diabetes

3. Biopharmaceuticals

4. Financials

5. Sustainability

Novo Nordisk at a glance

Global leader in diabetes care

- A focused pharmaceutical company with leading positions in diabetes, haemophilia and growth hormone
- Pursuit of double digit top line growth for diabetes care franchise driven by diabetes pandemic
- Significant growth opportunities fuelled by global presence and strong R&D pipeline
- High barriers to entry in biologics
- Operating profit growth targeting 10%
- Earnings conversion to cash targeting 90%
- Cash generated returned to shareholders

Novo Nordisk works with four strategic focus areas based on five core capabilities

Strategic priorities	Core capat	oilities				
Expand leadership in DIABETES	Engineering, formulating, developing and delivering protein- based	Deep disease under- standing	Efficient large-scale production of proteins	Planning and executing global launches of new	Building and maintaining a leading position in emerging	Driving change to defeat diabetes and
Establish presence in OBESITY	treatments			products	markets	other serious chronic conditions
Pursue leadership in HAEMOPHILIA						conditions
Expand leadership in GROWTH DISORDERS						

The Novo Nordisk Way

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Novo Nordisk has leading positions in diabetes, haemophilia and growth disorders

 $^{\rm 1}$ CAGR for 5-year period Source: IMS MAT February, 2016 value figures

changing diabetes® Note: Annual sales figures for Haemophilia A, B and inhibitor segment ¹ CAGR for 5-year period Source: Company reports

¹ CAGR for 5-year period Source: IMS MAT February, 2016 value figures

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Double digit top line growth driven by diabetes pandemic

 $^{\rm 1}\,\text{CAGR}$ for 10-year period

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 2 Haemophilia includes NovoSeven $^{\otimes}$, NovoThirteen $^{\otimes}$ (as of Q1 2013) and NovoEight $^{\otimes}$ (as of Q1 2014)

Note: 20-79 age group ¹ CAGR for 15-year period

Source: International Diabetes Federation: Diabetes Atlas 1st and 7th Edition, 2000 and 2015

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

¹ CAGR for 10-year period Source: IMS Monthly MAT February, 2016 value figures

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Source: IMS Monthly MAT February, 2016 value figures

Significant growth opportunities fuelled by strong R&D pipeline across all four strategic focus areas

¹ Phase 2a proof-of-principle trial initiated in June 2015

² Submitted to the to the European Medicines Agency in January 2016; Submission with the US Food and Drug Administration expected H1 2016

³ Approved in all triad markets (US, EU and Japan), unless noted

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

Global manufacturing setup

¹ FTEs represent full-time employee equivalents in Novo Nordisk's sales regions (excludes a.o. employees in headquarter, research sites and manufacturing sites) as of 31 March 2016 ² New Hampshire facility is currently under establishment

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High barriers to entry in biologics

Novo Nordisk's position is protected by patents and value chain setup Patent protection¹ Unique value chain position EU/US **Research & Xultophy** 2029² insulin degludec/liraglutide Development rDNA origin) injection TRESIBA-2028/29 insulin degludec (rDNA origin) injection RYZODEG Manufacturing 2028/29 70% insulindegludecand 30% insulin aspart iONA originitizection Leve mir 2018/19 (insulin detemir) Commercialisation Novo Mix[®] exp 2015/17³ (biphasic insulin aspart) Novo Rapid 20173/173 History of protein engineering • (insulin aspart) 20234/235 VICTOZA Highly efficient, flexible and . capital intensive manufacturing 2017/173 norditropin NovoSeven* exp/exp Global commercial footprint

¹List is not exhaustive of all marketed Novo Nordisk products. ² Protected by patents on the individual compounds insulin degludec and liraglutide as listed. ³ Formulation patent expiration year ⁴ Assuming paediatric extension ⁵ Saxenda patent identical to the Victoza[®] patent Source: Novo Nordisk

Significant barriers to entry for biosimilar players

Research & Development

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

Manufacturing

- Significant economies of scale with incumbents
- Significant 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 dvnamics
- PK: Pharmacokinetic, PD: Pharmacodynamic; CAPEX: Capital expenditure

Diabetes and obesity

70 T

60-

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 it produces¹

Primary classifications²:

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

¹ Diabetes fact sheet N°312, WHO, October 2013

² Polonsky et al. J Clin Invest 1988:81:442-48

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Insulin secretion profile

Time of day

6:00

2:00

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Insulin – a hormone enabling blood sugar to enter cells

Diabetes pandemic is fuelled by growing rates of obesity

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

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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_{1C} in type 2 diabetes

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

UKPDS: Tight glycaemic control reduces risk of micro- and macrovascular complications

Source: UKPDS, Stratton et al. BMJ 2000; vol. 321:405-12

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UKPDS 10 year follow-up: Legacy effect of tight glycaemic control

Relative risk reduction of intensive vs. conventional treatment (%)

Source: NEJM, vol. 359, Oct 2008

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OAD

Insulin is the ultimate care for people with diabetes

Note: Patient distribution across treatment classes is indicative and based on data for US, UK, Germany and France. Value figures based on IMS MAT February 2016 Source: IMS PharMetrix claims data, IMS disease analyser, IMS Midas

OAD: Oral Anti-diabetic

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The insulin market is comprised of three segments

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¹ CAGR for 5-year period. Value in DKK

Note: US trend data reflect changes to IMS data collection coverage and methodology as of January 2012 Source: IMS Monthly MAT volume and value February (DKK) figures

Medications used for the treatment of type 2 diabetes

Commonly prescribed products for the treatment of type 2 diabetes

Class	HbA _{1C} change	Hypo- glycaemia	Weight change	CVD risk factors	Dosing (pr. 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	Variable	1 OAD	CHF, liver
DPP-IV inhibitors	0.6 - 0.8	No	Neutral	TBD	1-2 OAD	None
SGLT-2 inhibitors	0.5 - 0.9	No	Loss	TBD	1 OAD	Genital infections, urinary tract infections
GLP-1	1.0 - 2.0	No	Loss	TBD	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 HDL cholesterol; CHF: Congestive heart failure; GI: Gastro intestinal; MTC: Medullary thyroid cancer; TZD: thiazolidinediones; OAD: Oral antidiabetic; 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.





