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.


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

changing diabetes

novonordisk®
Highlights – First nine months of 2016

Sales development
• Sales increased by 6% in local currencies and 4% in Danish kroner
  • USA grew by 6% in local currencies and accounted for 44% share of growth in local currencies
  • International Operations and Region China grew by 13% and 11% in local currencies, respectively
  • Tresiba® increased by 187% in local currencies and accounted for 33% share of growth in local currencies

Research and Development
• Semaglutide significantly reduced the risk of major cardiovascular events with 26% vs placebo in the SUSTAIN 6 trial
• Updated R&D strategy including a raised innovation threshold for R&D projects specifically within diabetes

Financials
• Adjusted\(^1\) operating profit increased by 7% in local currencies
• Diluted earnings per share adjusted for the partial divestment of NNIT increased by 22% to 11.50 DKK per share
• 2016 financial outlook:
  • Sales growth is now expected to be 5-6% measured in local currencies (around 2% lower in reported currencies)
  • Adjusted\(^1\) operating profit growth is now expected to be 5-7% measured in local currencies (around 2% lower in reported currencies)
• 2017 preliminary financial outlook in local currencies:
  • Sales growth is expected to be low single digit
  • Operating profit growth is expected to be flat to low single digit
• Updated long-term financial targets
  • A new target for operating profit growth has been set at 5% on average while the two other targets remain unchanged

Organisational
• Lars Rebien Sørensen retires as CEO effective 1 January 2017; Lars Fruergaard Jørgensen appointed as successor
• Global reduction of workforce by approximately 1,000 employees

\(^1\) Adjusted operating profit account for partial divestment of NNIT and out-licensing of assets for inflammatory disorders, both in 2015
All regions contribute to sales growth measured in local currencies for the first nine months of 2016

Sales as reported – first nine months of 2016

Sales of DKK 82,208 million (+4%)

Growth analysis – first nine months of 2016

<table>
<thead>
<tr>
<th>Local currencies</th>
<th>Growth</th>
<th>Share of growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>6%</td>
<td>44%</td>
</tr>
<tr>
<td>Europe</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>International Operations</td>
<td>13%</td>
<td>27%</td>
</tr>
<tr>
<td>Region China</td>
<td>11%</td>
<td>16%</td>
</tr>
<tr>
<td>Pacific</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>Total sales</td>
<td>6%</td>
<td>100%</td>
</tr>
</tbody>
</table>

- USA: 6%, 44%
- Europe: 2%, 6%
- International Operations: 13%, 27%
- Region China: 11%, 16%
- Pacific: 6%, 7%
- Total sales: 6%, 100%
Continued modest US sales growth in the third quarter of 2016

**Quarterly sales in the US**

- Sales as reported
- MAT quarterly local currency growth %
- Average local currency growth %

**Key factors impacting sales growth**

- Sales growth primarily driven by Tresiba®, Victoza® and Saxenda®
- Declining sales of modern insulin driven by impact from:
  - NovoLog®/NovoLog® Mix 70/30 contract loss
  - Declining Levemir® sales following the launch of Tresiba®
  - Lower modern insulin prices
- Decline in NovoSeven® sales due to increasing competitive pressure
Sales growth rebounds in China in the first nine months of 2016

Quarterly sales in China

- Sales as reported
- MAT quarterly local currency growth %
- Average local currency growth %

Key factors impacting sales growth

- Increasing modern insulin sales growth driven by:
  - Increased insulin market volume growth
  - Modern insulin volume market penetration

- The growth was partly offset by declining human insulin sales reflecting increased competitive pressure and negative price impact from provincial biddings.
Sales growth is driven by new-generation insulin and Victoza®

Sales as reported – first nine months of 2016

- Norditropin®: +14%
- Haemophilia (3%)
- Diabetes and obesity care +4%
- Other biopharmaceuticals

Sales of DKK 82,208 million (+4%)

Growth analysis – first nine months of 2016

<table>
<thead>
<tr>
<th>Local currencies</th>
<th>Growth</th>
<th>Share of growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-generation insulin¹</td>
<td>185%</td>
<td>36%</td>
</tr>
<tr>
<td>Modern insulin</td>
<td>(1%)</td>
<td>(7%)</td>
</tr>
<tr>
<td>Human insulin</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Victoza®</td>
<td>13%</td>
<td>33%</td>
</tr>
<tr>
<td>Other diabetes and obesity care²</td>
<td>26%</td>
<td>18%</td>
</tr>
<tr>
<td>- Hereof Saxenda®</td>
<td>331%</td>
<td>16%</td>
</tr>
<tr>
<td>Diabetes and obesity care</td>
<td>6%</td>
<td>81%</td>
</tr>
<tr>
<td>Haemophilia³</td>
<td>(1%)</td>
<td>(2%)</td>
</tr>
<tr>
<td>Norditropin®</td>
<td>16%</td>
<td>19%</td>
</tr>
<tr>
<td>Other biopharmaceuticals⁴</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>6%</td>
<td>19%</td>
</tr>
<tr>
<td>Total</td>
<td>6%</td>
<td>100%</td>
</tr>
</tbody>
</table>

¹ Comprises Tresiba®, Xultophy® and Ryzodeg®
² Primarily NovoNorm®, needles and Saxenda®
³ Comprises NovoSeven®, NovoEight® and NovoThirteen®
⁴ Primarily Vagifem® and Activelle®

Note: Norditropin® sales growth in the first nine months of 2016 is derived primarily from the USA reflecting a positive non-recurring adjustment to rebates in the Medicaid patient segment.
Victoza® maintains leadership in the faster growing US GLP-1 market

**US GLP-1 market development**

- **MAT GLP-1 TRx (million)**
- **Total TRx**
- **Growth rate**

**US GLP-1 market TRx volume**

- **GLP-1 TRx volume (million)**
- **Victoza®**, **exenatide**, **albiglutide**, **dulaglutide**

**US GLP-1 market shares**

- **GLP-1 TRx market share**
- **Victoza®**, **exenatide**, **albiglutide**, **dulaglutide**

Source: IMS NPA monthly, August 2016
Roll-out of new-generation insulin portfolio is progressing

Key launch observations

- **Tresiba®** launched in 47 countries with solid penetration in markets with similar reimbursement as insulin glargine

- **Ryzodeg®** launched in Mexico, India, Bangladesh, Japan, Russia, Lebanon and now South Africa and Nepal

- **Xultophy®** launched in Switzerland, the United Kingdom, Sweden, Hungary, Greece and now Cyprus

**Tresiba® value share of basal insulin segment in selected countries, excluding the USA**

- Switzerland
- Netherlands
- UK
- India
- Japan
- Spain
- Argentina
- Greece
- Mexico
- Denmark
- Brazil
- Italy

Note: Limited IMS coverage in India
Source: IMS Monthly value figures, August 2016
**Steady uptake of Tresiba® in the USA**

**Weekly US NBRx volume market shares**

- **Tresiba®**
- **Levemir®**
- **NN Total Basal**
- **glargine U100**
- **glargine U300**

**Tresiba® launched in the USA**

- Full commercial launch in January 2016 following specialist engagement in Q4 2015
- Tresiba® volume market share has reached 4.0%
- Tresiba® U200 accounts for nearly 80% of total Tresiba® volume
- Wide formulary access has been obtained with around 75% access for patients in commercial channels and Medicare part D combined

Note: The graph does not show NPH, which accounts for the residual market share
Source: IMS weekly data, 7 October 2016, excludes Medicaid
NBRx: New-to-brand prescriptions; MS: Market share

Source: IMS weekly data, 7 October 2016, excludes Medicaid
Semaglutide significantly reduced the risk of major cardiovascular events with 26% vs placebo in SUSTAIN 6

Semaglutide demonstrated 26% reduction in composite CV outcome compared with placebo

<table>
<thead>
<tr>
<th>Patients with an event (%)</th>
<th>semaglutide</th>
<th>placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Hazard ratio = 0.74 (95% CI: 0.58;0.95)
Events: 108 semaglutide; 146 placebo
p<0.001 for non-inferiority
p=0.02 for superiority*

Key results and next step

- Non-inferiority of semaglutide compared to placebo was confirmed for time to first MACE in people with type 2 diabetes
- **Semaglutide reduced the risk of MACE by 26%** driven by reductions of non-fatal stroke by 39%* and non-fatal MI by 26%
- Semaglutide significantly reduced the risk of nephropathy while increasing the risk of retinopathy complications
- **Next step**: Novo Nordisk expect to submit an NDA for semaglutide to regulatory authorities in Q4 2016

Note: p-value is two-sided, pooled data reported for both semaglutide and placebo
MACE: Major adverse cardiovascular event; 3-point MACE comprises cardiovascular death, non-fatal myocardial infarction and non-fatal stroke; CI: Confidence interval
* No adjustment for multiple tests

* P-value <0.001
NDA: New drug application
Updated R&D strategy including a raised innovation threshold for R&D projects specifically within diabetes

Utilisation of core protein capabilities to enter adjacent areas

- T1D: Type 1 diabetes
- NASH: Non-alcoholic steatohepatitis
- CV: Cardiovascular

Updated R&D strategy

- R&D strategy and priorities have been updated to reflect the increasingly challenging payer environment, particularly in the US market, by applying an even higher innovation threshold for starting and progressing R&D projects within diabetes.

- Intensified focus on exploring current projects into adjacent disease areas of high unmet need including NASH, CVD and CKD.

- Build research portfolios via strengthened activities related to in-licensing of early stage projects and enhanced external academic collaborations.

