Welcome to Capital Markets Day 2017
Welcome and strategy update

Lars Fruergaard Jørgensen
President and CEO
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 2016 and Form 20-F, which are both filed with the SEC in February 2017 in continuation of the publication of the Annual Report 2016, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as ‘believe’, ‘expect’, ‘may’, ‘will’, ‘plan’, ‘strategy’, ‘prospect’, ‘foresee’, ‘estimate’, ‘project’, ‘anticipate’, ‘can’, ‘intend’, ‘target’ and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

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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
Novo Nordisk addresses the significant disease burden of diabetes and obesity through a patient-centric mind-set

Significant and growing disease burden within both diabetes and obesity

Today, more than 425 million\(^1\) people have diabetes

By 2045, it is estimated that 629 million\(^1\) people will have diabetes globally

... and already today, it is estimated that 650 million\(^2\) people live with obesity

Triple bottom-line supports Novo Nordisk’s global responsibility

Financially responsible

Socially responsible

Environmentally responsible

## Significant R&D and commercial achievements since our Capital Markets Day in November 2015

<table>
<thead>
<tr>
<th>Strategic priorities</th>
<th>R&amp;D achievements</th>
<th>Commercial achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand leadership in <strong>DIABETES</strong></td>
<td>Filing and successful adcom with <strong>semaglutide</strong> <strong>Fiasp</strong>® and <strong>Xultophy</strong>® approved CV data included in <strong>Victoza</strong>® label Successful completion of <strong>SWITCH/DEVOTE</strong> <strong>Oral semaglutide</strong> phase 3 fully recruited</td>
<td><strong>Tresiba</strong>® launched in 56 countries <strong>Xultophy</strong>® launched in 16 countries <strong>Ryzodeg</strong>® launched in 14 countries <strong>Fiasp</strong>® launched in 8 countries <strong>Victoza</strong>® CV label promotion</td>
</tr>
<tr>
<td>Strengthen leadership in <strong>OBESITY CARE</strong></td>
<td><strong>Semaglutide</strong> phase 2 successfully completed Six projects in phase 1 development</td>
<td><strong>Saxenda</strong>® launched in 24 countries Novo Nordisk global market leader</td>
</tr>
<tr>
<td>Return to growth in <strong>BIOPHARM</strong></td>
<td><strong>Rebinyn</strong>®/<strong>Refixia</strong>® approved in the US/EU Positive phase 3 results with <strong>somapacitan</strong> <strong>Concizumab</strong> advanced to phase 2</td>
<td><strong>NovoEight</strong>® launched in 25 countries <strong>Refixia</strong>® launched in first EU countries US launch preparation for <strong>Rebinyn</strong>®</td>
</tr>
<tr>
<td>Expand into other <strong>SERIOUS CHRONIC DISEASES</strong></td>
<td>Updated R&amp;D strategy Phase 2 trial initiated with <strong>semaglutide</strong> in NASH</td>
<td><strong>Victoza</strong>® CV indication introduced to cardiologists</td>
</tr>
<tr>
<td><strong>LEADERSHIP/FINANCE</strong></td>
<td>New executive management team and strengthened focus on Biopharm Operations Updated long-term financial targets</td>
<td></td>
</tr>
</tbody>
</table>

NASH: Non-alcoholic steatohepatitis; CV: Cardiovascular
Our strategic priorities remain focused and our core purpose unchanged

**STRATEGIC PRIORITIES**
- Strengthen leadership in **DIABETES CARE**
- Strengthen leadership in **OBESITY CARE**
- Pursue leadership in **HAEMOPHILIA**
- Strengthen leadership in **GROWTH DISORDERS**
- Expand into other **SERIOUS CHRONIC DISEASES**

**CORE CAPABILITIES**
- Engineering, formulating, developing and delivering protein-based treatments
- Deep disease understanding
- Efficient large-scale production of proteins
- Global commercial reach and leader in chronic disease care

Driving change to defeat diabetes and other serious chronic diseases

Novo Nordisk Way
Commercial priorities in place to ensure focus on execution of the global strategy and increase innovation height

**Diabetes**
- Maximise our insulin franchise by focus on value and volume share
  - Differentiate new-generation insulin
  - Maximise portfolio of insulin
  - Innovate patient outcome solutions
- Expand the global GLP-1 market and maintain leadership
  - Transform treatment
  - Increase focus on CV benefits
  - Successfully launch semaglutide

**Obesity and Biopharm**
- Build the global obesity market
  - Launch Saxenda® globally
  - Expand the prescriber base
  - Pursue innovation of treatments
- Return to growth in Biopharm
  - Maximise current portfolio
  - Pursue licensing or acquisitions
  - Strengthen the organisation

**Innovation**
- Drive commercial innovation
  - Pursue digital health opportunities
  - Evolve innovative contracting
  - Establish Real World Evidence
- Innovate and expand patient base
  - Raise innovation level in R&D
  - Pursue other chronic disease areas
  - Increase external innovation search
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R&D organisation successfully advanced early and late-stage projects since last Capital Markets Day¹

<table>
<thead>
<tr>
<th>Project²</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Submitted</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xultophy®</td>
<td>Phase 1 initiated</td>
<td>Phase 2</td>
<td></td>
<td>US/EU approval</td>
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<tr>
<td>Flasp®</td>
<td></td>
<td></td>
<td></td>
<td>Submitted in US/EU/JP</td>
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<tr>
<td>semaglutide – QW GLP-1</td>
<td></td>
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<tr>
<td>oral semaglutide</td>
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<td>Anti-IL 21 &amp; lira – T1D</td>
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<tr>
<td>semaglutide – QD GLP-1</td>
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<tr>
<td>NN1406 - PI406</td>
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<td></td>
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<tr>
<td>semaglutide obesity</td>
<td></td>
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<tr>
<td>NN9277 – GG-co-agonist</td>
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<tr>
<td>NN9499 – FGF21 obesity</td>
<td></td>
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<td></td>
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<tr>
<td>NN9423 – Tri-agonist 1706</td>
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<tr>
<td>Refixia®/Rebynin®</td>
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<tr>
<td>N8-GP – Long-acting rFVIII</td>
<td></td>
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<tr>
<td>NN7170 – sc N8-GP</td>
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<td></td>
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<tr>
<td>somapacitan – QW GH³</td>
<td></td>
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<tr>
<td>semaglutide NASH</td>
<td></td>
<td>Phase 2 initiated</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Diabetes  | Obesity  | Haemophilia  | Growth disorders  | Other serious chronic disease areas

¹ The last Capital Markets Day took place 17 November 2015
² Projects still in phase 1 (G530L, AM833, PYY1562 and LAI287) or discontinued projects (LATIN, OI338GT and OI320GT oral insulin) are not included
³ Study conducted in adult growth hormone disorder