Sustained double-digit growth in insulin market



The fundamental growth drivers of the insulin market

Volume

- Rising prevalence of diabetes
 - · Growing overweight and obesity prevalence
 - Ageing of populations
- Rising diagnosis rates and treatment rates
- Intensification of insulin regimens

Value

- Conversion to modern insulin and new-generation insulin
- Continued device penetration



 $^{\rm 1}$ CAGR for 5-year period

 2 IMS market value figures reflect list prices and do not account for rebates Source: IMS Monthly MAT February, 2016 value figures



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Solid insulin volume growth in key regions



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Stable global insulin volume growth





Note: Data is sensitive to changes in IMS data collection and reporting methodology Source: IMS Monthly MAT February, 2016 volume figures



Note: Data is sensitive to changes in IMS data collection and reporting methodology Source: IMS Monthly MAT February, 2016 volume figures



Maintaining insulin leadership by sustaining modern insulin market share



Novo Nordisk volume market share across insulin classes

¹ Includes animal insulin. ² Annual value of total insulin class. ³ Includes new generation insulin Note: Data is sensitive to changes in IMS data collection and reporting methodology Source: IMS, Monthly MAT February, 2016 value and volume figures





Strong underlying insulin market growth and steady market share development





¹ Includes new generation insulin. ² CAGR for 5-year period Note: Data is sensitive to changes in IMS data collection and reporting methodology Source: IMS Monthly MAT February, 2016 volume and value (DKK) figures

changing diabetes® ³ Includes new generation insulin

Note: Data is sensitive to changes in IMS data collection and reporting methodology, does not add up to 100% due to other players Source: IMS Monthly MAT February. 2016 volume figures



Novo Nordisk's modern insulins continue strong performance within their respective segments



¹ CAGR for 5-year period

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Note: Modern insulin (MI) penetration is of total segment, ie including animal and human insulin; NG: new generation; Data is sensitive to changes in IMS data collection and reporting methodology Source: IMS Monthly MAT February, 2016 volume figures



USA drives strong Levemir[®] growth despite increased competition



Note: Excludes Tresiba $^{\otimes}$ as commercial launch took place in January 2016 Source: IMS MAT volume figures, February 2016



Note: Reported sales first quarter of 2016

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60%

50%

40%

US modern insulin volume market shares

----- Novo Nordisk ------ Sanofi ------ Eli Lilly

41%

38%

21%

Feb

2016

Still a significant potential for Novo Nordisk on the US modern insulin market



² US trend data reflect changes to IMS data collection coverage and methodology as of January 2012

Source: IMS Monthly MAT February, 2016 volume and value (DKK) figures



Source: IMS Monthly MAT February, 2016 volume figures





¹ CAGR for 5-year period

Novo Nordisk's modern insulins have gained market share in expanding US insulin market



¹ CAGR for 5-year period

Note: US trend data reflect changes to IMS data collection coverage and methodology as of January 2012. Modern insulin (MI) penetration is of total segment, ie including human insulin Source: IMS Monthly MAT February, 2016 volume figures



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

US Population by health insurance status expected to remain stable in coming years



Note: Medicaid expansion and Public Exchange estimates are based on implementation of existing Affordable Care Act. Medicaid Rx figures do not include dual eligibles covered in Part D or CHIP. Exchanges include Public Exchanges only; Private Exchanges are part of Managed Care; Centers for Medicare and Medicaid Services Office of the Actuary, Congressional Budget Office (CBO), National Association of State Budget Officers (NASBO), US Census and HSG estimates

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Source: Adapted from Health Strategies Group 2015 report

¹ 2015 chart reflects current year contractual status as of November 2015; estimates based on press releases and public information. PBM: Pharmacy Benefit Manager Note: Cover sall main channels (Managed Care, Medicare Part D and Medicaid); market share based on claim adjudication coverage, i.e. not on formulary/rebate decision power Source: Health Strategies Group



In 2015 PBMs covered 245 million lives and the market has consolidated¹



Sustained leadership position on the European modern insulin market



¹ CAGR for 5-year period

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² Includes new-generation insulin

Source: IMS Monthly MAT February, 2016 volume and value (DKK) figures



³ Includes new-generation insulin

Source: IMS Monthly MAT February, 2016 volume figures, numbers do not add up to 100% due to smaller insulin manufacturers



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due to smaller insulin manufacturers

Stable leadership position in International Operations

market by segments Device penetration — Modern Insulin penetration² Penetration tMU CAGR volume¹: 11.8% CAGR value¹: 8.5% 120 100% 100 80% 80 60% **Fast-acting** 60 40% 40 **Premix** 20% 20 Long-acting 0 0% Feb Feb 2011 2016

International Operations insulin



¹ CAGR for 5-year period. ² Includes new generation insulin.