- Discontinuation of oral insulin and combinations involving oral insulin, as well as a number of changes to the portfolio of early-stage projects will also be implemented, reflecting the required higher innovation threshold.
Key development milestones

- Supplemental application for the SWITCH hypoglycaemia trials submitted for Tresiba® (NN1250) in the US
- Supplemental applications for the LEADER CV trial submitted for Victoza® (NN2211) in the US and EU
- FDA extended regulatory review period for IDegLira (NN9068) by three months
- Complete Response Letter received in the US for faster-acting insulin aspart (NN1218)
- Oral semaglutide (NN9924) phase 3a trial initiations progress as planned
R&D news flow with several regulatory decisions in the past six months

<table>
<thead>
<tr>
<th>Project</th>
<th>Past 6-9 months</th>
<th>Past 3-6 months</th>
<th>Within 3 months</th>
<th>In ~3-6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tresiba®</td>
<td>SWITCH 1</td>
<td>Variation application in the USA</td>
<td>DEVOTE</td>
<td></td>
</tr>
<tr>
<td>Once-weekly semaglutide</td>
<td>SUSTAIN 5</td>
<td>EASD - Detailed results from SUSTAIN 6</td>
<td>Variation application in EU</td>
<td>USA and EU submission</td>
</tr>
<tr>
<td></td>
<td>SUSTAIN 6</td>
<td>Variation applications in the USA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victoza®</td>
<td>LEADER</td>
<td>FDA AdComm</td>
<td>FDA regulatory decision</td>
<td></td>
</tr>
<tr>
<td>Xultophy®</td>
<td></td>
<td>CHMP opinion</td>
<td>CHMP opinion</td>
<td></td>
</tr>
<tr>
<td>Faster-acting</td>
<td></td>
<td>USA submission</td>
<td>CHMP opinion</td>
<td></td>
</tr>
<tr>
<td>N9-GP</td>
<td></td>
<td></td>
<td>Phase 1 results</td>
<td></td>
</tr>
<tr>
<td>Concizumab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somapacitan</td>
<td>Phase 3a¹</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Indicated timeline as of financial release of first nine months of 2016 on 28 October 2016; ¹ Study conducted in adult growth hormone disorder
CRL: Complete Response Letter
# Financial results – first nine months of 2016

<table>
<thead>
<tr>
<th>DKK million</th>
<th>9M 2016</th>
<th>9M 2015</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>82,208</td>
<td>79,051</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>69,943</td>
<td>67,471</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Gross margin</strong></td>
<td>85.1%</td>
<td>85.4%</td>
<td></td>
</tr>
<tr>
<td>Sales and distribution costs</td>
<td>(20,468)</td>
<td>(20,273)</td>
<td>1%</td>
</tr>
<tr>
<td>Percentage of sales</td>
<td>24.9%</td>
<td>25.6%</td>
<td></td>
</tr>
<tr>
<td>Research and development costs</td>
<td>(10,093)</td>
<td>(9,574)</td>
<td>5%</td>
</tr>
<tr>
<td>Percentage of sales</td>
<td>12.3%</td>
<td>12.1%</td>
<td></td>
</tr>
<tr>
<td>Administration costs</td>
<td>(2,796)</td>
<td>(2,693)</td>
<td>4%</td>
</tr>
<tr>
<td>Percentage of sales</td>
<td>3.4%</td>
<td>3.4%</td>
<td></td>
</tr>
<tr>
<td>Other operating income, net</td>
<td>640</td>
<td>3,388</td>
<td>N/A</td>
</tr>
<tr>
<td>Non-recurring income¹</td>
<td>-</td>
<td>2,825</td>
<td></td>
</tr>
<tr>
<td><strong>Operating profit</strong></td>
<td>37,226</td>
<td>38,319</td>
<td>(3%)</td>
</tr>
<tr>
<td>Operating profit adjusted for non-recurring income¹</td>
<td>37,226</td>
<td>35,494</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Financial items (net)</strong></td>
<td>(370)</td>
<td>(5,150)</td>
<td>(93%)</td>
</tr>
<tr>
<td><strong>Profit before income tax</strong></td>
<td>36,856</td>
<td>33,169</td>
<td>11%</td>
</tr>
<tr>
<td>Tax</td>
<td>(7,630)</td>
<td>(6,567)</td>
<td>16%</td>
</tr>
<tr>
<td>Effective tax rate</td>
<td>20.7%</td>
<td>19.8%</td>
<td></td>
</tr>
<tr>
<td><strong>Net profit</strong></td>
<td>29,226</td>
<td>26,602</td>
<td>10%</td>
</tr>
<tr>
<td>Diluted earnings per share (DKK)</td>
<td>11.50</td>
<td>10.28</td>
<td>12%</td>
</tr>
</tbody>
</table>

Diluted earnings per share (DKK) adjusted for partial divestment of NNIT

|                  | 11.50    | 9.40     | 22%    |

¹ Non-recurring income comprises the partial divestment of NNIT (DKK 2,376 million) and out-licensing of assets for inflammatory disorders (DKK 449 million), both in 2015
Negative currency impact in 2016 driven by unfavourable development in both hedged and unhedged currencies

**Hedged Currencies**

<table>
<thead>
<tr>
<th>Currency</th>
<th>2015 average</th>
<th>2016 average</th>
<th>Spot rate</th>
<th>Impact of a 5% move</th>
<th>Hedging (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD</td>
<td>673</td>
<td>668</td>
<td>683</td>
<td>2,000</td>
<td>12</td>
</tr>
<tr>
<td>CNY</td>
<td>107.0</td>
<td>101.3</td>
<td>100.9</td>
<td>300</td>
<td>11</td>
</tr>
<tr>
<td>JPY</td>
<td>5.56</td>
<td>6.20</td>
<td>6.57</td>
<td>190</td>
<td>12</td>
</tr>
<tr>
<td>GBP</td>
<td>1,028</td>
<td>921</td>
<td>836</td>
<td>70</td>
<td>12</td>
</tr>
<tr>
<td>CAD</td>
<td>526</td>
<td>506</td>
<td>512</td>
<td>75</td>
<td>11</td>
</tr>
</tbody>
</table>

**Non-hedged Currencies**

<table>
<thead>
<tr>
<th>Currency</th>
<th>2015 average</th>
<th>2016 average</th>
<th>Spot rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUB</td>
<td>11.06</td>
<td>9.89</td>
<td>10.97</td>
</tr>
<tr>
<td>INR</td>
<td>10.49</td>
<td>9.95</td>
<td>10.22</td>
</tr>
<tr>
<td>ARS</td>
<td>0.73</td>
<td>0.46</td>
<td>0.45</td>
</tr>
<tr>
<td>BRL</td>
<td>205</td>
<td>191</td>
<td>217</td>
</tr>
<tr>
<td>TRY</td>
<td>248</td>
<td>227</td>
<td>222</td>
</tr>
</tbody>
</table>

1 DKK per 100; 2 As of 24 October 2016; 3 Operating profit in DKK million per annum; 4 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 +30 million
Financial outlook for 2016

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 24 October 2016.

<table>
<thead>
<tr>
<th>Expectations 28 Oct 2016</th>
<th>Previous expectations 5 Aug 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales growth - local currencies</strong></td>
<td><strong>Sales growth - reported</strong></td>
</tr>
<tr>
<td>5-6%</td>
<td>5-7%</td>
</tr>
<tr>
<td>Around 2 percentage points lower</td>
<td>Around 2 percentage point lower</td>
</tr>
<tr>
<td><strong>Operating profit growth - local currencies</strong></td>
<td><strong>Operating profit growth - reported</strong></td>
</tr>
<tr>
<td>5-7%</td>
<td>5-8%</td>
</tr>
<tr>
<td><strong>Around 2 percentage points lower</strong></td>
<td><strong>Around 3 percentage point lower</strong></td>
</tr>
<tr>
<td>Loss of around DKK 600 million</td>
<td>Loss of around DKK 600 million</td>
</tr>
<tr>
<td>20-22%</td>
<td>20-22%</td>
</tr>
<tr>
<td><strong>Capital expenditure</strong></td>
<td><strong>Depreciation, amortisation and impairment losses</strong></td>
</tr>
<tr>
<td>Around DKK 7.0 billion</td>
<td>Around DKK 7.0 billion</td>
</tr>
<tr>
<td>Around DKK 3.0 billion</td>
<td>Around DKK 3.0 billion</td>
</tr>
<tr>
<td>Around DKK 38-41 billion</td>
<td>Around DKK 38-41 billion</td>
</tr>
<tr>
<td><strong>Free cash flow</strong></td>
<td><strong>Effective tax rate</strong></td>
</tr>
</tbody>
</table>

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 24 October 2016.
### Updated long-term financial targets

#### Updated operating profit growth target of 5%

<table>
<thead>
<tr>
<th></th>
<th>Previous Target</th>
<th>Updated Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating profit growth</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Operating profit after tax to net operating assets</td>
<td>125%</td>
<td>125%</td>
</tr>
<tr>
<td>Cash to earnings (three year average)</td>
<td>90%</td>
<td>90%</td>
</tr>
</tbody>
</table>

#### Challenging environment in the US leads to the update of operating profit target

- Updated operating profit growth target of 5% on average primarily reflecting:
  - More challenging pricing environment in the US especially within insulin and human growth hormone products
  - Intensified competitive situation within diabetes care and haemophilia
- Targets for operating profit after tax to net operating assets as well as cash to earnings remain unchanged

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Note: The targets have been revised based on an assumption of a continuation of the current business environment

1 The long-term financial targets were last updated in connection with the 2015 annual results
Closing remarks

Solid market performance

- 27% value market share in diabetes care and solid leadership position
- ~4% annual insulin volume growth
- 46% insulin volume market share with leadership position across all regions
- >20% annual GLP-1 volume growth
- 53% GLP-1 volume market share with strong global leadership position

Promising pipeline

- The only company with a full portfolio of novel insulin and GLP-1 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 August 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**
- 02 Feb 2017  Financial statement for 2016
- 23 Mar 2017  Annual General Meeting 2017
- 03 May 2017  Financial statement for the first three months of 2017
- 09 Aug 2017  Financial statement for the first half of 2017
- 01 Nov 2017  Financial statement for the first nine months of 2017

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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
- Significant **growth opportunities** driven by the diabetes pandemic and fuelled by global presence and strong R&D pipeline
- **High barriers to entry** in biologics
- **Operating profit growth** targeting **5% on average**
- Earnings **conversion to cash** targeting **90%**
- **Cash generated returned to shareholders**