QW: Once-weekly; Lira: Liraglutide; T1D: Type 1 diabetes; QD: Once-daily; GH: Growth hormone; sc: Subcutaneous; NASH: Non-alcoholic steatohepatitis
Innovation bar has been raised due to increased maturity of core areas and market access challenges

High level of innovation achieved within basal insulin

- Biology optimised insulin
- Once-weekly
- Long-acting
- Insulin analogue
- NPH
- Powder

Growing market challenges

- Regulatory requirements
- Biosimilar competition
- Political scrutiny
- Market access constraints

Raised innovation bar for the GLP-1 franchise

- Second generation oral GLP-1 analogue
- First generation oral GLP-1 analogue
- Once-weekly human GLP-1 analogue
- Once-daily human GLP-1 analogue
- Native GLP-1

NPH: Neutral protamine Hagedorn insulin
Novo Nordisk R&D strategy and priorities

**STRATEGIC PRIORITIES**

**STRENGTHEN LEADERSHIP IN**

**DIABETES CARE**
- Innovate to improve patient outcomes and drive growth
- Develop disruptive insulin and GLP-1 based products with distinct clinical and/or delivery advantages
- Develop novel mechanisms that reverse the course of diabetes, act as insulin sensitisers and improve hard clinical endpoints

**STRENGTHEN LEADERSHIP IN**

**OBESITY CARE**
- Develop new biologics combined with GLP-1 to achieve >15% weight loss

**PURSUE LEADERSHIP IN**

**HAEMOPHILIA**
- Pursue subcutaneous delivery of long-acting coagulation factors and bypassing agents

**STRENGTHEN LEADERSHIP IN**

**GROWTH DISORDERS**
- Bring once-weekly growth hormone to market and expand indications

**EXPAND INTO OTHER**

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

CKD: Chronic kidney disease; CVD: Cardiovascular disease; NASH: Non-alcoholic steatohepatitis
Expansion into other serious chronic diseases with high unmet medical needs and market attractiveness

Serious chronic diseases are often associated with diabetes and obesity

- 70% of people with diabetes die from atherosclerotic CVD
- 40% of people hospitalised for heart failure have diabetes
- 80% of people with NASH are obese and 35% have diabetes
- 40% of people with diabetes have diabetic nephropathy and 50% are obese

New therapeutic areas represent patient populations with high unmet medical needs

<table>
<thead>
<tr>
<th>Disease</th>
<th>Estimated patients</th>
<th>Number of related deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVD</td>
<td>~420 million</td>
<td>~20 million annually</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disease</th>
<th>Estimated patients</th>
<th>Diagnosis rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASH</td>
<td>~15-40 million¹</td>
<td>~20%²</td>
</tr>
<tr>
<td>CKD</td>
<td>~200 million</td>
<td>~20%</td>
</tr>
</tbody>
</table>

¹ Internal forecast comprising US, Europe and Japan
² Diagnosis rate is considered a major uncertainty to the forecast

Source: Diabete Care 2005 Jan; 28(1): 164-176

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

Source: Abera SF et al. Global, Regional, and National Burden of Cardiovascular Diseases for 10 Causes, 1990 to 2015, 2017; Heart Disease and Stroke Statistics, American Heart Association, 2017; Williams CD et al. Prevalence of nonalcoholic fatty liver disease and nonalcoholic steatohepatitis among a largely middle-aged population utilizing ultrasound and liver biopsy, 2011; Addressing the global burden of chronic kidney disease through clinical and translational research, 2014
The R&D strategy focuses on innovation and expansion of current patient base

- **Innovation**:
  - Diabetes
  - Obesity
  - Haemophilia

- **Expansion**:
  - CVD
  - CKD
  - NASH

- **Externalisation**

  - Raise the innovation level within our core therapy areas
  - Expand into new therapy areas spearheaded by semaglutide
  - Intensify external innovation activities

CVD: Cardiovascular disease; NASH: Non-alcoholic Steatohepatitis; CKD: Chronic kidney disease
Research strategy and priorities

Peter Kurtzhals
SVP Global Research
### Strengthening leadership in diabetes by improving patient outcomes

**Significant unmet needs remain within diabetes**

- Need for reducing hypoglycaemia, co-morbidities and oral drug delivery
- Opportunities to provide patients with new innovative treatment options

**Research priorities**

- Pursue next-generation insulin and GLP-1 with benefits in addition to classic glucose regulation
- Identify new anti-diabetics with novel modes of action and co-morbidity benefits
- Explore new technologies and other modalities besides peptides and proteins
- Pursue all attractive external innovation opportunities

**Current activities**

- Once-weekly insulin 287
- Liver preferential insulin 406
- PYY 1562
- Anti-IL-21/liraglutide
- Stem cell research: Type 1 diabetes project in progress
- External diabetes assets at all development stages are evaluated
Expanding the obesity pipeline with new targets

**High growth and unmet needs in the obesity market**

- Unmet medical needs in an immature pharmaceutical market
- A unique and attractive growth opportunity
- Numerous peptide- and protein-based opportunities

**Research priorities**

- Pursue all relevant options with >15% weight reduction potential
- Target pathways with new modes of action complementary to GLP-1
- Explore new targets with co-morbidity benefits
- Monitor external opportunities on an ongoing basis

**Current activities**

- Target discovery in Seattle/Beijing
- G530L
- GG-co-agonist
- Tri-agonist 1706
Improving patient outcomes by expanding into other serious chronic diseases

The opportunity of other serious chronic diseases

- High unmet medical needs and high market attractiveness
- Can be addressed with in-house assets and/or R&D capabilities
- Opportunity for external collaborations

Research priorities

Cardiovascular disease
- Leverage internal assets and capabilities to develop drug candidates
- Build dedicated research unit to drive internal and external innovation
- Access external projects with strong biological foundation

NASH
- Utilise internal cardio-metabolic and obesity assets to provide entry
- Build dedicated research unit
- External search for new MoAs targeting liver inflammation and fibrosis

Chronic kidney disease
- Explore internal assets and monitor external opportunities for in-licensing

Dedicated area for serious chronic diseases established

NASH: Non-alcoholic steatohepatitis; CV: Cardiovascular; MoA: Mode of action
Global Research organised to ensure successful execution of the revised R&D strategy

Research investment reflects revised R&D strategy

- Diabetes
- Obesity
- Biopharm
- Other serious chronic disease areas

2012

2017E

Strengthened externalisation within academia and biotech

- Examples

Increasing global presence ensures access to key talents

- Research centers

Note: Inflammation and devices excluded from the charts. The relative size of the pie charts depicts the development in overall spend, but is illustrative only.
Late-stage product portfolio

Peter Kristensen
SVP Global Development

KELLY HECTOR, USA
Kelly has type 1 diabetes
Post-approval trials support the association between severe hypoglycemia and increased mortality risk