Note: IMS only covers the following 13 markets in IO (retail data): Algeria, Argentina, Brazil, Colombia, Egypt, India, Mexico, NZ, Russia, Saudi Arabia, South Africa & Turkey

Source: IMS Monthly MAT February, 2016 volume and value (DKK) figures





Sustained leadership position in the Chinese insulin market





¹ CAGR for 5-year period

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Note: IMS covers around 50% of the total Chinese market (hospital data) Source: IMS Monthly MAT February, 2016 volume and value (DKK) figures Note: Only top-5 shown

Source: \dot{IMS} Monthly MAT February, 2016 volume figures, numbers do not add up to 100% due to smaller insulin manufacturers not included



50%

26%

24%

Feb

2016

Expanding market leadership position in Japan



¹ CAGR for 5-year period

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² Includes new-generation insulin

Source: IMS Monthly MAT February, 2016 volume and value (DKK) figures

Source: IMS Monthly MAT February, 2016 volume figures



Promising Tresiba® performance strengthens total insulin market share in Japan



Source: IMS Monthly February, 2016 value figures

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Source: IMS Monthly February, 2016 value figures



GLP-1 effect dependent on level of blood glucose – which reduces risk of hypoglycaemia

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





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The 8% GLP-1 share of the global diabetes care market is increasing with opportunities for further penetration



¹ CAGR for 5-year period Source: IMS Monthly MAT February, 2016 value figures (DKK)

Global GLP-1 market

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Source: Novo Nordisk reported sales for YTD March 2016 and IMS February, 2016 data



Victoza[®] has a strong position in the global DPP-IV, GLP-1 and SGLT-2 segment



¹ CAGR for 5-year period

Note: Segment only includes DPP-IV, GLP-1 & SGLT-2. Other oral anti-diabetic agents and insulin excluded Source: IMS MAT February 2016 value figures





The US GLP-1 market reflects steady growth



Source: IMS TRx retail value, monthly NPA data, March 2016

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Key observations for Victoza[®] in the US market

- Victoza® volume market share within the GLP-1 segment is $54\%^1$
- Around 70% of commercial and around 80% of Medicare Part D lives are covered without restrictions²
- Around 60% of new patients are new to treatment or from OAD-only regimens³
- Close to 70% of prescriptions are for the 3-pen pack¹
- Victoza[®] represents 1.7% of total prescriptions in the US diabetes care market¹

¹ IMS monthly NPA data, March 2016 ² Fingertip Formulary, April 2016 ³ IMS LRx Weekly, WE 04/01/2016



Key Novo Nordisk diabetes care products remain broadly available in the US



Source: IMS NSP February 2016; data displayed as MAT value share

Note: Market shares: NovoLog[®]: share of rapid acting insulin segment; Levemir[®]: share of basal insulin segment; Victoza[®]: share of GLP-1 segment

Source: FingerTip Formulary, April 2016

Note: Unrestricted access excludes prior authorisation, step edits and other restrictions Levemir® access based on FlexTouch® Pen; NovoLog® access based on FlexPen®



ad future product portfolio covers

Novo Nordisk current and future product portfolio covers the type 2 diabetes treatment flow¹

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



¹ Pending clinical development programmes and regulatory processes for semaglutide and faster-acting insulin aspart



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R&D pipeline: Diabetes and obesity

Product/project	project Type Indication		Status (phase)				
			1	2	3	Filed	Appr.
Xultophy [®] (NN9068) ¹	Combination of insulin degludec and liraglutide	Type 2					
Faster-acting insulin aspart (NN1218)	New formulation of insulin aspart	Type 1+2					
Semaglutide (NN9535)	Once-weekly GLP-1 analogue	Type 2					
OG217SC (NN9924)	Long-acting once-daily oral GLP-1 analogue	Type 2					
OI338GT (NN1953)	Long-acting oral basal insulin analogue	Type 2					
Semaglutide QD (NN9535)	Once-daily GLP-1 analogue	Type 2					
Anti-IL-21 and liraglutide (NN9828)	Immuno-metabolic combination of Anti-IL-21 and liraglutide	Type 1					
MAR709 dual-agonist (NN9709)	A GLP-1/GIP dual agonist	Type 2					
OI320GT (NN1957)	Long-acting oral basal insulin analogue	Type 2					
LAI287 (NN1436)	Long-acting once-weekly basal insulin analogue	Type 1+2					
Mealtime insulin (NN1406)	Liver-preferential mealtime insulin	Type 1+2					
PYY (NN9748)	Peptide YY analogue	Type 1+2					
Semaglutide QD (NN9536)	Once-daily GLP-1 analogue	Obesity					
G530L (NN9030)	Glucagon analogue	Obesity					
NN9838	Long-acting amylin analogue	Obesity					
PYY (NN9747)	Peptide YY analogue	Obesity					



In phase 3a trials semaglutide shows best in-class potential on HbA_{1c} reduction across treatment cascade



* *p* < 0.001; QD: once daily; QW: once weekly; sema: semaglutide

Source: Novo Nordisk on file (NN9535-3623, NN9535-3624, NN9535-3625, NN9535-3626, NN9535-3627)



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In phase 3a trials semaglutide shows best in-class weight lowering potential across treatment cascade



* *p* < 0.001; QD: once daily; QW: once weekly; sema: semaglutide

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Source: Novo Nordisk on file (NN9535-3623, NN9535-3624, NN9535-3625, NN9535-3626, NN9535-3627)



Competitive Tresiba® label across all three triad markets

Tresiba® label characteristics in triad markets

	US	Europe	Japan
Profile	 Half-life of 25 hours and duration of action of at least 42 hours Day to day variability of 20% 	 Duration of action beyond 42 hours Four times lower day-to-day variability vs insulin glargine 	 Duration of action up to 26 hours in Japanese patients Four times lower day-to-day variability vs insulin glargine
Efficacy	 Non-inferior HbA_{1c} reduction Numerically greater FPG reduction Numerically lower insulin dose¹ 	 Non-inferior HbA_{1c} reduction Numerically greater FPG reduction 	 Non-inferior HbA_{1c} reduction Numerically greater FPG reduction
Safety	 Overall safety consistent with insulin Hypoglycaemia rates for Tresiba[®], but not comparator 	 Overall safety consistent with insulin Lower rate of overall and nocturnal hypoglycaemia 	 Overall safety consistent with insulin Lower rate of nocturnal hypoglycaemia in Asian subjects
Convenience	Injection any time of dayUp to 80 and 160 units per injection	Adjusting injection time when neededUp to 80 and 160 units per injection	 In case of missed dose take as soon as possible