**Global insulin market leadership**

<table>
<thead>
<tr>
<th>Region</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>46%</td>
</tr>
<tr>
<td>Pacific</td>
<td>47%</td>
</tr>
<tr>
<td>Region China</td>
<td>55%</td>
</tr>
<tr>
<td>International Operations</td>
<td>55%</td>
</tr>
<tr>
<td>USA</td>
<td>37%</td>
</tr>
</tbody>
</table>

Global insulin market share: 46%

Source: IMS MAT August 2016 volume figures
Novo Nordisk works with four strategic focus areas based on five core capabilities

**STRATEGIC PRIORITIES**

- Expand leadership in **DIABETES**
- Pursue leadership in **OBESITY**
- Pursue leadership in **HAEMOPHILIA**
- Expand leadership in **GROWTH DISORDERS**

**CORE CAPABILITIES**

- Engineering, formulating, developing and delivering protein-based treatments
- Deep disease understanding
- Efficient large-scale production of proteins
- Planning and executing global launches of new products
- Building and maintaining a leading position in emerging markets

**Novo Nordisk Way**

**Driving change to defeat diabetes and other serious chronic conditions**
Novo Nordisk has leading positions in diabetes, haemophilia and growth disorders

**Diabetes**

- **CAGR** value: 17.4%
- Source: IMS MAT August, 2016 value figures

**Haemophilia**

- **CAGR** value: 4.6%
- Source: Company reports

**Growth disorders**

- **CAGR** value: 1.8%
- Source: IMS MAT August, 2016 value figures

---

1 CAGR for 5-year period

Note: Annual sales figures for Haemophilia A, B and inhibitor segment

Source: Company reports
International Diabetes Federation projects that 642 million people will have diabetes by 2040.

Novo Nordisk reported quarterly sales by therapy:
- Diabetes and obesity
- Haemophilia
- Norditropin®
- Other

Reported sales CAGR¹: 11.1%

1 CAGR for 10-year period
2 Haemophilia includes NovoSeven®, NovoThirteen® (as of Q1 2013) and NovoEight® (as of Q1 2014)

Investor presentation First nine months of 2016

Note: 20-79 age group
1 CAGR for 15-year period
Novo Nordisk has a strong leadership position within the growing diabetes care market

Global diabetes care market by treatment class

- **OAD**
- **GLP-1**
- **Insulin**

<table>
<thead>
<tr>
<th>DKK billion</th>
<th>Aug 2006</th>
<th>Aug 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total market:</strong></td>
<td>0%</td>
<td>CAGR&lt;sup&gt;1&lt;/sup&gt; 14.9%</td>
</tr>
<tr>
<td><strong>Injectables:</strong></td>
<td>0%</td>
<td>CAGR&lt;sup&gt;1&lt;/sup&gt; 19.5%</td>
</tr>
<tr>
<td><strong>CAGR&lt;sup&gt;1&lt;/sup&gt; 18.0%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CAGR&lt;sup&gt;1&lt;/sup&gt; 10.1%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Global diabetes care value market share

- **Novo Nordisk**
- **Sanofi**
- **Eli Lilly**
- **Merck**
- **AstraZeneca**
- **Novartis**
- **Takeda**
- **GSK**

| Source: IMS Monthly MAT August, 2016 value figures |

---

<sup>1</sup> CAGR for 10-year period
OAD: Oral Anti-diabetic
Source: IMS Monthly MAT August, 2016 value figures
Significant growth opportunities fuelled by strong R&D pipeline across all four strategic focus areas

**PHASE 1**
- LAI287 – QW basal insulin
- NN1406 – Mealtime insulin
- G530S – Glucagon analogue
- NN9838 – Amylin analogue
- NN9747 – PYY analogue
- NN9277 – GG-co-agonist
- NN7415 – Concizumab

**PHASE 2**
- Semaglutide – QD GLP-1
- Anti-IL-21 and liraglutide
- Semaglutide – QD GLP-1

**PHASE 3**
- Semaglutide – QW GLP-1
- OG217SC – Oral GLP-1
- N8-GP – Long-acting rFVIII
- Somapacitan – QW GH

**SUBMITTED**
- Xultophy® (US)
- Faster-acting insulin aspart
- N9-GP - Long-acting rFIX

**APPROVED**
- Levemir®
- NovoRapid®
- NovoMix®
- Tresiba®
- Ryzodeg®
- Xultophy® (EU)
- Victoza®
- Saxenda®
- NovoSeven®
- NovoEight®
- NovoThirteen®
- Norditropin®

1 Approved in all triad markets (US, EU and Japan), unless noted
GG: Glucagon GLP-1
Growth opportunities supported by strong global presence in both sales and manufacturing

<table>
<thead>
<tr>
<th>FTEs in sales regions¹</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA:</td>
<td>~5,100</td>
</tr>
<tr>
<td>Europe:</td>
<td>~2,800</td>
</tr>
<tr>
<td>International Operations:</td>
<td>~5,400</td>
</tr>
<tr>
<td>Pacific:</td>
<td>~1,500</td>
</tr>
<tr>
<td>Region China:</td>
<td>~2,900</td>
</tr>
<tr>
<td>Total non-HQ/manufacturing FTEs:</td>
<td>17,700¹</td>
</tr>
</tbody>
</table>

¹ FTEs represent full-time equivalents in Novo Nordisk’s sales regions (excludes all other employees in headquarter, research sites and manufacturing sites) as of October 2016
² New Hampshire facility is currently under establishment
High barriers to entry in biologics

<table>
<thead>
<tr>
<th>Patent protection¹</th>
<th>Unique value chain position</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU/US</td>
<td>Research &amp; Development</td>
</tr>
<tr>
<td>2029²</td>
<td>2028/29</td>
</tr>
<tr>
<td>2028/29</td>
<td>2018/19</td>
</tr>
<tr>
<td>exp 2015/17³</td>
<td>exp/exp</td>
</tr>
</tbody>
</table>

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

- **Patent protection¹**:

# Unique value chain position

- **Research & Development**
  - History of protein engineering
- **Manufacturing**
  - Highly efficient, flexible and capital intensive manufacturing
- **Commercialisation**
  - Global commercial footprint

# Significant barriers to entry for biosimilar players

## Research & Development
- Need to show comparability in PK/PD trials
- Strict regulatory requirements in EU and the 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 dynamics

---

¹ List does not include 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

PK: Pharmacokinetic, PD: Pharmacodynamic; CAPEX: Capital expenditure
Diabetes and obesity
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 produces.

**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:**

- **Short-lived, rapidly generated meal-related peaks** *(prandial)*
- **Sustained Insulin profile** *(basal)*

---

Liver → Pancreas → Fat cell → Muscle

---

*Image of insulin levels over time:*

- 6:00 → 10:00 → 14:00 → 18:00 → 22:00 → 2:00 → 6:00

- Breakfast → Lunch → Dinner

---

*Images of liver, pancreas, and muscle.*
Diabetes pandemic is fuelled by growing rates of obesity

US CDC data on obesity and diabetes prevalence among adults

**Obesity prevalence** (BMI ≥30 kg/m²)

<table>
<thead>
<tr>
<th>Year</th>
<th>No Data</th>
<th>&lt;14.0%</th>
<th>14.0-17.9%</th>
<th>18.0-21.9%</th>
<th>22.0-25.9%</th>
<th>≥26.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
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</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Diabetes prevalence**

<table>
<thead>
<tr>
<th>Year</th>
<th>No Data</th>
<th>&lt;4.5%</th>
<th>4.5-5.9%</th>
<th>6.0-7.4%</th>
<th>7.5-8.9%</th>
<th>≥9.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td></td>
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<tr>
<td>2000</td>
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<td></td>
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<tr>
<td>2013</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

CDC: Centers for Disease Control and Prevention
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**

- 50% are diagnosed
- 50% have access to care
- 50% get decent care
- 50% reach target

**The worldwide challenge of glycaemic control: Mean HbA1c in type 2 diabetes**

<table>
<thead>
<tr>
<th>Region</th>
<th>HbA1c (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>7.3¹</td>
</tr>
<tr>
<td>US</td>
<td>7.2²</td>
</tr>
<tr>
<td>Latin America</td>
<td>7.6³</td>
</tr>
<tr>
<td>China</td>
<td>7.2-9.5%⁴</td>
</tr>
<tr>
<td>India</td>
<td>7.3-9.3%⁴</td>
</tr>
<tr>
<td>Japan</td>
<td>7.3-7.7%⁵</td>
</tr>
<tr>
<td>Korea</td>
<td>7.9-8.7%⁶</td>
</tr>
<tr>
<td>Russia</td>
<td>7.2-9.5%⁴</td>
</tr>
<tr>
<td>Germany</td>
<td>6.7-9.2%⁷</td>
</tr>
<tr>
<td>Greece</td>
<td>7.1-9.7%⁷,⁸,⁹</td>
</tr>
<tr>
<td>Italy</td>
<td>7.7-8.3%⁴</td>
</tr>
<tr>
<td>Poland</td>
<td>7.3-8.9%⁴</td>
</tr>
<tr>
<td>Portugal</td>
<td>7.9-9.7%⁷</td>
</tr>
<tr>
<td>Romania</td>
<td>7.9-9.9%⁷</td>
</tr>
<tr>
<td>Spain</td>
<td>7.6-9.2%⁸</td>
</tr>
<tr>
<td>Sweden</td>
<td>7.4-8.7%⁷</td>
</tr>
<tr>
<td>Turkey</td>
<td>7.6-10.6%⁷</td>
</tr>
<tr>
<td>UK</td>
<td>7.4-8.7%⁸</td>
</tr>
</tbody>
</table>

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

Risk reduction by lowering HbA1c by 1%-point

<table>
<thead>
<tr>
<th>Event</th>
<th>Incidence risk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes-related death</td>
<td>-21%*</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>-14%</td>
</tr>
<tr>
<td>Microvascular complications</td>
<td>-37%*</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td>-43%*</td>
</tr>
</tbody>
</table>

*\(p<0.0001\)


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

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

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microvascular disease</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>Diabetes-related death</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>All-cause mortality</td>
<td>6</td>
<td>13</td>
</tr>
</tbody>
</table>

Statistically significant improvement

Insulin is the ultimate care for people with diabetes

Progression of type 2 diabetes and treatment intensification

Distribution of patients and value across treatment classes

OAD: Oral anti-diabetic

Note: Patient distribution across treatment classes is indicative and based on data for US, UK, Germany and France. Value figures based on IMS MAT August 2016
Source: IMS PharMetrix claims data, IMS disease analyser, IMS Midas
The insulin market is comprised of three segments

**Insulin action profiles**

- **Fast-acting**
- **Premix**
- **Long-acting**

**Global insulin volume market by segment**

- **CAGR volume**: 4.6%
- **CAGR value**: 20.4%

**Breakdown by segment:**

- **Long-acting**: 40%
- **Premix**: 26%
- **Fast-acting**: 34%

**Aug 2011**

- Long-acting: 37%
- Premix: 29%
- Fast-acting: 34%

**Aug 2016**

- Long-acting: 40%
- Premix: 26%
- Fast-acting: 34%

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 August (DKK) figures
# Medications used for the treatment of type 2 diabetes

## Commonly prescribed products for the treatment of type 2 diabetes

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

Note: TG and HDL: Beneficial effect on triglycerides and HDL cholesterol; CHF: Congestive heart failure; GI: Gastrointestinal; MTC: Medullary thyroid cancer; TZD: Thiazolidinediones; OAD: Oral antidiabetic; TBD: to be defined.