Lower rates of severe hypoglycaemia demonstrated in DEVOTE

<table>
<thead>
<tr>
<th>Subjects with one or more severe events</th>
<th>Number of overall severe events</th>
<th>Number of nocturnal severe events</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 (glargine U100)</td>
<td>472</td>
<td>73 (glargine U100)</td>
</tr>
<tr>
<td>187 (Tresiba®)</td>
<td>280</td>
<td>37 (Tresiba®)</td>
</tr>
</tbody>
</table>

-27%*  
-40%* 
-53%* 

Post-hoc analyses suggest higher all-cause mortality following severe hypoglycaemia

<table>
<thead>
<tr>
<th>Time after event</th>
<th>LEADER</th>
<th>DEVOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any time</td>
<td><img src="chart" alt="Graph LEADER Any time" /></td>
<td><img src="chart" alt="Graph DEVOTE Any time" /></td>
</tr>
<tr>
<td>180 days</td>
<td><img src="chart" alt="Graph LEADER 180 days" /></td>
<td><img src="chart" alt="Graph DEVOTE 180 days" /></td>
</tr>
<tr>
<td>60 days</td>
<td><img src="chart" alt="Graph LEADER 60 days" /></td>
<td><img src="chart" alt="Graph DEVOTE 60 days" /></td>
</tr>
<tr>
<td>15 days</td>
<td><img src="chart" alt="Graph LEADER 15 days" /></td>
<td><img src="chart" alt="Graph DEVOTE 15 days" /></td>
</tr>
</tbody>
</table>

Hazard ratio all-cause mortality with/without prior severe hypoglycemia

0.1 1 100 0.5 1 16

* Statistically significant
Source: European Association for the Study of Diabetes - 53rd Annual Meeting, A-17-739-EASD, Sep 2017
SUSTAIN phase 3a trials with semaglutide successfully completed

<table>
<thead>
<tr>
<th>SUSTAIN</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>8.1%</td>
<td>8.1%</td>
<td>8.3%</td>
<td>8.2%</td>
<td>8.4%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Change in HbA1c (%)</td>
<td>-1.6</td>
<td>-1.6</td>
<td>-1.5</td>
<td>-1.5</td>
<td>-1.6</td>
<td>-1.6</td>
</tr>
<tr>
<td>Baseline</td>
<td>92 kg</td>
<td>89 kg</td>
<td>96 kg</td>
<td>93 kg</td>
<td>92 kg</td>
<td>92 kg</td>
</tr>
<tr>
<td>Change in weight (kg)</td>
<td>-4.5</td>
<td>-6.1</td>
<td>-5.6</td>
<td>-5.2</td>
<td>-6.4</td>
<td>-6.4</td>
</tr>
</tbody>
</table>

* Statistically significant; ^1 SUSTAIN 1: Once-weekly semaglutide versus placebo in drug-naive subjects with type 2 diabetes; SUSTAIN 5: Once-weekly semaglutide versus placebo in subjects with type 2 diabetes added to insulin; SUSTAIN 6: Once-weekly semaglutide versus placebo, added to standard-of-care
ER: Extended-release
Semaglutide demonstrated superiority on both glucose control and weight loss vs dulaglutide in SUSTAIN 7 trial

**HbA₁c (%)**
- Semaglutide 0.5 mg: 6.7%*
- Semaglutide 1.0 mg: 6.4%*
- Dulaglutide 0.75 mg: 7.1%
- Dulaglutide 1.5 mg: 6.9%

**Weight loss (kg)**
- Semaglutide 0.5 mg: -4.6 kg*
- Semaglutide 1.0 mg: -6.5 kg*
- Dulaglutide 0.75 mg: -2.3 kg
- Dulaglutide 1.5 mg: -3.0 kg

* p-value < 0.0001

Note: Inclusion criteria: Male or female, age ≥18 years, stable treatment with metformin, HbA₁c 7.0-10.5%
Significantly more semaglutide patients reached target for glucose control in the SUSTAIN 7 trial vs dulaglutide

**Percentage of patients achieving the ADA recommended HbA\(_1c\) target below 7.0%**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% of patients at HbA(_1c) &lt;7.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semaglutide 0.5 mg</td>
<td>68%*</td>
</tr>
<tr>
<td>Dulaglutide 0.75 mg</td>
<td>52%</td>
</tr>
<tr>
<td>Semaglutide 1.0 mg</td>
<td>79%*</td>
</tr>
<tr>
<td>Dulaglutide 1.5 mg</td>
<td>67%</td>
</tr>
</tbody>
</table>

**Conclusion and next steps**

- Clinically meaningful and statistically significant differences of 0.4% HbA\(_1c\) and 2-4 kg between the compared treatments
- Low events of diabetic retinopathy in both semaglutide and dulaglutide groups (4 and 5 events, respectively)
- Semaglutide was well-tolerated and showed an adverse event profile consistent with previous SUSTAIN trials

**Next steps**

- SUSTAIN 7 results expected to be published in a medical journal in early 2018
- Regulatory feedback expected in the US and the EU in the fourth quarter of 2017

* Statistically significant difference in both low and high dose comparisons

ADA: American Diabetes Association
PIONEER programme for oral semaglutide investigates the entire treatment cascade

1. Monotherapy vs Placebo
2. SGLT-2 vs empagliflozin
3. DPP-IV vs sitagliptin
4. GLP-1 vs liraglutide 1.8 mg
5. Renal impairment vs Placebo
6. CVOT vs Placebo
7. DPP-IV Flexible dose vs sitagliptin
8. Add-on to insulin vs Placebo
9. Monotherapy vs Placebo and liraglutide
10. OAD combination vs dulaglutide

Drug-naïve  OAD  GLP-1/Insulin  Complications  Japanese patients

SGLT-2: Sodium-glucose co-transporter-2; DPP-IV: Dipeptidyl peptidase-4; OAD: Oral anti-diabetic; CVOT: Cardiovascular outcomes trial
Full PIONEER programme expected to read out during 2018\(^1\)

PIioneer trial

- **Monotherapy vs Placebo**
  - Q1 2018\(^1\)
  - SGLT-2 vs empagliflozin
  - Q2 2018\(^1\)
  - DPP-IV\(^3\) Flexible dose vs sitagliptin
  - Q3 2018\(^1\)
  - Renal impairment vs Placebo
  - Q4 2018\(^1\)

- **CVOT\(^2\)** vs Placebo
  - Add-on to insulin vs Placebo
  - Monotherapy vs Placebo and liraglutide
  - OAD combination vs dulaglutide

\(^1\) Expected to be published in the given quarter or in the subsequent quarterly company announcement; \(^2\) Trial to rule out cardiovascular risk; \(^3\) To be followed by 52-week extension trial

Note: Estimated timing of trials from first patient first visit to last patient last visit and subsequent completion of trial.