 $^{\rm 1}\,\rm Observed$ in majority of the trials





US Tresiba[®] label reflects the distinctly different product features compared to competitor basal insulins

	insulin degludec injection	glargine U100	glargine U300
Duration of action ¹	• At least 42 hours ²	• Up to 24 hours ³	 Up to 36 hours⁴
Administration and dosing	 Once daily at any time of day⁵ Numerically lower dose needed vs glargine U100⁸ 	 Once daily at any time of day, at the same time every day⁶ 	 Once daily at any time during the day, at the same time every day⁷ Higher dose needed vs glargine U100⁹
Pen device	 600 units/pen¹⁰ 160 units max per injection¹⁰ No push button extension 	 300 units/pen 80 units max per injection Push button extension 	 450 units/pen 80 units max per injection Push button extension
In-use time	• 56 days at room temperature	• 28 days at room temperature	• 42 days at room temperature

Note: Comparison based on US Package Inserts (PI) for listed products, not based on head to head comparisons.

¹ Based on Glucose Infusion Rate (GIR) data from euglycemic clamp studies; ² Tresiba PI section 12.2; ³ glargine U100 PI section 12.2; ⁴ glargine U300 PI section 12.2; ⁵ Tresiba PI Highlights section;

⁶ glargine U100 PI Highlights section; ⁷ glargine U300 PI Highlights section; ⁸ Tresiba PI section 14; ⁹ glargine U300 PI section 14.1; ¹⁰ Tresiba U200 PI



Real-world data for Tresiba[®] confirms strong clinical profile and enables uptake

Study aim and key results



 1 The study followed 347 consecutive type 1 diabetes patients who switched to Tresiba® from existing insulins according to predefined switching criteria such as twice daily injection, HbA_{1c} outside acceptable levels or unstable glucose and/or repeated hypoglycaemic events. A total of 10 patients were on human insulin and continuous subcutaneous insulin infusion 2 Median follow-up time

² Median follow-up time

Note: Study design – Danderyd Diabetes Clinic



- Key results (all statistically significant)
 - mean reduction in HbA_{1c} from 8.5% to 8.2%
 - median reduction of 12% of total insulin dose
 - reduction of hypoglycaemic events of 22% and reduction of nocturnal hypoglycaemic events of 56%
- **Conclusion:** Insulin degludec was clinically useful and economically justifiable for the patients with type 1 diabetes
- Controlled studies are needed to confirm these benefits in a larger sample of real-world patients

Source: Changes in HbA_{1c}, insulin dose and incidence of hypoglycaemia in patients with type 1 diabetes after switching to insulin degludec in an outpatient setting: an observational study, Lena Landstedt-Hallin, CMRO, 8 June 2015



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Competitive European label for Xultophy®

Xultophy[®] is indicated for the treatment of adults with type 2 diabetes in combination with oral glucose-lowering agents

Profile	 Xultophy[®] is a fixed combination product consisting of insulin degludec and liraglutide having complementary mechanisms of action to improve glycaemic control Administered as dose steps: One dose step contains 1 unit of insulin degludec and 0.036 mg of liraglutide
Efficacy	 On average HbA_{1c} reduction of 1.9%¹ from baseline to end of trial confirmed to be superior against all comparators² On average 2.7 kg weight loss from baseline in patients inadequately controlled on basal insulin
Convenience	 Once-daily administration at any time of the day, preferably at the same time of the day The pre-filled pen can provide from 1 up to 50 dose steps in one injection
Safety	 Lower rates of confirmed hypoglycaemia than with insulin degludec in patients on metformin +/- pioglitazone Fewer experienced gastrointestinal side effects than patients treated with liraglutide

¹ Source: DUAL[®] I (NN9068-3697), DUAL[®] II (NN9068-3912) ² Insulin degludec, liraglutide and placebo

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Xultophy[®] has documented strong efficacy across the treatment cascade

	DUAL® I Add-on to metformin ± Pio n = 833	DUAL® II Add-on to metformin ± basal insulin n = 199	DUAL® III Switch from GLP-1 n = 292	DUAL® IV Add-on to SU ± metformin n = 289	DUAL® V Switch from insulin glargine n = 557		
Mean trial start HbA_{1c} (%)	8.3	8.7	7.8	7.9	8.4		
Mean trial end HbA_{1c} (%)	6.4	6.9	6.4	6.4	6.6		
HbA _{1c} change (%)	-1.9	-1.9	-1.3	-1.45	-1.8		
% to target < 7% (%)	80.6	60.3	75.3	79.2	71.6		
% to target < 6.5% (%)	69.7	45.2	63.0	64.0	55.4		
Confirmed hypoglycaemia (Episodes per 100 PYE)	180.2	153.4	282	351.7	343.3		
Weight change (kg)	-0.5	-2.7	+2.0	+0.5	-1.4		

Xultonhy[®] key clinical results

Note: Typical confirmed hypoglycaemia event rates for treatment with basal insulin are 142-369 episodes per 100 PYE (based on insulin glargine event rates from trials NN1250-3586, 3579 and 3672) where the FPG target and hypoglycaemia definition is similar to the DUAL trials Source: Novo Nordisk Trial IDs: DUAL® (10N9068-3697), DUAL® II (NN9068-3912), DUAL® III (NN9068-3851), DUAL® IV (NN9068-3951), DUAL® V (NN9068-3952)





Faster-acting insulin aspart provides superior glucose control vs NovoRapid[®] in onset 1 trial

Creating a new formulation that satisfies an unmet medical need

Faster-acting insulin aspart is an innovative formulation of insulin aspart:

- Vitamin B3 (nicotinamide)¹ added to increase early absorption
- Naturally occurring amino acid (arginine)¹ added to obtain stability

Faster-acting insulin aspart is intended to address unmet medical need:

- Faster absorption mimics physiological insulin action profile
- A better profile for pump and future closed loop systems



* p<0.05; pm: post-meal; mt: meal-time Source: Novo Nordisk on file (NN1218-3852)



 $^{\scriptscriptstyle 1}$ Concentration many times below recommended dietary daily intake



Oral peptide delivery – the gastro-intestinal route poses many challenges to absorption of intact macromolecules

Challenges

- 1. Breakdown of drug in the stomach/gastrointestinal tract
- 2. Passage across the gut barrier into the circulation
- 3. Ensuring a long circulation half-life



Solutions

- 1. Stabilisation of peptide backbone and side chain
- 2. Tablet formulation including carrier and/or coating
- 3. Engineered systemic protraction mechanism





Oral semaglutide dose dependently reduced HbA_{1c} and body weight in a 26-week phase 2 trial in type 2 diabetes



Inclusion criteria: Type 2 diabetes; $7.0\% \le HbA_{1c} \le 9.5\%$; treatment with diet and exercise with or without metformin; sc: subcutaneous; sema: semaglutide Source: Novo Nordisk on file (NN9924-3790)



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PIONEER, the global phase 3a programme for oral semaglutide to include >9,300 people with type 2 diabetes

2016	>	2017	>	2018	
	PIONEER 1: monoth 26 weeks, n=704	erapy			
PION 52 w	IEER 2: vs empagliflo: eeks, n=816	zin			
PIONEER 3: vs sitagliptin 78 weeks, n=1,860					
PION 52 we	EER 4: vs liraglutide eeks, n=690				
	PIONEER 5: moderat 26 weeks, n=324	te renal impairment			
PIONEER 6 Event driv	5: cardiovascular outo en (<u>></u> 122 MACE), n=3	comes 3,176			
P 5	IONEER 7: flexible do 2 weeks, n=500	se escalation			
	PIONE 26+26	ER 8: insulin add-on weeks, n=720			
	PIONEER 52 weeks	t 9: JAPAN monotherapy s, n=230			
	PIONEER 52 weeks	t 10: JAPAN OAD combinat s, n=336	ion		

Note: Preliminary estimated timing of trials from first patient first visit (FPFV) to last patient last visit (LPLV), n = approximate number of randomised people; MACE: Major Cardiovascular Events; OAD: oral anti-diabetic



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Oral insulin OI338GT has the potential to control blood glucose similar to modern insulins

Phase 1 headline results

- Three clinical pharmacology trials in a total of 118 healthy volunteers and people with type 2 diabetes
- Dose-dependent glucodynamic effects similar to that of therapeutically relevant subcutaneous doses of insulin glargine at steady state exposure
- OI338GT appeared to have a safe and well tolerated profile



 1 Inclusion criteria: Subjects diagnosed (clinically) with type 2 diabetes mellitus for at least 180 days prior to the day of screening; age of 18-70 years (both inclusive) and BMI of 25.0-40.0 kg/m² (both inclusive)



Source: Novo Nordisk data on file (NN1953-3832; NN1953-4013; NN1953-3973)



Anti-IL 21 in combination with liraglutide is an alternative approach for the treatment of type 1 diabetes



¹ Inclusion criteria: Subjects diagnosed as type 1 diabetes for not more than 12 weeks prior to randomisation; age 18-45 (both inclusive) Note: If liraglutide 1.8 mg is not tolerated 1.2 mg is administered. ANTI-IL: interleukin Source: NN9828-4150

Rationale for Anti-IL 21 and liraglutide combination product for T1D

Anti-IL 21 plays an important role in autoimmunity with potential effect on immune disorder

- Effector cells (T and B lymphocytes and natural killer cells)
- Pro-inflammatory cytokines
- Autoantibodies
- Chemokines
- Matrix metalloproteinase (MMPs)

GLP-1 receptor agonist may promote beta-cell recovery

- Decrease beta-cell stress/apoptosis
- Stimulate beta-cell neogenesis
- Expansion of beta-cell mass in rodent models

T1D: type 1 diabetes; MOA: mode of action




Insulin LAI287 offers potential for once-weekly dosing



Note: pharmacokinetic simulation

Key results of phase 1 trial

- The trial evaluated short term efficacy and safety during five weeks of treatment
- LAI287 showed dose-dependent exposure and a variability comparable to that of insulin degludec
- Terminal half-life of 185 hours supporting a once-weekly dosing regimen
- LAI287 generally appeared safe and well tolerated, with most frequent adverse event being hypoglycaemia
- The side effects observed in the phase 1 trial will be further investigated

Source: Novo Nordisk on file (NN1436-4057) 48 people with type 2 diabetes, multiple dose, dose escalation trial





Liver-preferential mealtime insulin analogue has potential to reduce hypoglycaemia and weight gain



Rationale and expected benefits of physiologically distributed insulin

Rationale

- Elevated hepatic glucose release drives overall higher PPG in people with type 2 diabetes compared to healthy individuals¹
- >50% of endogenous insulin secretion is cleared by the liver
- Insulinisation of peripheral tissues with current insulin analogues is higher than for endogenous insulin

Potential benefits

- Mimics physiology of insulin distribution secreted from pancreas
- Less hypoglycaemia
- Less weight gain

Next steps

 Phase 1 trial with liver-preferential mealtime insulin (NN1406) initiated

PPG: post prandial glucose ¹ Woerle HJ et al. *Am J Physiol Endocrinol Metab* 2006;290:E67–E77



More than 20 million people in the US have a BMI above 35 with either pre-diabetes or CV related comorbidities