Solid position in the diabetes care market across all regions with leading insulin market share

<table>
<thead>
<tr>
<th>Regions</th>
<th>Diabetes care value market composition</th>
<th>Diabetes care value market share</th>
<th>Insulin market volume composition</th>
<th>Insulin market share</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>29% 60% 11%</td>
<td>71% 29%</td>
<td>51% 38% 11%</td>
<td>63% 37%</td>
</tr>
<tr>
<td>Europe</td>
<td>43% 48% 9%</td>
<td>72% 28%</td>
<td>40% 41% 19%</td>
<td>54% 46%</td>
</tr>
<tr>
<td>International Operations¹</td>
<td>61% 36% 3%</td>
<td>79% 21%</td>
<td>30% 24% 46%</td>
<td>45% 55%</td>
</tr>
<tr>
<td>Region China¹</td>
<td>47% 52% 1%</td>
<td>68% 32%</td>
<td>16% 21% 63%</td>
<td>45% 55%</td>
</tr>
<tr>
<td>Pacific</td>
<td>72% 24% 4%</td>
<td>79% 21%</td>
<td>44% 36% 20%</td>
<td>53% 47%</td>
</tr>
</tbody>
</table>

1 IMS only covers part of the channels in International Operations and Region China
Source: IMS August 2015 & 2016 Monthly MAT volume and value (DKK) figures

- **Insulin**
  - Fast-acting
  - Long-acting
- **Novo Nordisk**
  - Novo Nordisk
  - Others
- **GLP-1**
  - Premix
- **OAD**
  - Others
Stable global insulin volume growth

Regional insulin volume growth

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

Regional insulin volume market split

Note: Data is sensitive to changes in IMS data collection and reporting methodology
Source: IMS Monthly MAT August, 2016 volume figures
Maintaining global insulin leadership by sustaining modern insulin market share

Novo Nordisk global 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 August, 2016 value and volume figures

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 August, 2016 value and volume figures
Strong underlying insulin market growth and sustained global volume market share

Global insulin market

- Device penetration
- Modern insulin penetration

CAGR volume\(^2\): 4.6%
CAGR value\(^2\): 20.4%

Modern insulin\(^1\)

Human insulin

Global modern insulin\(^3\) volume market shares

- Novo Nordisk
- Sanofi
- Eli Lilly

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

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 August, 2016 volume figures

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

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

Source: IMS Monthly MAT August, 2016 volume and value (DKK) figures
Novo Nordisk’s modern insulins continue solid performance within their respective segments

---

CAGR$^1$ volume: 5.1%
MI penetration: 77.4%

CAGR$^1$ volume: 2.2%
MI penetration: 47.1%

CAGR$^1$ volume: 6.1%
MI penetration: 81.3%

---

$^1$ CAGR for 5-year period

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

Source: IMS Monthly MAT August, 2016 volume figures
Solid US modern insulin market share

**US insulin market by segments**

- **Device penetration**
- **Modern Insulin penetration**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>tMU</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
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<tr>
<td>100</td>
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<tr>
<td>80</td>
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<tr>
<td>60</td>
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<td>40</td>
<td></td>
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<tr>
<td>20</td>
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<tr>
<td>0</td>
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</tr>
</tbody>
</table>

**Penetration**

- **Fast-acting**
- **Premix**
- **Long-acting**

**CAGR volume**: 2.1%

**CAGR value**: 28.6%

**US modern insulin volume market shares**

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

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>SAN</strong></td>
<td></td>
<td>41%</td>
</tr>
<tr>
<td><strong>ELI</strong></td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td><strong>NOV</strong></td>
<td>21%</td>
<td></td>
</tr>
</tbody>
</table>

1. **CAGR** for 5-year period

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

Source: IMS Monthly MAT August, 2016 volume figures
Novo Nordisk’s modern insulins maintain 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, i.e., including human insulin

Source: IMS Monthly MAT August, 2016 volume figures
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

<table>
<thead>
<tr>
<th>Category</th>
<th>2015</th>
<th>2018E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managed care</td>
<td>51%</td>
<td>50%</td>
</tr>
<tr>
<td>Medicare</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Uninsured</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>Public exchanges</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>US population (million)</td>
<td>321</td>
<td>329</td>
</tr>
</tbody>
</table>

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 HSC estimates.

Source: Adapted from Health Strategies Group 2015 report

In 2015 PBM and health plans covered 245 million lives and the market has consolidated

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: 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
Source: Health Strategies Group
Sustained leadership position in the European modern insulin market

European insulin market by segments

- Device penetration
- Modern Insulin penetration

CAGR volume\(^1\): 2.5%
CAGR value\(^1\): 3.3%

Penetration

- Fast-acting
- Premix
- Long-acting


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

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

European modern insulin\(^3\) volume market shares

- Novo Nordisk
- Sanofi
- Eli Lilly

Aug 2016  Aug 2011

45% 35% 18%

Source: IMS Monthly MAT August, 2016 volume figures, numbers do not add up to 100% due to smaller insulin manufacturers
Stable leadership position in International Operations

**International Operations insulin market by segments**

- **Device penetration**
- **Modern Insulin penetration**

**CAGR volume**: 10.7%

**CAGR value**: 8.1%

**Penetration**

- **Fast-acting**
- **Premix**
- **Long-acting**

**International Operations insulin volume market shares**

- **Novo Nordisk**
- **Sanofi**
- **Eli Lilly**
- **Biocon**

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 August, 2016 volume and value (DKK) figures.

**Device penetration**

- **Fast-acting**
- **Premix**
- **Long-acting**

**CAGR volume**: 10.7%

**CAGR value**: 8.1%

**Penetration**

- **Fast-acting**
- **Premix**
- **Long-acting**

Note: Only top-4 shown.

Source: IMS Monthly MAT August, 2016 volume figures, numbers do not add up to 100% due to smaller insulin manufacturers.
Continued solid growth in the Chinese insulin market

Chinese insulin market by segments

- Device penetration
- Modern Insulin penetration

CAGR volume\(^1\): 14.1%
CAGR value\(^1\): 22.7%

Penetration

Fast-acting
Premix
Long-acting

Aug 2011
Aug 2016

Note: IMS covers around 50% of the total Chinese market (hospital data)
Source: IMS Monthly MAT August, 2016 volume and value (DKK) figures

Chinese insulin volume market shares

- Novo Nordisk
- Eli Lilly
- Shanghai Fosun
- Tonghua Dongbao
- Sanofi

Aug 2011
Aug 2016

55%
13%
9%
9%
6%

Note: Only top-5 shown
Source: IMS Monthly MAT August, 2016 volume figures, numbers do not add up to 100% due to smaller insulin manufacturers not included
Solid market leadership position in Japan

**Japanese insulin market by segments**
- Device penetration
- Modern Insulin penetration

**Japanese modern insulin volume market shares**
- Novo Nordisk
- Sanofi
- Eli Lilly

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

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

Source: IMS Monthly MAT August, 2016 volume figures
Solid Tresiba® performance strengthens total insulin market share in Japan

Japanese basal value market shares

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

Japanese total insulin value market shares

- Novo Nordisk
- Eli Lilly
- Sanofi

Source: IMS Monthly August, 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

The 9% GLP-1 share of the global diabetes care market is increasing, opportunities for further penetration remain.