SGLT-2: Sodium-glucose co-transporter-2; DPP-IV: Dipeptidyl peptidase-4; CVOT: Cardiovascular outcomes trial; OAD: Oral anti-diabetic.
Trials in obesity and other serious chronic disease areas building on the semaglutide molecule

**Inclusion criteria:**
- Histological confirmation of NASH
- BMI 25–45 kg/m²
- NASH fibrosis stage 2 or 3
- Histological NAFLD Activity Score ≥ 4

**Trials in obesity and other serious chronic disease areas**

- **Obesity**
- **NASH**
- **CVD**
- **CKD**

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

<table>
<thead>
<tr>
<th>Dosage</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>semaglutide</strong></td>
<td></td>
</tr>
<tr>
<td>0.4 mg sc QD</td>
<td>Placebo 0.1, 0.2 or 0.4 mg</td>
</tr>
<tr>
<td>0.2 mg sc QD</td>
<td></td>
</tr>
<tr>
<td>0.1 mg sc QD</td>
<td></td>
</tr>
</tbody>
</table>

**Next steps:**
- Phase 2 trial expected to complete 2020
- An MR imaging trial initiated in November 2017

---

1 Inclusion criteria: Histological confirmation of NASH, BMI 25–45 kg/m², NASH fibrosis stage 2 or 3, Histological NAFLD Activity Score ≥ 4 mg; Milligram; sc: Subcutaneous; QD: Once-daily; MR: Magnetic resonance; NAFLD: Non-alcoholic fatty liver disease

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

Robin Evers
SVP Medical Affairs, Regulatory and Safety
The global regulatory organisation handled over 300 submissions and obtained ~200 approvals in 2016

Note: Numbers for submissions and approvals for full year 2016, employee numbers as of 1 Sep 2017

AAMEO: Africa, Asia, Middle-East and Oceania; HQ: Headquarters
Medical Affairs is responsible for early scientific dialogue ahead of product launches

Medical Affairs activities

- Clinical activities
- KOL engagement
- Publication planning
- Medical education
- Medical guidance

Key preparations ahead of a product launch

- Ensure scientific dialogue
- Secure congress presence
- Publish scientific publications
- Conduct medical education to secure safe patient use of launched products
- Obtain external advice on medical needs and appropriate use from Key Opinion Leaders (KOLs) and International Professional Associations (IPAs)
Regulatory review for semaglutide is progressing as planned

Regulatory status - USA

- Semaglutide advisory committee meeting held on 18 October with a 16-0 vote in favour of recommending approval of semaglutide
- Regulatory decision expected in Q4 2017
- Pending approval, launch is expected Q1 2018

Regulatory status – rest of world

EU

- CHMP opinion expected in Q4 2017, followed by final decision by the EU commission in Q1 2018
- Pending approval, launch is expected in the first European countries during 2018

Japan

- Regulatory decision expected Q1 2018
- Pending approval, launch is expected mid-2018

Total countries

- Semaglutide has been submitted in 35 countries in total

CHMP: Committee for Medicinal Products for Human Use in the EU
R&D milestones in 2018

- **Tresiba®**: DEVOTE and SWITCH US regulatory decision.
- **Xultophy®**: DUAL I and DUAL II Japan Phase 3a data.
- **Semaglutide**: EU and Japan regulatory decision.
- **Oral Semaglutide**: PIONEER 1 data¹.
- **LAI287**: Phase 1 data.
- **G530L**: Phase 1 data.
- **AM833**: Phase 1 data.
- **N8-GP**: US/EU submission.
- **N9-GP**: Japan regulatory decision.
- **Concizumab**: Explorer 5 data.
- **Somacitan**: Explorer 4 data.

Notes:
- "Results available" and "Regulatory milestone" labels indicate the status of each milestone.
- Expected to be published in the given quarter or in the subsequent quarterly company announcement.

¹ Expected to be published in the given quarter or in the subsequent quarterly company announcement.
Closing remarks

Innovation bar raised following increased maturity of core areas and market access challenges

Significant unmet needs remain within core therapy areas and other serious chronic diseases

Semaglutide demonstrated unprecedented clinical benefits vs comparators in the SUSTAIN programme, spearheading expansion to new areas
Q&A - R&D update

On stage

• Mads Krogsgaard Thomsen, EVP and Chief Science Officer
• Peter Kurtzhals, SVP Global Research
• Peter Kristensen, SVP Global Development
• Robin Evers, SVP Medical Affairs, Regulatory and Safety
Driving insulin growth

Mike Doustdar
EVP International Operations
Forward-looking statements

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

Around 10% of all adults have diabetes globally in 2017

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

Source: Adapted from International Diabetes Federation: Diabetes Atlas 8th Edition 2017

J&K: Japan & Korea; AAMEO: Africa, Asia, Middle-East and Oceania; LATAM: Latin America
Focus on driving global insulin growth by increasing the number of people who are using Novo Nordisk products

Around 26 million people are currently treated with Novo Nordisk insulin and GLP-1 products

- 1.4 mio treated with GLP-1
- 0.9 mio treated with new-generation insulin
- 12.5 mio treated with modern insulin
- 11.2 mio treated with Human insulins

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

26 of 425 million people with diabetes are treated with NN products

NN: Novo Nordisk
Novo Nordisk holds a broad insulin portfolio with three generations of products covering the treatment cascade.

### Novo Nordisk product portfolio includes three generations of insulin products

<table>
<thead>
<tr>
<th>Basal insulin</th>
<th>Mix insulin</th>
<th>GLP &amp; basal combination</th>
<th>Bolus insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New-generation insulin</strong></td>
<td>Tresiba®</td>
<td>Ryzodeg®</td>
<td>Xultophy®</td>
</tr>
<tr>
<td><strong>Modern insulin</strong></td>
<td>Levemir®</td>
<td>NovoMix®</td>
<td>NovoLog®</td>
</tr>
<tr>
<td><strong>Human insulin</strong></td>
<td>Insulatard®</td>
<td>Mixtard®</td>
<td>Actrapid®</td>
</tr>
</tbody>
</table>

### Commercial focus depends on market maturity and market access situation

<table>
<thead>
<tr>
<th>Commercial focus</th>
<th>Volume strategy</th>
<th>Value strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New-generation insulin</strong></td>
<td>Differentiation</td>
<td></td>
</tr>
<tr>
<td><strong>Modern insulin</strong></td>
<td>Familiarity</td>
<td></td>
</tr>
<tr>
<td><strong>Human insulin</strong></td>
<td>Affordability</td>
<td></td>
</tr>
</tbody>
</table>
Novo Nordisk’s new-generation insulins enable people with diabetes to achieve improved glycaemic control

Aspiration for new-generation insulins is to set a new standard for insulin treatment