Comorbidity status	BMI 27-29.9	Class I BMI 30-34.9	Class II BMI 35-39.9	Class III BMI 40+	Total	
No CV comorbidities ¹	15.5	11.0	4.2	3.0	33.7	
CV comorbidities ²	15.1	16.0	6.4	4.1	41.6	
Pre-diabetes ³	12.0	14.1	7.2	6.1	39.4	
Type 2 diabetes ⁴	2.0	5.0	3.6	2.3	12.9	
Total	44.6	46.1	21.4	15.5	127.6	

Incidence of obesity in the US (million people)

¹ Normal blood glucose without hypertension and/or dyslipidemia

² Normal blood glucose with hypertension and/or dyslipidaemia

³ Impaired Fasting Glucose with or without hypertension and/or dyslipidaemia

⁴ Type 2 diabetes with or without hypertension and/or dyslipidaemia

Source: 2009-2010 NHANES + revised 2011 CDC estimates and based on US population 2015. Only includes population age 20+. Distribution between obese groups on market map based on NHANES data (including only measured and not self reported BMI and also measured not self-reported diabetes status)

The US obesity burden

- Cost of obesity to health care systems of USD 147 billion annually with continued growth $^{\rm 5}$
- Around 35% of the US adult population (over 20 years) have obesity (BMI>30)⁶
- Only around 30% of all obesity cases in the US were diagnosed in 2009⁷
- In 2010, only 3 million people in the US or around 3% of the adult population with obesity were treated with anti-obesity medication⁸

⁵ Finkelstein et al. Health Affairs 28, no. 5 (2009): w822-831
 ⁶ Flegal, KM. JAMA. 2012;307(5): Doi:10.1001/jama.2012.39
 ⁷ Ma et al. Obesity (Silver Spring) 2009;17:1077-85
 ⁸ Obesity. Decision resources, Inc. December 2010:38



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Significant unmet need in obesity management



Source: Diagnosis rate, Practice Fusion March 2014 & Treatment rate, *Understanding the Treatment Dynamics of the Obesity Market*, IMS Database (NPA), August 2014 *Rx=prescription, i.e. treated with anti-obesity medication (AOM)

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Small but growing market for anti-obesity medication in the US

Value of US obesity market remains relatively small, but it is growing USD million

Few people treated with AOM in the US, but recent launches have fuelled market growth



Note: Phentermine and topiramate is the fixed combination; naltrexone HCI and bupropion HCI is the second fixed dosed combination to market. AOM: anti-obesity medication Source: IMS NPA Monthly, March 2016



Source: IMS NSP Monthly, February 2016



Steady prescription uptake for Saxenda®



Note: IMS reporting for new launches may reflect data instability due to small volume and/or supplier reporting Source: IMS NPA TRx, monthly, March 2016

Key observations

- Saxenda[®] has been launched in the US, Canada, Denmark, Italy and now also Australia and Mexico
- Saxenda $^{\otimes}$ is the leader in value market share at ${\sim}33\%$ among branded AOM in the US
- While competitors have recently reduced their promotional efforts, Novo Nordisk remains confident in the long-term obesity market growth and the evolving Novo Nordisk obesity portfolio

Source: IMS NSP, Monthly data, February 2016



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Saxenda[®] targeted at patients with BMI ≥35 and weight-related comorbidities



BMI: body mass index ¹ Potential lives covered, based on employer opt-ins

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Saxenda[®] demonstrated weight loss in all SCALE[®] trials



Note: Observed means, last observation carried forward (LOCF) at end of trial. N=number of randomised participants

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¹ Trial includes 12 week run-in period before randomization ; ² Fujioka K et al, Diabetologia 2014; 57 (Suppl 1): Abstract 904-OR at EASD 2014; ³ Davies M, Diabetologia 2014; 57 (Suppl 1): Abstract 39-OR at EASD 2014; ⁴ Wadden et al. Int J Obes (Lond). 2013;37:1443-51; ⁵ Blackman A, Diabetologia 2014; 57 (Suppl 1): Abstract 184-OR at EASD 2014



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Competitive US label for Saxenda®

Saxenda[®] approved in the US for chronic weight management in individuals with a BMI \geq 30, or \geq 27 in the presence of at least one weight-related comorbidity¹

Profile	 GLP-1 receptor agonist – a physiological regulator of appetite and calorie intake Saxenda[®] is the first and only GLP-1 receptor agonist approved for weight management
Effect on body weight	 9 in 10 lose weight and 1 in 3 people lose more than 10% of their body weight² Average weight loss of 9.2% in completers at one year²
Effect on comorbidities	• Improvements in cardiometabolic risk factors such as hypertension and dyslipidaemia
Safety	 Boxed warning on thyroid C-cell tumours Precautions on acute pancreatitis, acute gallbladder disease, serious hypoglycaemia³, heart rate increase, renal impairment, hypersensitivity and suicidal ideation

¹ Examples include hypertension, type 2 diabetes and dyslipidemia. ² Saxenda® US Package Information. ³ When used with an insulin secretagogue

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Semaglutide once daily phase 2 dose-finding trial in obesity is designed to optimise treatment outcomes

Once daily semaglutide phase 2 trial design



¹ Key inclusion criteria: Male or female ≥18 years, BMI: ≥30 kg/m², Stable body weight (<5 kg change) ≥90 days

Note: Once-daily subcutaneous dosing in all arms, 4-week escalation steps in main arms, 2-week escalation steps in fast escalation arms

Phase 2 trial purpose and endpoints

Purpose

- To assess and compare the dose response of five doses of QD sc semaglutide versus placebo in inducing and maintaining weight loss after 52 weeks
- To investigate two different dose escalation regimens

Trial design

- Randomised, controlled, double-blinded
- Diet and exercise counselling in all arms