**Global GLP-1 market**

- **GLP-1 value in bDKK**
- **Share of total diabetes care market**

- **CAGR value**: 37.0%
- **Victoza®**
- **Exenatide**
- **Other GLP-1**

<table>
<thead>
<tr>
<th>Region</th>
<th>GLP-1 share of diabetes care market</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>11%</td>
</tr>
<tr>
<td>Europe</td>
<td>9%</td>
</tr>
<tr>
<td>Pacific</td>
<td>4%</td>
</tr>
<tr>
<td>Region China</td>
<td>1%</td>
</tr>
<tr>
<td>IO</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Victoza® sales and GLP-1 value market share of total diabetes care market**

<table>
<thead>
<tr>
<th>DKK billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

Source: Novo Nordisk reported sales for first nine months of 2016 and IMS August, 2016 data

1 CAGR for 5-year period
Source: IMS Monthly MAT August, 2016 value figures (DKK)
Increasing global GLP-1 volume growth across all regions

**Regional GLP-1 volume growth**

- USA
- Europe
- Int. Operations
- Pacific
- World
- Region China

**Regional GLP-1 volume market split**

- USA
- Europe
- Pacific
- Int. Operations
- Region China

Note: Data is sensitive to changes in IMS data collection and reporting methodology
Source: IMS Monthly MAT August, 2016 volume figures
The GLP-1 segment accounts for 11% of the total diabetes care market in the US

**US GLP-1 market**

- **Victoza®**
- dulaglutide
- albiglutide
- exenatide

**Share of total diabetes care market**

**GLP-1 value in bDKK**

- **CAGR value**: 40.9%

**Key observations for Victoza® in the US market**

- **Victoza® volume market share within the GLP-1 segment is 51%**
- Around 85% of commercial and around 90% of Medicare Part D lives are covered without restrictions
- Around 65% of new patients are new to treatment or from OAD-only regimens
- Close to 70% of prescriptions are for the 3-pen pack

---

1. CAGR for 5-year period
2. IMS monthly NPA data, August 2016
3. IMS LRx Weekly, WE 09/09/2016
The GLP-1 segment accounts for 9% of the total diabetes care market in Europe

**European GLP-1 market**

- **Victoza®**
- lixisenatide
- dulaglutide
- exenatide

**Share of total diabetes care market**

CAGR value\(^1\): 21.7%

\(^1\) CAGR for 5-year period

Source: IMS Monthly MAT August, 2016 value figures (DKK)

**Victoza® value market share in Europe**

- **Victoza®**
- exenatide
- dulaglutide
- lixisenatide

**GLP-1 value market share**

- Aug 2011
- Aug 2016

Source: IMS Monthly MAT August, 2016 value figures (DKK)
The GLP-1 segment accounts for around 3% of the total diabetes care market in International Operations

International Operations GLP-1 market

<table>
<thead>
<tr>
<th>GLP-1 value in bDKK</th>
<th>Victoza®</th>
<th>exenatide</th>
<th>lixisenatide</th>
<th>dulaglutide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug 2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Share of total diabetes care market

CAGR value\(^1\): 60.0%

Source: IMS Monthly MAT August, 2016 value figures (DKK)

Victoza® value market share in International Operations

GLP-1 value market share

<table>
<thead>
<tr>
<th>GLP-1 value market share</th>
<th>Victoza®</th>
<th>exenatide</th>
<th>lixisenatide</th>
<th>dulaglutide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug 2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: IMS Monthly MAT August, 2016 value figures (DKK)

\(^1\) CAGR for 5-year period

Source: IMS Monthly MAT August, 2016 value figures (DKK)
The GLP-1 segment accounts for around 4% of the total diabetes care market in Pacific

CAGR value¹: 31.0%

¹ CAGR for 5-year period
Source: IMS Monthly MAT August, 2016 value figures (DKK)
Victoza® maintains a strong position in the global DPP-IV, GLP-1 and SGLT-2 segment

Segment value | Share of segment value growth | Segment value market shares

<table>
<thead>
<tr>
<th>DKK billion</th>
<th>CAGR(^1) value: 33.9%</th>
<th></th>
<th></th>
</tr>
</thead>
</table>

\(^1\) 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 August 2016 value figures
Overview of current and future products in Novo Nordisk’s diabetes portfolio

<table>
<thead>
<tr>
<th>Second generation analogues</th>
<th>When metformin is not enough</th>
<th>Second generation analogues</th>
<th>When it's time for insulin</th>
<th>When basal insulin is not enough</th>
<th>Mealtime insulin control</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral semaglutide semaglutide</td>
<td>TRESIBA®</td>
<td>Xultophy®</td>
<td>Once-daily optimisation</td>
<td>Faster acting insulin aspart</td>
<td></td>
</tr>
<tr>
<td>VicTOZA®</td>
<td></td>
<td></td>
<td></td>
<td>Mixtard® 30</td>
<td></td>
</tr>
<tr>
<td>Levemir®</td>
<td></td>
<td></td>
<td></td>
<td>Actrapid®</td>
<td></td>
</tr>
</tbody>
</table>

1 Pending clinical development programmes and regulatory processes for semaglutide and faster-acting insulin aspart
## R&D pipeline: Diabetes and obesity

<table>
<thead>
<tr>
<th>Product/project</th>
<th>Type</th>
<th>Indication</th>
<th>Status (phase)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xultophy® (NN9068)</td>
<td>Combination of insulin degludec and liraglutide</td>
<td>Type 2</td>
<td>1 2 3 Filed Appr.</td>
</tr>
<tr>
<td>Faster-acting insulin aspart (NN1218)</td>
<td>New formulation of insulin aspart</td>
<td>Type 1+2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>Semaglutide (NN9535)</td>
<td>Once-weekly GLP-1 analogue</td>
<td>Type 2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>OG217SC (NN9924)</td>
<td>Long-acting once-daily oral GLP-1 analogue</td>
<td>Type 2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>Semaglutide QD (NN9535)</td>
<td>Once-daily GLP-1 analogue</td>
<td>Type 2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>Anti-IL-21 and liraglutide (NN9828)</td>
<td>Immuno-metabolic combination of Anti-IL-21 and liraglutide</td>
<td>Type 1</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>LA1287 (NN1436)</td>
<td>Long-acting once-weekly basal insulin analogue</td>
<td>Type 1+2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>Mealtime insulin (NN1406)</td>
<td>Liver-preferential mealtime insulin</td>
<td>Type 1+2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>PYY diabetes (NN9748)</td>
<td>Peptide YY analogue</td>
<td>Type 1+2</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>Semaglutide QD (NN9536)</td>
<td>Once-daily GLP-1 analogue</td>
<td>Obesity</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>G530S (NN9030)</td>
<td>Glucagon analogue</td>
<td>Obesity</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>AM833 (NN9838)</td>
<td>Long-acting amylin analogue</td>
<td>Obesity</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>GG-co-agonist (NN9277)</td>
<td>Glucagon GLP-1 co-agonist</td>
<td>Obesity</td>
<td>1 2 3 Filed</td>
</tr>
<tr>
<td>PYY obesity (NN9747)</td>
<td>Peptide YY analogue</td>
<td>Obesity</td>
<td>1 2 3 Filed</td>
</tr>
</tbody>
</table>

1 Approved in EU on 18 Sep 2014
Victoza® statistically significantly reduced the risk of major adverse cardiovascular events in the LEADER trial

13% reduction in 3-point MACE with Victoza® compared with placebo

<table>
<thead>
<tr>
<th>Patients1 with an event (%)</th>
<th>Hazard ratio = 0.87</th>
<th>95% CI (0.78;0.97)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Victoza®</td>
<td>Placebo</td>
</tr>
<tr>
<td>0</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>6</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>12</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>18</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>24</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>30</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>36</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>42</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>48</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>54</td>
<td>0.87</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Key results

- Superiority of Victoza® vs placebo was confirmed for time to first MACE in people with type 2 diabetes at high CV risk

- **Victoza® reduced the MACE risk by 13%** as well as CV and all-cause mortality by 22% and 15% respectively, compared with placebo when added to standard of care

- The result was consistent across sensitivity analyses

- Victoza® appeared to have a safe and well tolerated profile, generally consistent with previous studies for Victoza®

---

1Inclusion criteria: Adults above 50 years with type 2 diabetes and established CV disease, above 60 years with multiple CV factors, HbA1c ≥ 7.0%

MACE: major adverse cardiovascular events; 3-point MACE comprises cardiovascular death, non-fatal myocardial infarction and non-fatal stroke; CI: two-sided confidence interval

CV: Cardiovascular
All components of 3-point MACE contributed to the reduction in cardiovascular risk in the LEADER trial

**Cardiovascular death**

- **Patients with an event (%)**
  - **Victoza®**
  - **Placebo**

<table>
<thead>
<tr>
<th>Months</th>
<th>Victoza®</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>36</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>54</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

**HR = 0.78**

95% CI (0.66;0.94)

p=0.007

**Non-fatal myocardial infarction**

<table>
<thead>
<tr>
<th>Months</th>
<th>Victoza®</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>36</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>54</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

**HR = 0.88**

95% CI (0.75;1.03)

p=0.11

**Non-fatal stroke**

<table>
<thead>
<tr>
<th>Months</th>
<th>Victoza®</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>36</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>54</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

**HR = 0.89**

95% CI (0.72;1.11)

p=0.30

HR: hazard ratio; CI: confidence interval

Tresiba® shows lower rate of hypoglycaemia than insulin glargine U100 in SWITCH trials – filed in Q3 2016

**SWITCH 1 – type 1 diabetes**

<table>
<thead>
<tr>
<th>Hypoglycaemic events per 100 PYE</th>
<th>Severe or BG confirmed symptomatic events</th>
<th>Severe or BG confirmed nocturnal events</th>
<th>Severe events</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,463</td>
<td>429</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>2,201</td>
<td>277</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td><strong>-11%</strong>*</td>
<td><strong>-36%</strong>*</td>
<td><strong>-35%</strong>*</td>
</tr>
</tbody>
</table>

**SWITCH 2 – type 2 diabetes**

<table>
<thead>
<tr>
<th>Hypoglycaemic events per 100 PYE</th>
<th>Severe or BG confirmed symptomatic events</th>
<th>Severe or BG confirmed symptomatic nocturnal events</th>
<th>Severe events</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>265</td>
<td>94</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>186</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>-30%</strong>*</td>
<td><strong>-42%</strong>*</td>
<td><strong>-46%</strong>*</td>
</tr>
</tbody>
</table>

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
**Tresiba®** showed lower day-to-day variability in the glucose-lowering effect compared to insulin glargine U300

**Within-subject variability in steady state**

<table>
<thead>
<tr>
<th>Day-to-day variability&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Tresiba®</th>
<th>Insulin glargine U300</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>2-4</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>4-6</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>6-8</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>8-10</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>10-12</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>12-14</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>14-16</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>16-18</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>18-20</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>20-22</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>22-24</td>
<td>1.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Key results and next step**

- The day-to-day variability in the glucose-lowering effect was approximately **four-times lower with Tresiba®** compared to insulin glargine U300 when evaluated by within-subject variance for people with type 1 diabetes in PK/PD trial.
- Day-to-day variability was consistently lower for Tresiba® than insulin glargine U300 over the entire 24-hour period.
- Insulin glargine U300 showed a statistically significantly* lower potency compared to Tresiba® of approximately 30%.
- **Next step:** Initiation of large 3b head-to-head trial study in type 2 diabetes to document clinical benefits including hypoglycaemia, with expected start in 2017.