Achieving glycaemic control remains a global challenge for people with diabetes

**Product aspiration**

- **The new standard for basal initiation**
- **The preferred basal & bolus combination**
- **The best GLP-1 & basal combination**
- **The preferred meal time insulin**

**Average HbA$_{1c}$ in people with type 2 diabetes in selected countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>USA</th>
<th>Canada</th>
<th>UK</th>
<th>Turkey</th>
<th>Russia</th>
<th>India</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA$_{1c}$</td>
<td>7.9%</td>
<td>8.4%</td>
<td>10.6%</td>
<td>7.7%</td>
<td>8.6%</td>
<td>7.6%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

1 ADA HbA$_{1c}$ guideline: American Diabetes Association Standard of Medical Care in Diabetes

People experiencing a hypoglycaemic episode tend to reduce their insulin dose

Fear of hypoglycaemia leads to poor glycaemic control and long-term diabetes complications

Patients often use lower insulin doses following a hypoglycaemic episode

More than 50% of all people with diabetes are not in good control\(^2\)

• Cardiovascular disease
• Diabetic nephropathy
• Diabetic retinopathy

---

\(^1\) Total patient sample, n=335 (T1DM, n=202; T2DM, n=133) GAPPA™ (A global internet survey of patient and physician beliefs regarding insulin therapy): n=1250 physicians

T1D: Type 1 diabetes; T2D: Type 2 diabetes


\(^2\) International Diabetes Federation: Diabetes Atlas 8th Edition 2017
Severe hypoglycaemia episodes are associated with increased risk of death and large healthcare cost

In DEVOTE people with a severe hypoglycaemia episode were at 2.5 times higher risk of death

Hazard ratio for risk of death following a severe hypoglycaemia episode

<table>
<thead>
<tr>
<th>Time in Trial Period</th>
<th>Hazard Ratio for Risk of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 15 days</td>
<td>4.2</td>
</tr>
<tr>
<td>After 180 days</td>
<td>3.1</td>
</tr>
<tr>
<td>Any time in trial period</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source: European Association of the Study of Diabetes, Session 33, Sep 15 2017

Severe hypoglycaemia episodes are associated with large healthcare costs

- Direct costs
- Indirect costs

1 American Diabetes Association conference 2016, poster 1240-P
SMPG: Self-Measured Plasma Glucose
Tresiba® sets a new standard for basal insulin initiation by lowering the risk of hypoglycaemia

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

Tresiba® has consistently demonstrated relevant reductions in severe hypoglycaemia

<table>
<thead>
<tr>
<th>Patients</th>
<th>Study</th>
<th>Hazard ratio [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1D</td>
<td>BEGIN</td>
<td>1.12 [0.68; 1.86]</td>
</tr>
<tr>
<td></td>
<td>SWITCH 1</td>
<td>0.65 [0.48; 0.89]*</td>
</tr>
<tr>
<td></td>
<td>SWITCH 2</td>
<td>0.74 [0.61; 0.90]*</td>
</tr>
<tr>
<td>T2D</td>
<td>BEGIN</td>
<td>0.81 [0.42; 1.56]</td>
</tr>
<tr>
<td></td>
<td>SWITCH 2</td>
<td>0.54 [0.21; 1.42]</td>
</tr>
<tr>
<td></td>
<td>DEVOTE</td>
<td>0.60 [0.48; 0.76]*</td>
</tr>
</tbody>
</table>

* Statistically significant difference

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

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

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

1 P. D. Home, A. Fritsche, S. Schinzel & M. Massi-Benedetti, Diabetes, Obesity and Metabolism 12: 772–779, 2010
2 DEVOTE, American Diabetes Association 77th Scientific Sessions, 3-CT-SY22, June 12 2017
IGlar U100: Insulin glargine U100

IGlar U100: Insulin glargine U100

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

Modern insulin

IGlar U100

Half life: 25 hours

Variability: Low

New-generation insulin

Tresiba®

50% reduction in nocturnal hypoglycaemia

53% reduction in nocturnal hypoglycaemia

Half life: 12-19 hours

Variability: Medium

Human insulin

Insulatard®

Half life: 5-10 hours

Variability: High

IGlar U100: Insulin glargine U100
Focus on simplified communication to improve hypoglycaemia awareness among general practitioners

Low variability and hypoglycaemia reduction is currently not a prescription driver for GPs

<table>
<thead>
<tr>
<th>Endocrinologist</th>
<th>General practitioner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Low in-patient variability</td>
<td>1 Confidence in the product</td>
</tr>
<tr>
<td>2 Flat and stable profile</td>
<td>2 Comfortable prescribing</td>
</tr>
<tr>
<td>3 Fits patient lifestyle</td>
<td>3 Fits patient lifestyle</td>
</tr>
<tr>
<td>4 Confidence in the product</td>
<td>4 Simple option</td>
</tr>
<tr>
<td>5 Lower overall hypoglycaemia</td>
<td>5 Pen simplicity/ functionality</td>
</tr>
</tbody>
</table>

Hypoglycaemia campaign initiated to improve awareness among general practitioners

Hypoglycaemia may be happening more often than you think:

- 63% of type 1 diabetes patients
- 47% of type 2 diabetes patients

Patients may talk about hypoglycaemia without even knowing they were experiencing it:

- "Sometimes it's light-headed when I'm out"  
- "I feel like I need to have a snack around the time I'm doing it"  
- "Waking up on the weekend really wakes me up"

Remember the common risk factors for hypoglycaemia:

- Inadequate nutrition or insufficient food
- Increased physical activity
- Alcohol consumption
- Missed or delayed meal
- Insulin or medication adjustment

Note: Prescription drivers highlighted in bold are factors related to reduced hypoglycaemia

GP: General practitioner

Source: IPSOS Basal insulin Awareness, Trial and Usage study Q3-2017: N=200 US physicians, of whom 100 are general practitioners, 100 are endocrinologists
Increased total basal insulin value market share in countries with broad market access

The level of market access determines the uptake of Tresiba®

Novo Nordisk has gained market share in most countries since Tresiba® and Xultophy® launch

<table>
<thead>
<tr>
<th>Country</th>
<th>Broad market access</th>
<th>Limited market access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>32%</td>
<td>-25%</td>
</tr>
<tr>
<td>Japan</td>
<td>29%</td>
<td>-12%</td>
</tr>
<tr>
<td>Greece</td>
<td>30%</td>
<td>-13%</td>
</tr>
<tr>
<td>Italy</td>
<td>28%</td>
<td>-12%</td>
</tr>
<tr>
<td>Mexico</td>
<td>19%</td>
<td>-8%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>11%</td>
<td>-15%</td>
</tr>
<tr>
<td>Denmark</td>
<td>8%</td>
<td>-25%</td>
</tr>
<tr>
<td>Brazil</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Total NN basal value MS gain/loss since Tresiba® and Xultophy® launch