Primary endpoint

Relative change from baseline in body weight at 52 weeks

Examples of secondary endpoints

- Proportion of subjects with weight loss of \geq 5% or \geq 10% of baseline body weight at 52 weeks

Results from phase 2 trial expected in 2017

QD: once-daily; sc: subcutaneous





Long-acting obesity compounds in phase 1 development may have complimentary modes of action

Key reatures of compounds in phase 1 development for obesity						
Compound	G530L – Glucagon analogue	NN9838 – Amylin analogue	NN9747 – PYY analogue			
Administration	 Once-daily subcutaneous injection in combination with liraglutide 	Once-daily subcutaneous injection	Once-daily subcutaneous injection			
Mode of action	 Stimulation of energy expenditure and satiety promoting a negative energy balance 	 Reduced food intake, thought primarily to be mediated by amylin receptors located in the area postrema 	Reduced food intake via selective stimulation of the Y2 receptor			
Clinical development status	 Phase 1 initiated Sep 2014 Safety/PK of single ascending doses 160 overweight /obese people Expected completion H2 2016 	 Phase 1 initiated Dec 2014 Safety/PK of single ascending doses 58 overweight/obese people Expected completion H1 2016 	 Phase 1 initiated Oct 2015 Safety/PK of single and multiple doses 120 overweight/obese people Expected completion H1 2017 			
PK: pharmacokinetic						

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Biopharmaceuticals







Haemophilia: Location of bleedings and the consequences



Consequences of bleedings

- Bleeding in the joint space causes a strong inflammatory reaction which predisposes to further bleeding
- Inadequate or delayed treatment of repeated joint bleeds results in a "target joint"
- The joint is tense, swollen and extremely painful and the mobility is restricted
- Eventually the cartilage erodes completely and permanent joint damage (arthropathy) occurs
- Treatment of arthropathy is orthopaedic surgery



haemophilia

Source: World Federation of Haemophilia – Annual Global Survey 2012

Haemophilia is a rare disease with severe unmet medical needs



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 US

novo nordisk

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The global haemophilia market is growing by mid-single digits



¹ Obizur[®] only indicated for acquired haemophilia

² CAGR for 5-year period

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Source: Company reported sales for 2010 and 2015

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	Phase 3 ³	Contribute to market conversion
N9-GP	Phase 3 ⁴	Establish new treatment paradigm
NovoThirteen®	Launched	Launch first recombinant product

³ Submission of N8-GP expected 2017/2018 pending expansion of production capacity
 ⁴ Submitted to the to the European Medicines Agency in January 2016; Submission with the US Food and Drug Administration expected 1H 2016



NovoSeven[®] – a unique biologic for the treatment of rare bleeding disorders



Key NovoSeven® properties

- **Product characteristics:** powder and solvent for solution for intravenous injection, available in multiple doses, stable at room temperature
- MixPro[®] administration system launched in 2013
- **Indications:** treatment of spontaneous and surgical bleedings in:
 - Haemophilia A or B patients with inhibitors
 - Acquired haemophilia
 - Congenital FVII deficiency
 - Glanzmann's thrombasthenia²



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¹ CAGR for 5-year period

changing diabetes® ² Only indicated in Europe and the US

NovoEight[®] is launched in the US, Europe and Japan for the treatment of people with haemophilia A

Example from NovoEight® promotional campaign¹



¹ Picture is not intended for promotional purposes

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NovoEight® properties and launch performance

Indications:

 Treatment and prophylaxis of bleeding in patients with congenital factor VIII deficiency for all age groups²

Key product characteristics:

- Reliability: No inhibitor development in PTPs in one of the largest pivotal trial programmes of any approved rFVIII (n=213)^{2,3}
- Purity and safety: First rFVIII to use a 20nm filter in its purification process⁴
- Portability: Room temperature stability with storage at 30 degrees celsius²

Launch status:

 NovoEight[®] is available in the US, Japan, India and 15 European countries

² NovoEight[®] Summary of Product Characteristics. ³ Iorio A et al., Blood 2012; 120(4):
 720 – 727. ⁴ NovoEight[®] Prescribing Information
 PTP: Previously treated patient



NovoThirteen[®], a recombinant FXIII, provides efficacious and safe haemostatic coverage

Example from NovoThirteen® promotional campaign¹



NovoThirteen[®] properties and launch performance

Indication:

 Long term prophylactic treatment of bleeding in adult and paediatric patients with congenital factor XIII A-subunit deficiency

Key product characteristics:

- NovoThirteen[®] is the only recombinant product for prophylaxis
- NovoThirteen[®] is well tolerated and has low volume dosing
- NovoThirteen[®] effectively prevents bleeds and provides a convenient once-monthly regimen

Launch status:

 NovoThirteen[®] is approved in Australia, Brazil, Canada, Colombia, EU, Israel, Japan, Kuwait, Oman, Qatar, Saudi Arabia, Switzerland, and the US

Source: European Medicines Agency, summary of opinion (post-authorisation) 23 January 2014. NovoThirteen® Summary of product characteristics.