<sup>1</sup>Day-to-day variability in 2-hours interval of AUC<sub>GIR</sub> (variance)

Note: 60 type 1 diabetic patients were enrolled and 57 completed the trial; Inclusion criteria: Age 18-65 years, diagnosis of type 1 diabetes, Fasting C-peptide <0.3 nmol/L, BMI: 18.5-29 kg/m², HbA<sub>1c</sub>: <9%

AUC<sub>GIR</sub>: area under glucose infusion curve

* p<0.001
In phase 3a trials semaglutide shows best in-class potential on HbA$_{1c}$ reduction across treatment cascade

Comparison of HbA$_{1c}$ lowering effect in SUSTAIN 1, 2, 3, 4 and 5 trials

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Baseline (%)</th>
<th>Change in HbA$_{1c}$ (%)</th>
<th>% patients HbA$_{1c}$ ≤7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUSTAIN 1</td>
<td>8.1%</td>
<td>-1.6</td>
<td>72%</td>
</tr>
<tr>
<td>SUSTAIN 2</td>
<td>8.1%</td>
<td>-1.6</td>
<td>74%</td>
</tr>
<tr>
<td>SUSTAIN 3</td>
<td>8.4%</td>
<td>-1.5</td>
<td>78%</td>
</tr>
<tr>
<td>SUSTAIN 4</td>
<td>8.2%</td>
<td>-1.6</td>
<td>69%</td>
</tr>
<tr>
<td>SUSTAIN 5</td>
<td>8.4%</td>
<td>-1.8</td>
<td>36%</td>
</tr>
</tbody>
</table>

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

Comparison of weight lowering effect in SUSTAIN 1, 2, 3, 4 and 5 trials

- Sema 1 mg
- Sema 0.5 mg
- Placebo
- Sitagliptin 100 mg
- Exenatide QW
- Insulin glargine QD

Baseline: SUSTAIN 1 92kg, SUSTAIN 2 89kg, SUSTAIN 3 96kg, SUSTAIN 4 93kg, SUSTAIN 5 92kg

Change in weight (kg)

-4.5, -3.7, -4.3, -5.6, -5.2, -6.4

* 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)
# Competitive Tresiba® label across all three triad markets

<table>
<thead>
<tr>
<th>Tresiba® label characteristics in triad markets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profile</strong></td>
</tr>
<tr>
<td>US</td>
</tr>
<tr>
<td>• Half-life of 25 hours and duration of action of at least 42 hours</td>
</tr>
<tr>
<td>• Day to day variability of 20%</td>
</tr>
<tr>
<td>Europe</td>
</tr>
<tr>
<td>• Duration of action beyond 42 hours</td>
</tr>
<tr>
<td>• Four times lower day-to-day variability vs insulin glargine</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>• Duration of action up to 26 hours in Japanese patients</td>
</tr>
<tr>
<td>• Four times lower day-to-day variability vs insulin glargine</td>
</tr>
</tbody>
</table>

| **Efficacy**                                    |
| US                                              |
| • Non-inferior HbA1c reduction                  |
| • Numerically greater FPG reduction             |
| • Numerically lower insulin dose¹               |
| Europe                                          |
| • Non-inferior HbA1c reduction                  |
| • Numerically greater FPG reduction             |
| Japan                                           |
| • Non-inferior HbA1c reduction                  |
| • Numerically greater FPG reduction             |

| **Safety**                                      |
| US                                              |
| • Overall safety consistent with insulin        |
| • Hypoglycaemia rates for Tresiba®, but not comparator |
| Europe                                          |
| • Overall safety consistent with insulin        |
| • Lower rate of overall and nocturnal hypoglycaemia |
| Japan                                           |
| • Overall safety consistent with insulin        |
| • Lower rate of nocturnal hypoglycaemia in Asian subjects |

| **Convenience**                                 |
| US                                              |
| • Injection any time of day                     |
| • Up to 80 and 160 units per injection          |
| Europe                                          |
| • Adjusting injection time when needed          |
| • Up to 80 and 160 units per injection          |
| Japan                                           |
| • In case of missed dose take as soon as possible |

¹ Observed in majority of the trials
US Tresiba® label reflects the distinctly different product features compared to competitor basal insulins

<table>
<thead>
<tr>
<th>Duration of action¹</th>
<th>glargine U100</th>
<th>glargine U300</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At least 42 hours²</td>
<td>• Up to 24 hours³</td>
<td>• Up to 36 hours⁴</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Administration and dosing</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Once daily at any time of day⁵</td>
<td>• Once daily at any time of day, at the same time every day⁶</td>
<td>• Once daily at any time during the day, at the same time every day⁷</td>
</tr>
<tr>
<td>• Numerically lower dose needed vs glargine U100⁸</td>
<td>• Higher dose needed vs glargine U100⁹</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pen device</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• 600 units/pen¹⁰</td>
<td>• 300 units/pen</td>
<td>• 450 units/pen</td>
</tr>
<tr>
<td>• 160 units max per injection¹⁰</td>
<td>• 80 units max per injection</td>
<td>• 80 units max per injection</td>
</tr>
<tr>
<td>• No push button extension</td>
<td>• Push button extension</td>
<td>• Push button extension</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In-use time</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• 56 days at room temperature</td>
<td>• 28 days at room temperature</td>
<td>• 42 days at room temperature</td>
</tr>
</tbody>
</table>

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 Tresiba PI section 14.1; ¹⁰ Tresiba U200 PI
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\textsubscript{1c} reduction of 1.9\%\textsuperscript{1} from baseline to end of trial confirmed to be superior against all comparators\textsuperscript{2}
- 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

\textsuperscript{1} Source: DUAL® I (NN9068-3697), DUAL® II (NN9068-3912)
\textsuperscript{2} Insulin degludec, liraglutide and placebo
Xultophy® has documented strong efficacy across the treatment cascade

<table>
<thead>
<tr>
<th>Xultophy® key clinical results</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL I Add-on to metformin ± Pio n = 833</td>
</tr>
<tr>
<td>Mean trial start HbA_1c (%)</td>
</tr>
<tr>
<td>Mean trial end HbA_1c (%)</td>
</tr>
<tr>
<td>HbA_1c change (%)</td>
</tr>
<tr>
<td>% to target &lt; 7% (%)</td>
</tr>
<tr>
<td>% to target &lt; 6.5% (%)</td>
</tr>
<tr>
<td>Confirmed hypoglycaemia (Episodes per 100 PYE)</td>
</tr>
<tr>
<td>Weight change (kg)</td>
</tr>
</tbody>
</table>

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.
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

\(^{1}\) Concentration often below recommended dietary daily intake

HbA\(_{1c}\) reduction in onset 1 trial after 26 weeks

- Faster aspart (pm)
- Faster aspart (mt)
- NovoRapid® (mt)

\(* p<0.05; \text{ pm: post-meal; mt: meal time} \)

Source: Novo Nordisk on file (NN1218-3852)
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% ≤ HbA$_{1c}$ ≤ 9.5%; treatment with diet and exercise with or without metformin; sc: subcutaneous; sema: semaglutide
Initiation of PIONEER trials for oral semaglutide

2016

- PIONEER 1: monotherapy
  26 weeks, n=704

- PIONEER 2: vs empagliflozin
  52 weeks, n=816

- PIONEER 3: vs sitagliptin
  78 weeks, n=1,860

2017

- PIONEER 4: vs liraglutide
  52 weeks, n=690

- PIONEER 5: moderate renal impairment
  26 weeks, n=324

- PIONEER 6: cardiovascular outcomes
  Event driven (>122 MACE), n=3,176

- PIONEER 7: flexible dose escalation
  52 weeks, n=500

- PIONEER 8: insulin add-on
  26+26 weeks, n=720

- PIONEER 9: JAPAN monotherapy
  52 weeks, n=230

- PIONEER 10: JAPAN OAD combination
  52 weeks, n=336

2018

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

Phase 2 trial design

<table>
<thead>
<tr>
<th>Week</th>
<th>Dosing</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>304 newly diagnosed people with type 1 diabetes¹</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Anti-IL-21 + liraglutide 1.8 mg</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Placebo + liraglutide 1.8 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anti-IL-21 + placebo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Placebo + placebo</td>
<td></td>
</tr>
</tbody>
</table>

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

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

TID: Type 1 diabetes; MOA: Mode of action
Insulin LAI287 offers potential for once-weekly dosing

LAI287 pharmacodynamic profile is compatible with once-weekly dosing

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 events being hypoglycaemia
- The side effects observed in the phase 1 trial will be further investigated

Note: Pharmacokinetic simulation
Liver-preferential meal time insulin analogue has potential to reduce hypoglycaemia and weight gain

The liver is important for insulin action

Liver: Glucose production

- sc insulin
- sc liver-preferential prandial insulin
- Endogenous insulin

Muscle: Glucose uptake

Fat: Glucose uptake

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 individuals
- >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

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

### Incidence of obesity in the US (million people)

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

### The US obesity burden

- Cost of obesity to health care systems of USD 147 billion annually with continued growth\(^5\)
- 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 2009\(^7\)
- In 2010, only 3 million people in the US or around 3% of the adult population with obesity were treated with anti-obesity medication\(^8\)

---

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)
Significant unmet need in obesity management

Insufficient treatment options

- All people with obesity
- People diagnosed
- People Rx treated*

Significant gaps in obesity treatment

- Diet and exercise
- Anti-obesity medication with weight loss of 5-10%
- Bariatric surgery

Mean weight loss

Complexity of treatment

Low
Medium
High

Source: Diagnosis rate, Practice Fusion March 2014 & Treatment rate, Understanding the Treatment Dynamics of the Obesity Market, IMS Database (NPA), August 2014

*Rx=prescription, ie treated with anti-obesity medication (AOM)
Small but growing market for anti-obesity medication in the US

AOM Market Value has grown quickly in recent years, fuelled by branded treatment uptake