Source: IQVIA (formerly IMS) Monthly value figures, Sep 2017

Capital Markets Day 2017  Driving insulin growth

Slide 44

Source: IQVIA (formerly IMS) Monthly value figures, Sep 2017
Novo Nordisk holds a portfolio of new-generation insulins covering treatment options along the treatment cascade.
Closing remarks

Global insulin growth driven by increased number of people using Novo Nordisk’s products

Full portfolio of new-generation insulins with Tresiba® setting new standard for basal initiation

Fear of hypoglycaemia remains a challenge in achieving optimal insulin treatment

Focus on improving hypoglycaemia awareness among general practitioners
Winning with GLP-1

Lars Fruergaard Jørgensen
President and CEO
Forward-looking statements

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GLP-1 penetration rate has increased over time driven by more efficacious and now once-weekly products

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

<table>
<thead>
<tr>
<th>DKK billion</th>
<th>exenatide</th>
<th>Victoza®</th>
<th>dulaglutide</th>
<th>albiglutide¹</th>
<th>lixisenatide</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GLP-1 share of total diabetes care market

- FDA/EMA statement on pancreatic safety³
- Article on pancreatic safety of incretins²
- exenatide launch
- dulaglutide launch

¹ Manufacturing and sale of albiglutide to be discontinued by Jul 2018
² Butler et al, Marked Expansion of Exocrine and Endocrine Pancreas With Incretin Therapy in Humans With Increased Exocrine Pancreas Dysplasia and the Potential for Glucagon-Producing Neuroendocrine Tumors, Diabetes, Vol. 62, Jul 2013
³ Egan et al, Pancreatic Safety of Incretin-Based Drugs — FDA and EMA Assessment, The New England Journal of Medicine 370;9, 27 Feb 2014

Source: IQVIA (formerly IMS) MIDAS, monthly data, Jul 2017 (Note: IQVIA data does not adequately capture rebates resulting in an overstatement of market value)

FDA: US Food and Drug Administration; EMA: European Medicines Agency
The US and Europe account for majority of Victoza® sales as GLP-1 penetration remains low in the rest of the world.

**Victoza® sales and GLP-1 value market share**

<table>
<thead>
<tr>
<th>Region</th>
<th>GLP-1 Value Share</th>
<th>GLP-1 Patient Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>49%</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>59%</td>
<td></td>
</tr>
<tr>
<td>Region AAMEO</td>
<td>49%</td>
<td></td>
</tr>
<tr>
<td>Region J&amp;K</td>
<td>43%</td>
<td></td>
</tr>
<tr>
<td>Region LATAM</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>Region China</td>
<td>67%</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Value Share</th>
<th>Patient Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>12%</td>
<td>5%</td>
</tr>
<tr>
<td>North America</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>EU</td>
<td>10%</td>
<td>4%</td>
</tr>
<tr>
<td>Reg AAMEO</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Reg J&amp;K</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Reg LATAM</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Reg China</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

1 Patient share is indicative and based on data for the US, UK, Germany and France only

Reg: Region

Source: Reported sales for the first nine months of 2017; IQVIA (formerly IMS) MIDAS, Sep 2017

Source: Value data; IQVIA (formerly IMS) MAT Sep 2017; Patient data; IQVIA (formerly IMS) Disease Analyser (Germany, France, UK), IQVIA (formerly IMS) LRx (USA), Sep 2017
GLP-1 patients primarily switch from OADs and untapped potential is large with many OAD patients not in control

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

- Insulin: 30%
- GLP-1: 9%
- Naïve: 5%
- OAD: 5%

Share of patients on OADs achieving HbA1c below 7% in major European countries

- HbA1c <7%: major European countries
- HbA1c >7%

Note: Data based on data from France, Germany, UK and USA only
OAD: Oral anti-diabetic (includes but is not limited to DPP-IV, SGLT-2, metformin and sulfonylurea)
Source: IQVIA (formerly IMS) Disease Analyser (France, Germany and UK) and IQVIA (formerly IMS) LRx (USA), Sep 2017

Note: Data based on data from France, Germany and UK only
Source: IQVIA (formerly IMS) Disease Analyser (France, Germany and UK), Sep 2017
CV benefits recently demonstrated in phase 3 trials set new treatment standard for people living with T2D and CVD

Despite advancements in the treatment of type 2 diabetes, adults with diabetes experience significantly more CV events

Only NN GLP-1s have shown significant CV risk reduction

<table>
<thead>
<tr>
<th>Product</th>
<th>Trial name</th>
<th>Hazard ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>semaglutide</td>
<td>SUSTAIN 6</td>
<td>0.74*</td>
</tr>
<tr>
<td>liraglutide</td>
<td>LEADER</td>
<td>0.87**</td>
</tr>
<tr>
<td>exenatide ER</td>
<td>EXSCEL</td>
<td>0.91 NS</td>
</tr>
<tr>
<td>lixisenatide</td>
<td>ELIXA</td>
<td>1.02</td>
</tr>
<tr>
<td>ITCA 650</td>
<td>FREEDOM-CVO</td>
<td>N/A</td>
</tr>
<tr>
<td>albiglutide</td>
<td>HARMONY</td>
<td>Ongoing</td>
</tr>
<tr>
<td>dulaglutide</td>
<td>REWIND</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

* Statistically significant: p=0.02 (No adjustment for multiple tests); ** Statistically significant: p=0.011; NS: Not statistically significant
CV: Cardiovascular; T2D: Type 2 diabetes; CVD: Cardiovascular disease; MI: Myocardial infarction (heart attack); NN: Novo Nordisk
Positive Victoza® market share trend observed following recently initiated promotion of Victoza® CV benefit

Victoza® CV campaign rolled out in second half of 2017 following label updates

- Data included in US and EU labels
- Sales force trained
- Victoza® relaunched with CV label

Positive NBRx trend observed in the US following approval of Victoza® CV indication

GLP-1 NBRx market share

- Victoza®
- dulaglutide

Victoza® CV indication obtained

Q3 2017

Q4 2017

Jun 2017

Victoza® CV indication obtained

Oct 2017

Source: IQVIA (formerly IMS) LRx, weekly data, 27 Oct 2017

CV: Cardiovascular

NBRx: New-to-brand prescription

Source: IQVIA (formerly IMS) LRx, weekly data, 27 Oct 2017
Semaglutide has demonstrated unprecedented clinical benefits and is expected to launch by the name Ozempic®

Unprecedented clinical results for once-weekly semaglutide

1 Based on SUSTAIN 7 in which semaglutide demonstrated a statistically greater reduction in HbA1c compared to dulaglutide;
2 Based on SUSTAIN 7 in which semaglutide demonstrated a statistically greater reduction in body weight compared to dulaglutide;
3 Based on SUSTAIN 6 in which semaglutide demonstrated a relative reduction in cardiovascular risk of 26% when compared to placebo + standard of care