R&D pipeline: Haemophilia and growth disorders

Product/project	Туре	Indication	Status (phase)				
			1	2	3	Filed	Appr.
N9-GP (NN7999) ¹	GlycoPEGylated long-acting rFIX	Haemophilia B					
N8-GP (NN7088)	GlycoPEGylated long-acting rFVIII	Haemophilia A					
Concizumab (NN7415)	Monoclonal anti-TFPI	Haemophilia A, B and with inhibitors					
Somapacitan (NN8640) ²	Once-weekly human growth hormone	Growth disorder					

¹ Submitted to the to the European Medicines Agency in January 2016; Submission with the US Food and Drug Administration expected H1 2016; ² Phase 3 completed in Adult Growth Hormone Deficiency (AGHD)



N9-GP administered once weekly reduces median bleeding rate to 1.0 episode per year in phase 3 trial



Source: Negrier et al. Blood. 2011;115:2693-2701

Paradigm 2 headline results (phase 3)

- Steady-state half-life of 110 hours
- Median bleeding rate for patients treated on demand was 15.6 episodes per year
- Patients on once-weekly prophylactic treatment had a median bleeding rate of 1.0 episode per year when treated with 40 IU/kg
- Among patients receiving 40 IU/kg:
 - 99% of bleeding episodes treated with only one infusion
 - Two thirds of patients experienced complete resolution of bleeding into target joints
- N9-GP appeared to have a safe and well tolerated profile with no patients developing inhibitors

Next steps

 N9-GP Submitted to the European Medicines Agency in January 2016. Submission with the US Food and Drug Administration expected 1H 2016

Source: Novo Nordisk Company Announcement, 17 May 2013



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



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

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Pathfinder 2 headline results (phase 3)¹

- PK documented single dose half-life of 18.4 hours and mean through level before next dose of 8%
- 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 results²

- 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 days³
- Patients in both treatment arms had a median ABR of 0

Next steps

• Expansion of production capacity; US/EU submission 2018

PK: pharmacokinetic; ABR: annualised bleeding rate; IU: international unit 1 Novo Nordisk Company Announcement, 19 March 2014; 2 Novo Nordisk Company Announcement, 18 November 2015. 3 prophylaxis 75 IU/kg every 7 days (n=38) or prophylaxis 50 IU/kg every 4 days (n=17)



Novo Nordisk continues to expand leadership within human growth hormone (hGH) market



¹ CAGR for 5-year period

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Source: IMS Monthly MAT February, 2016 volume figures and value (DKK) figures

Source: IMS Monthly MAT February, 2016 volume figures



Solid Norditropin[®] sales growth



Key Norditropin® properties

- **Product characteristics:** Premixed, prefilled multi-use delivery systems available in multiple strengths, and stable at room temperature
- **Expanded indications:** GHD, GHDA, Noonan Syndrome, Turner Syndrome, SGA indication, Idiopathic short stature
- Easy to use FlexPro[®] device
- Medical and Clinical support programmes
- Patient support programmes



 $^{\scriptscriptstyle 1}$ CAGR for 5-year period

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Financials







Novo Nordisk has delivered sustained double digit growth throughout the last decade



Note: Numbers for 2007 and 2008 are adjusted for the impact of the discontinuation of pulmonary insulin projects; Number for 2015 is adjusted for the non-recurring income related to the partial divestment of NNTT with the dotted component representing this income; average is calculated excluding the effect of the 2015 non-recurring income.



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Solid sales growth driven by the US, International Operations and Region China



¹ CAGR for 4-year period

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Solid operating profit growth driven by diabetes





 1 2015 numbers exclude the impact on operating profit resulting from the non-recurring income related to the partial divestment of NNIT





Profitability per segment



P&L: Profit and Loss; COGS: Cost of goods sold; OOI: Other operating income; OP: Operating profit

changing diabetes[®] ¹ Excluding inflammation



Decline in relative COGS level combined with stable investment level







Limited future productivity gains expected, reflecting an increasing level of manufacturing complexity and maturity





API: active pharmaceutical ingredient

Long term financial targets:

Operating profit growth and operating margin



Note: The long term financial targets are based on an assumption of a continuation of the current business environment

¹ New long-term target established in connection with the full year 2015 report

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² A new target for operating margin has not been established



Long term financial targets:

Operating profit after tax to net operating assets and cash to earnings



Note: The long term financial targets are based on an assumption of a continuation of the current business environment

 $^{\rm 1}\,{\rm New}$ long-term target established in connection with the full year 2015 report





Organic growth enables steady cash return to shareholders via dividends and share repurchase programmes



Note: Dividends are allocated to the year of dividend pay. For 2016 expected free cash flow is DKK 35-38 billion. Share repurchase programmes run for 12 months starting February until end January of the following year.

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Stable ownership structure

- secured through A and B-share structure



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



Note: Treasury shares are included in the capital but have no voting rights



Sustainability



novo nordisk[®]



We are guided by a strong values-based management system with patients at the centre of everything we do

The Novo Nordisk way



- Our ambition is to strengthen our leadership in diabetes.
- We aspire to change possibilities in haemophilia and other serious chronic conditions.
- Our key contribution is to discover and develop innovative biological medicines and make them accessible to patients throughout the world.

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• Our business philosophy is one of balancing financial, social and environmental considerations


Long term social performance targets



¹ Novo Nordisk estimate

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² Average score in annual employee survey (1-5)



Treating 40 million patients with diabetes by 2020 is a long term target to be achieved by addressing needs locally

Number of patients treated with Novo Nordisk's diabetes care products To reach our target, the global strategy is translated into local action plans









Changing Diabetes[®] initiatives aim at changing the rule of halves

		Prevention	Diagnosis	Access to care	Reach target	Desired outcome	
		Ine.					Initiative examples
	Prevent in future generations						 Changing Diabetes[®] in Pregnancy Changing Future Health
	Drive awareness and policy		\bigcirc				 World Diabetes Day Cities Changing Diabetes[®] Leadership Forums Team Novo Nordisk
(3)	Expand access to affordable care			\bigcirc			 LDC pricing policy Working poor – base of pyramid Changing Diabetes[®] in Children
	Improve health outcomes						 DAWN2 Changing Diabetes[®] barometer Training of HCPs





Cities Changing Diabetes aims to break the Rule of Halves and stop urban diabetes from ruining millions of lives

Cities Changing Diabetes is our response

Urban diabetes is on the rise







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Public-private partnerships

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

City partners





México City

Tianjin





Copenhagen Shanghai

Houston



Long term environmental performance targets



* From 2007 to 2011 the target was set as an accumulated reduction over four years from a 2007 baseline