<table>
<thead>
<tr>
<th>Year</th>
<th>AOM value in mUSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>100</td>
</tr>
<tr>
<td>2011</td>
<td>200</td>
</tr>
<tr>
<td>2012</td>
<td>300</td>
</tr>
<tr>
<td>2013</td>
<td>400</td>
</tr>
<tr>
<td>2014</td>
<td>500</td>
</tr>
<tr>
<td>2015</td>
<td>600</td>
</tr>
<tr>
<td>2016</td>
<td>700</td>
</tr>
</tbody>
</table>

Note: Values are shown in terms of Moving-Annual-Total ending August
Source: IMS NSP Monthly, August 2016

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

- Phentermine and topiramate launch
- Lorcaserin launch
- Naltrexone HCI and bupropion HCI launch
- Saxenda® launch

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, August 2016
Steady prescription uptake for Saxenda® in the US

**Prescription volume uptake of anti-obesity medications (AOM) recently launched in the US**

<table>
<thead>
<tr>
<th>TRx Volume (000)</th>
<th>Saxenda®</th>
<th>Belviq®</th>
<th>Qsymia®</th>
<th>Contrave®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 2015</td>
<td>18</td>
<td>35</td>
<td>39</td>
<td>55</td>
</tr>
<tr>
<td>Aug 2016</td>
<td>18</td>
<td>35</td>
<td>39</td>
<td>55</td>
</tr>
</tbody>
</table>

**Key observations**

- Saxenda® has been launched in 15 markets, including the US, Canada, Denmark, Italy, Australia, Mexico, Germany, Belgium, Brazil, Israel and now Sweden, the Netherlands, Spain, UAE, and Russia.

- Saxenda® is the leader in value market share at ~49% 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 NPA TRx, monthly, August 2016

Source: IMS NSP, Monthly data, August 2016
Saxenda® targeted at patients with BMI ≥35 and weight-related comorbidities

**Saxenda® market approach**

- **Clear patient segmentation**
- **Focused prescriber targeting**
- **Clear product value proposition**
- **Focus on engaging prioritised payers and employers**

**Saxenda® launch execution**

- Focus on patients with BMI ≥35 with weight-related comorbidities
- Focus on current prescribers of anti-obesity medication and GLP-1
- Strengthened by 3-year clinical data
- Formulary coverage emerging with more than 50 million lives covered

**Aspiration**

- Build the market

---

**BMI:** body mass index

1 Potential lives covered, based on employer opt-ins
Competitive US label for Saxenda®

Saxenda® approved in the US for chronic weight management in individuals with a BMI ≥30, or ≥27 in the presence of at least one weight-related comorbidity

**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 weight
- **Average weight loss of 9.2%** in completers at one year

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

**Once-daily semaglutide phase 2 trial design**

- **Semaglutide 0.05 mg**
- **Semaglutide 0.1 mg**
- **Semaglutide 0.2 mg**
- **Semaglutide 0.3 mg**
- **Semaglutide 0.4 mg**
- **Semaglutide 0.3 mg fast escalation**
- **Semaglutide 0.4 mg fast escalation**
- **Placebo**
- **Liraglutide 3 mg**

935 people with obesity without diabetes

**Phase 2 trial purpose and endpoints**

**Purpose**

- To assess and compare the dose response of five doses of once-daily 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 ≥ 5% or ≥ 10% of baseline body weight at 52 weeks

**Results from phase 2 trial expected in 2017**

QD: once-daily; sc: subcutaneous

---

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
### Key features of compounds in phase 1 development for obesity

<table>
<thead>
<tr>
<th>Compound</th>
<th>Mode of action</th>
<th>Administration</th>
<th>Clinical development status</th>
</tr>
</thead>
</table>
| G530S – Glucagon analogue | • Stimulation of energy expenditure and satiety promoting a negative energy balance | • Once-daily subcutaneous injection in combination with liraglutide             | • Phase 1 initiated Sep 2014  
• Safety/PK of single ascending doses  
• 160 overweight/obese people  
• Expected completion 2017 |
| NN9838 – Amylin analogue  | • Reduced food intake, thought primarily to be mediated by amylin receptors located in the area postrema | • Once-daily subcutaneous injection | • Phase 1 initiated Dec 2014  
• Safety/PK of single and multiple ascending doses  
• 140 overweight/obese people  
• Expected completion 2018 |
| NN9747 – PYY analogue    | • Reduced food intake via selective stimulation of the Y2 receptor              | • Once-daily subcutaneous injection | • Phase 1 initiated Oct 2015  
• Safety/PK of single and multiple doses  
• 120 overweight/obese people  
• Expected completion 2019 |

**PK: pharmacokinetic**

- **G530S** –Amylin analogue
- **NN9838** –Amylin analogue
- **NN9747** –PYY analogue

---

**Long-acting obesity compounds in phase 1 development may have complimentary modes of action**
Biopharmaceuticals
Haemophilia: Location of bleedings and the consequences

**Locations**

- Head and neck
- Nose and gums
- Joints
- Gut
- Kidneys
- Muscles
- Joints

**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 is a rare disease with severe unmet medical needs

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

- Haemophilia A: App. 350,000 patients
- Haemophilia B: App. 70,000 patients
- Inhibitor segment app. 3,500-4,000 patients

Low diagnosis and treatment rates within haemophilia

<table>
<thead>
<tr>
<th>Number of people (000)</th>
<th>People with haemophilia</th>
<th>Diagnosed</th>
<th>Treated</th>
<th>Prophylactic</th>
<th>Pristine joints</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500</td>
<td>45%</td>
<td>15%</td>
<td>6%</td>
<td>3%</td>
</tr>
</tbody>
</table>

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

Global haemophilia market is growing by mid-single digit

Sales of recombinant coagulation factors

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>rFVIIa</td>
<td>DKK</td>
<td></td>
</tr>
<tr>
<td>CAGR²: 4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rFVIII</td>
<td>DKK</td>
<td></td>
</tr>
<tr>
<td>CAGR²: 7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rFIX</td>
<td>DKK</td>
<td></td>
</tr>
<tr>
<td>CAGR²: 13%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>NovoSeven®</td>
<td>DKK</td>
<td></td>
</tr>
<tr>
<td>Coagil VII®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obizur®¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recombinate®/Advate®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kogenate®/Helixate®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xyntha®/Refacto®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eloctate®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NovoEight®</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Strategic positioning of Novo Nordisk’s haemophilia portfolio

<table>
<thead>
<tr>
<th>Novo Nordisk compound</th>
<th>Status</th>
<th>Strategic position</th>
</tr>
</thead>
<tbody>
<tr>
<td>NovoSeven®</td>
<td>Launched</td>
<td>Maintain market leadership</td>
</tr>
<tr>
<td>NovoEight®</td>
<td>Launched</td>
<td>Establish presence in a competitive market place</td>
</tr>
<tr>
<td>N8-GP</td>
<td>Phase 3³</td>
<td>Contribute to market conversion</td>
</tr>
<tr>
<td>N9-GP</td>
<td>Filed⁴</td>
<td>Establish new treatment paradigm</td>
</tr>
<tr>
<td>NovoThirteen®</td>
<td>Launched</td>
<td>Launch first recombinant product</td>
</tr>
</tbody>
</table>

1 Obizur® only indicated for acquired haemophilia
2 CAGR for 5-year period
3 Submission of N8-GP expected 2018 pending expansion of production capacity
4 Submitted to the to the European Medicines Agency in January 2016; Submitted to the US Food and Drug Administration in May 2016
NovoSeven® – a unique biologic for the treatment of rare bleeding disorders

**NovoSeven® reported sales**

<table>
<thead>
<tr>
<th>Q3 2011</th>
<th>Q3 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>1.50</td>
<td>1.50</td>
</tr>
</tbody>
</table>

**CAGR¹ (0.1%)**

**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

1 CAGR for 5-year period

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 campaign

**NovoEight® properties and launch performance**

**Indications:**
- Treatment and prophylaxis of bleeding in patients with congenital factor VIII deficiency for all age groups

**Key product characteristics:**
- Reliability: No inhibitor development in PTPs in one of the largest pivotal trial programmes of any approved rFVIII (n=213)
- Purity and safety: First rFVIII to use a 20nm filter in its purification process
- Portability: Room temperature stability with storage at 30 degrees celsius

**Launch status:**
- NovoEight® is available in the US, EU, Japan and 17 additional countries

---

1 Picture is not intended for promotional purposes

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 campaign

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, Bahrain, Brazil, Canada, Colombia, EU, Iceland, Israel, Japan, Kuwait, Oman, Qatar, Saudi Arabia, Switzerland, and the US

---

1 Picture is not intended for promotional purposes

## R&D pipeline: Haemophilia and growth disorders

<table>
<thead>
<tr>
<th>Product/project</th>
<th>Type</th>
<th>Indication</th>
<th>Status (phase)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N9-GP (NN7999)¹</td>
<td>GlycoPEGylated long-acting rFIX</td>
<td>Haemophilia B</td>
<td>Filed</td>
</tr>
<tr>
<td>N8-GP (NN7088)</td>
<td>GlycoPEGylated long-acting rFVIII</td>
<td>Haemophilia A</td>
<td></td>
</tr>
<tr>
<td>Concizumab (NN7415)</td>
<td>Monoclonal anti-TFPI</td>
<td>Haemophilia A, B and with inhibitors</td>
<td></td>
</tr>
<tr>
<td>Somapacitan (NN8640)²</td>
<td>Once-weekly human growth hormone</td>
<td>Growth disorder</td>
<td></td>
</tr>
</tbody>
</table>

1. Submitted to the European Medicines Agency in January 2016 and the US Food and Drug Administration in May 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

N9-GP phase 1 pharmacokinetics

<table>
<thead>
<tr>
<th>FIX activity (IU/mL)</th>
<th>rFIX</th>
<th>pdFIX</th>
<th>N9-GP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dose normalised
50 IU/kg (N=15)
One stage clot assay

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 and to the US Food and Drug Administration in May 2016

rFIX: Recombinant factor IX; pdFIX: plasma-derived 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**