CVD: Cardiovascular disease

Ozempic® - intended brand name for once-weekly semaglutide

Note: Once-weekly semaglutide is not approved yet and Ozempic® is the intended, but yet to be approved brand name
Ozempic® to launch in first countries in 2018 with ambition to expand GLP-1 market by targeting new GLP-1 starts

Ozempic® expected to be launched in the US, Canada, Japan and first EU countries in 2018

- FDA/EMA regulatory decisions
- US, Canada, Japan and initial EU launch
- Continued roll-out in Europe and rest of world

Ozempic® to target ‘new GLP-1 starts’ and expand the segment

- Ozempic® will target ‘new GLP-1 starts’ with a unique clinical profile
- Unique clinical profile holds potential to drive earlier and more timely intensification of oral therapies and is expected to expand the GLP-1 segment
- Uptake expected to increase gradually as global market access emerges with commercial focus shifting from Victoza® to Ozempic®

FDA: US Food and Drug Administration; EMA: European Medicines Agency
Oral semaglutide expected to be positioned earlier in treatment cascade than injectable GLP-1 as a superior OAD

**Oral semaglutide expected to compete as first treatment option post-metformin**

- Oral semaglutide expected to be positioned earlier in treatment cascade than injectable GLP-1 as a superior OAD.

**Oral semaglutide primarily expected to compete with SGLT-2 and DPP-IV**

<table>
<thead>
<tr>
<th></th>
<th>Insulin</th>
<th>GLP-1</th>
<th>SGLT-2</th>
<th>DPP-IV</th>
<th>OAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>24%</td>
<td>6%</td>
<td>6%</td>
<td>53%</td>
<td></td>
</tr>
</tbody>
</table>

**US volume market share**

- Note: Patient distribution across treatment classes is indicative.

OAD: Oral anti-diabetic; sema: Semaglutide
Ambition for Ozempic® to become leading weekly GLP-1, with daily GLP-1 use shifting to oral semaglutide

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

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

1 Victoza patent expiry expected in 2022/2023 in most markets
Closing remarks

Victoza® and semaglutide CV benefits set new standard as cardiovascular disease and type 2 diabetes should be treated together

Victoza® relaunched with CV data in EU label and CV indication in the US

Ozempic® expected to launch in first countries in 2018 with ambition to expand GLP-1 market

Aim for Ozempic® to be leading weekly GLP-1, with daily GLP-1 use shifting to oral semaglutide
Obesity patient ambassador Reneé
Strengthen leadership in obesity

Mads Krogsgaard Thomsen
EVP and Chief Science Officer

Camilla Sylvest
EVP Commercial Strategy and Corporate Affairs
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 2016 and Form 20-F, which are both filed with the SEC in February 2017 in continuation of the publication of the Annual Report 2016, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as ‘believe’, ‘expect’, ‘may’, ‘will’, ‘plan’, ‘strategy’, ‘prospect’, ‘foresee’, ‘estimate’, ‘project’, ‘anticipate’, ‘can’, ‘intend’, ‘target’ and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

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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.


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**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
Obesity is a chronic disease that requires treatment

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

- **Weight gain** → **Diet and exercise to reduce weight**

  - Increased appetite and slowing of metabolism
  - New set-point

The body fights weight loss for people with obesity

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

How to address obesity from a medical perspective

<table>
<thead>
<tr>
<th>Projects</th>
<th>Status:</th>
<th>2018 expected:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxenda®</td>
<td>Launched</td>
<td></td>
</tr>
<tr>
<td>semaglutide – QW GLP-1</td>
<td>Phase 2</td>
<td>Phase 3</td>
</tr>
<tr>
<td>G530L – glucagon analogue¹</td>
<td>Phase 1b</td>
<td>Phase 2</td>
</tr>
<tr>
<td>AM833 – amylin analogue</td>
<td>Phase 1b</td>
<td>Phase 2 ready</td>
</tr>
<tr>
<td>PYY1562 – PYY analogue</td>
<td>Phase 1b</td>
<td>Phase 1b²</td>
</tr>
<tr>
<td>NN9499 – FGF21 obesity³</td>
<td>Phase 1a</td>
<td>Phase 1b</td>
</tr>
<tr>
<td>NN9277 – GG-co-agonist</td>
<td>Phase 1a</td>
<td>Phase 1b</td>
</tr>
<tr>
<td>NN9423 – Tri-agonist 1706</td>
<td>Phase 1a</td>
<td>Phase 1b</td>
</tr>
</tbody>
</table>

¹ Phase 1 in combination with liraglutide and phase 2 planned in combination with semaglutide
² Phase 1b completed with monotherapy, phase 1b in combination with semaglutide planned for 2018
³ FGF21 potentially also targets appetite reduction

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

QW: Once-weekly

Weight reduction by reducing food intake

Weight reduction by increasing energy expenditure

Appetite reduction

Impact on metabolic changes to increase lipid and glucose metabolism

Novo Nordisk obesity products and pipeline
Promising phase 1a results for single-dose amylin

Long-acting amylin analogue single-dose phase 1a trial

Key results and next steps

- Long-acting amylin analogue single dose considered safe and well-tolerated
- Change in body-weight appeared dose-dependent and was partly sustained in the follow-up period after administration of a single dose
- After 28 days, the mean body weight was 3.5 percentage points lower with a single injection of amylin 30 µg/kg compared to placebo, and gastrointestinal side effects were limited

Next steps
- Phase 2 ready late 2018 and trial initiation expected in the first quarter of 2019
Semaglutide demonstrated unprecedented weight loss in phase 2 obesity trial

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

<table>
<thead>
<tr>
<th>Change in body weight (%)</th>
<th>sema 0.05 mg</th>
<th>sema 0.1 mg</th>
<th>sema 0.2 mg</th>
<th>sema 0.3 mg</th>
<th>lira 3.0 mg</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-15</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weeks

Key results and next steps

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

Note: All treatment arms are adjunct to diet and exercise
QD: Once-daily; sema: Semaglutide; lira: Liraglutide
Phase 3 trials with 2.4 mg once-weekly semaglutide in obesity to be initiated in the first half of 2018

Semaglutide in obesity phase 3a programme, STEP, expected to include ~4,500 patients¹

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP 1: Weight loss</td>
<td>1,950 patients, 68 weeks duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 2: T2D non-insulin patients</td>
<td>1,200 patients, 68 weeks duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 3: Maximising weight loss</td>
<td>600 patients, 68 weeks duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP 4: Maintained weight loss</td>
<td>900 patients, 68 weeks duration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Expected phase 3a programme completion: 2020

Cardiovascular landmark study planned for semaglutide in obesity

- 12,500 people with obesity without diabetes¹
- Semaglutide 2.4 mg sc QW
- Placebo
- Event driven

Completion: Pre-defined number of events

¹ Inclusion criteria: Male or female, age ≥18 years, BMI: ≥30 kg/m² or ≥27 kg/m² and ≥1 comorbidity
Note: All treatment arms are adjunct to diet and exercise
TD2: Type 2 diabetes

¹ Inclusion criteria: Male or female >45 years, BMI >27 kg/m², myocardial infarction or stroke >60 days, HbA₁c <6.5%
QW: Once-weekly; sc: Subcutaneous

2018 2019 2020
Despite obesity being a chronic disease, the reality is...