<table>
<thead>
<tr>
<th>FVIII activity (IU/mL)</th>
<th>1.2</th>
<th>1.0</th>
<th>0.8</th>
<th>0.6</th>
<th>0.4</th>
<th>0.2</th>
<th>0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose 50 IU/kg (n=8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One stage clot assay</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pathfinder 2 headline results (phase 3)**

- PK documented single dose half-life of 18.4 hours and mean trough 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 results**

- 55 patients with ≤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 days¹
- 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 Prophylaxis 75 IU/kg every 7 days (n=38) or prophylaxis 50 IU/kg every 4 days (n=17)
Novo Nordisk maintains leadership within human growth hormone (hGH) market

Development in global hGH market

- MAT volume kg
- MAT value DKK

CAGR volume: 4.7%
CAGR value DKK: 1.8%

Growth hormone volume market share

- Novo Nordisk
- Pfizer
- Sandoz
- Eli Lilly
- Merck Kgaa
- Roche

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

Source: IMS Monthly MAT August, 2016 volume figures

---

1 CAGR for 5-year period

Source: IMS Monthly MAT August, 2016 volume figures and value (DKK) figures
Solid Norditropin® sales growth

**Norditropin® reported sales**

<table>
<thead>
<tr>
<th>Q3 2011</th>
<th>Q3 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>0.5</td>
<td>1.5</td>
</tr>
<tr>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>1.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

CAGR¹ 9.5%

**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**

¹ CAGR for 5-year period
Financials
Novo Nordisk has delivered sustained double digit growth throughout the last decade

Sales growth in local currencies 2006–2015

- Sales growth
- Average growth

Operating profit growth in local currencies 2006–2015

- Operating profit growth
- Average growth

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 NNIT with the dotted component representing this income; average is calculated excluding the effect of the 2015 non-recurring income.
Solid sales growth driven by the US, International Operations and Region China

**Reported annual sales**

<table>
<thead>
<tr>
<th>Year</th>
<th>Diabetes</th>
<th>Biopharmaceuticals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>79%</td>
<td></td>
</tr>
</tbody>
</table>

CAGR\(^\text{1}\) 12.9%

---

**Reported annual sales split by region**

- **USA**: 38%
- **Europe**: 19%
- **Int. Operations**: 13%
- **Region China**: 13%
- **Pacific**: 8%

\(^{1}\) CAGR for 4-year period
Modern insulin and Victoza® comprise around 60% of total sales in the first nine months of 2016

Reported sales split by product segments the first nine months of 2016

- New Generation Insulin
- Modern Insulin
- Human Insulin
- GLP-1
- Other Diabetes and Obesity Care
- Haemophilia
- Growth Hormone
- Other Biopharmaceuticals

Sales of DKK 82,208 million (+4%)

Reported sales split by selected key products the first nine months of 2016

<table>
<thead>
<tr>
<th>Reported currencies</th>
<th>Sales (mDKK)</th>
<th>Sales split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tresiba</td>
<td>2,506</td>
<td>3%</td>
</tr>
<tr>
<td>Levemir®</td>
<td>12,999</td>
<td>16%</td>
</tr>
<tr>
<td>NovoRapid®</td>
<td>14,406</td>
<td>18%</td>
</tr>
<tr>
<td>NovoMix®</td>
<td>7,886</td>
<td>10%</td>
</tr>
<tr>
<td>Victoza®</td>
<td>14,649</td>
<td>18%</td>
</tr>
<tr>
<td>Saxenda®</td>
<td>1,037</td>
<td>1%</td>
</tr>
</tbody>
</table>

Diabetes and obesity care

<table>
<thead>
<tr>
<th>Sales</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>65,122</td>
<td>79%</td>
</tr>
</tbody>
</table>

NovoSeven®

<table>
<thead>
<tr>
<th>Sales</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,940</td>
<td>8%</td>
</tr>
</tbody>
</table>

Norditropin®

<table>
<thead>
<tr>
<th>Sales</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,568</td>
<td>8%</td>
</tr>
</tbody>
</table>

Biopharmaceuticals

<table>
<thead>
<tr>
<th>Sales</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>17,086</td>
<td>21%</td>
</tr>
</tbody>
</table>

Total

<table>
<thead>
<tr>
<th>Sales</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>82,208</td>
<td>100%</td>
</tr>
</tbody>
</table>

1 Values are higher than the sum of the total elements listed due to residual values from products not listed.
Solid operating profit growth driven by diabetes

Operating profit

- Operating profit
- Operating profit as % of sales
- Reported operating profit growth
- Operating profit growth in local currencies

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>18%</td>
<td>32%</td>
<td>7%</td>
<td>10%</td>
<td>43%</td>
</tr>
<tr>
<td>Income</td>
<td>22%</td>
<td>20%</td>
<td>15%</td>
<td>13%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Operating profit therapy split\(^1\)

- Diabetes
- Biopharm

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>65%</td>
<td>72%</td>
</tr>
<tr>
<td>Biopharm</td>
<td>35%</td>
<td>28%</td>
</tr>
</tbody>
</table>

\(^1\) 2015 numbers exclude the impact on operating profit resulting from the non-recurring income related to the partial divestment of NNIT
Profitability per segment

Diabetes P&L – full year 2015

- Sales: -16%
- COGS: -29%
- S&D: -12%
- R&D: -4%
- Admin: +1%
- OOI: 40%

Biopharmaceuticals\(^1\) P&L – full year 2015

- Sales: -11%
- COGS: -15%
- S&D: -14%
- R&D: -4%
- Admin: +1%
- OOI: 57%

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

\(^1\) Excluding inflammation
Decline in relative COGS level combined with stable investment level

**Cost of Goods Sold (COGS)**

<table>
<thead>
<tr>
<th>Year</th>
<th>DKK billion</th>
<th>COGS as % of sales</th>
<th>COGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>13.5</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>13.0</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>12.2</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>11.8</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>11.5</td>
<td>14%</td>
<td></td>
</tr>
</tbody>
</table>

**Capital Expenditure (CAPEX)**

<table>
<thead>
<tr>
<th>Year</th>
<th>DKK billion</th>
<th>CAPEX as % of sales</th>
<th>CAPEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1.2</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>1.3</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1.4</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>1.5</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>1.6</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>
Long term financial targets:
Operating profit growth and operating margin

**Operating profit growth**
- New long term financial target
- Previous long term financial targets

**Operating margin**
- Previous long term financial targets

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

New long-term target established in connection with the Q3 2016 report

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

**Operating profit after tax to net operating assets**
- New long term financial target
- Previous long term financial targets

**Cash to earnings (three year average)**
- New long term financial target
- Previous long term financial targets

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

Annual cash return to shareholders

<table>
<thead>
<tr>
<th>Year</th>
<th>Share repurchase</th>
<th>Interim dividend</th>
<th>Dividend</th>
<th>Free cash flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>12</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>14</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>15</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>17.5</td>
<td>13</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2016E</td>
<td>15</td>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Share repurchase programmes have enabled continued reduction in share capital

<table>
<thead>
<tr>
<th>Year</th>
<th>Share capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>560</td>
</tr>
<tr>
<td>2013</td>
<td>550</td>
</tr>
<tr>
<td>2014</td>
<td>530</td>
</tr>
<tr>
<td>2015</td>
<td>520</td>
</tr>
<tr>
<td>2016</td>
<td>510</td>
</tr>
</tbody>
</table>

Note: Dividends are allocated to the year of dividend pay. For 2016 expected free cash flow is DKK 38-41 billion. Share repurchase programmes run for 12 months starting February until end January of the following year.
Stable ownership structure
- secured through A and B-share structure

Share structure

<table>
<thead>
<tr>
<th>Novo Nordisk Foundation</th>
<th>Institutional and private investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>75.3% of votes</td>
<td>24.7% of votes</td>
</tr>
<tr>
<td>27.5% of capital</td>
<td>72.5% of capital</td>
</tr>
</tbody>
</table>

Novo A/S

A shares
537m shares
27.5% of votes
72.5% of capital

B shares
2,013m shares
75.3% of votes
24.7% of capital

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

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.

The Triple Bottom Line Business Principle

The Triple Bottom Line Principle 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.
In 2015, good progress was made towards achieving the long-term sustainability goals

1. Patients reached with diabetes care products
   - Million\(^1\)
   - Million
   - Points

2. Working the Novo Nordisk Way\(^2\)
   - Realised
   - Target
   - Points

3. Energy consumption\(^3\)
   - 1,000,000 GJ
   - Realised
   - Target

4. Operating profit growth
   - Growth
   - Realised
   - Target

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1 Novo Nordisk estimate; \(^2\) Average score in annual employee survey (1-5); \(^3\) Target not to exceed
Cities Changing Diabetes aims to break the ‘Rule of Halves’ and stop urban diabetes from ruining millions of lives

Global partnerships to develop an approach to fight urban diabetes

- 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

Seven partner cities are addressing the threat of urban diabetes

- Copenhagen
- Mexico City
- Johannesburg
- Houston
- Shanghai
- Tianjin
- Vancouver

2/3 of people living with diabetes live in urban areas
Novo Nordisk is committed to the continued development of its employees

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

- **42,605** FTE employees and 6% growth vs LY\(^1\)
- **4.3** engagement with the Novo Nordisk Way
- **90.9%** retention rate
- **3.0** accidents per million working hours

Novo Nordisk is committed to building a diverse and inclusive organisation

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Management appointments*</th>
<th>Sr. Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>63%</td>
<td>59%</td>
<td>89%</td>
</tr>
<tr>
<td>2015</td>
<td>59%</td>
<td>56%</td>
<td>86%</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>37%</td>
<td>41%</td>
<td>11%</td>
</tr>
<tr>
<td>2015</td>
<td>41%</td>
<td>44%</td>
<td>14%</td>
</tr>
</tbody>
</table>

FTE: full-time employees

\(^1\) Numbers account for the first nine months of 2016 vs 9M 2015

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* All appointments to management positions, incl. internal promotions and external hires, ex. NNIT