- It is a significant cost burden for society
- There is no specialty managing it
- Physicians are not taught how to treat it
- Patients are discriminated against for being obese
- Patients lack treatment options
The healthcare cost associated with obesity expected to increase

Global healthcare costs related to obesity expected to increase by 50% by 2025

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost (USD trillion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>~0.8</td>
</tr>
<tr>
<td>2020</td>
<td>~1.0</td>
</tr>
<tr>
<td>2025</td>
<td>~1.2</td>
</tr>
</tbody>
</table>

Increase in healthcare costs primarily driven by obesity-related comorbidities

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

Source: WHO, October 2017; World Obesity Federation, 2017
Treatment rate is low and an increase requires a change of mindset and physician engagement

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

Key barriers to effective obesity management

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

- **Few prescribers engaged**
  - Physicians not equipped to engage in and treat obesity

- **Limited patient access**
  - Funding and reimbursement a hurdle for physicians and patients

---

1. 3% of people with obesity are regularly meeting with their doctor to follow up on a plan
2. 2% of people with obesity are estimated to be treated with anti-obesity medication

Source: IQVIA (formerly IMS) MIDAS 2017
Market development initiatives focus on overcoming the barriers to effective obesity management

<table>
<thead>
<tr>
<th>Change of mindset</th>
<th>Increase physician engagement</th>
<th>Improve patient access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTION study</strong></td>
<td><strong>Rethink Obesity® platform</strong></td>
<td><strong>Treat and Reduce Obesity Act</strong></td>
</tr>
<tr>
<td>• Largest study ever done amongst more than ~3,500 respondents to explore barriers to obesity treatments</td>
<td>• Medical education on the science behind obesity</td>
<td>• Document the burden of obesity and activate policy makers</td>
</tr>
<tr>
<td>• Media and online coverage</td>
<td>• Dialogue tools for physicians in countries where Saxenda® is launched</td>
<td>• Coverage of obesity medication through Medicare</td>
</tr>
</tbody>
</table>

*Rethink Obesity® platform*

*ACTION study*
Patients with high BMI and high degree of obesity-related comorbidities can benefit from Saxenda®

Number of comorbidities almost three-fold for people with BMI >40 vs normal weight

<table>
<thead>
<tr>
<th>Average number of obesity-related comorbidities¹</th>
<th>0.0</th>
<th>0.5</th>
<th>1.0</th>
<th>1.5</th>
<th>2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;25 and &lt;30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;30 and &lt;35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;35 and &lt;40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

~x3

Target population for Saxenda®

Prevalence of obesity-related comorbidities

High

Saxenda® target patients

Low

BMI

>25 and <30
>30 and <35
>35 and <40
>40

BMI

1 Comorbidities include congenital heart disease, high cholesterol, hypertension, type 2 diabetes, gall bladder disease, osteoarthritis, sleep apnoea

BMI: Body mass index

Source: NHANES in Must et al 1999 and NHANES in Li et al 2010
The US accounts for vast majority of Saxenda® sales with opportunity for further global penetration

Saxenda® launched in 24 countries

<table>
<thead>
<tr>
<th>Countries with highest Saxenda® sales in 2017¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKK million</td>
</tr>
<tr>
<td>USA</td>
</tr>
<tr>
<td>Brazil</td>
</tr>
<tr>
<td>Canada</td>
</tr>
<tr>
<td>UAE</td>
</tr>
<tr>
<td>Australia</td>
</tr>
</tbody>
</table>

¹ Reported sales for the first nine months of 2017
Source: IQVIA (formerly IMS) MIDAS, Sep 2017
Closing remarks

- Ambitious and progressive obesity pipeline to address patient needs
- Treatment rate is low and an increase requires a change of mindset and physician engagement
- Saxenda® value market share leadership in key countries
International Operations update

Mike Doustdar
EVP International Operations

YASMIN FIEDLER, Germany
Yasmin has type 1 diabetes
**Forward-looking statements**

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Please also refer to the overview of risk factors in 'Risk Management' on pp 40-43 of the Annual Report 2016.

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**Important drug information**

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- Saxenda® (liraglutide 3 mg) is approved in the US and EU for the treatment of obesity only
More than 90% of all people with diabetes live in International Operations

International Operations consists of five different regions:

- **Region Europe**: ~8% of world population, 19% of total sales\(^1\), FTEs: ~2,800
- **Region China**: ~19% of world population, 10% of total sales\(^1\), FTEs: ~3,200
- **Region Latin America**: ~9% of world population, 3% of total sales\(^1\), FTEs: ~1,000
- **Region Japan & Korea**: ~2% of world population, 5% of total sales\(^1\), FTEs: ~1,200
- **Region AAMEO**: ~59% of world population, 11% of total sales\(^1\), FTEs: ~4,700

590 million people in International Operations are expected to have diabetes by 2045:

- **Region AAMEO**: ~3,200
- **Region China**: ~1,000
- **Region Latin America**: ~1,200
- **Region Japan & Korea**: ~1,200
- **Region Europe**: ~2,800

Reported sales for the first nine months of 2017:
- **AAMEO**: Africa, Asia, Middle-East and Oceania; **LATAM**: Latin America; **FTE**: Full time equivalent


Source: Worldometer, Oct 2017
The composition of insulin sales and volume differs across the regions within International Operations

**Insulin sales and volume composition across regions**

1. **Region Europe**
   - Sales: 72%
   - Volume: 73%
   - Sales: 15%
   - Volume: 20%

2. **Region J&K**
   - Sales: 35%
   - Volume: 31%
   - Sales: 9%
   - Volume: 10%

3. **Region China**
   - Sales: 64%
   - Volume: 55%
   - Sales: 36%
   - Volume: 45%

4. **Region AAMEO**
   - Sales: 5%
   - Volume: 1%
   - Sales: 68%
   - Volume: 35%

5. **Region LATAM**
   - Sales: 19%
   - Volume: 9%
   - Sales: 38%
   - Volume: 89%

**Note:**
- Numbers do not add up to 100% due to rounding.
- Reported sales for the first nine months of 2017; Volume = Sales for the first nine months of 2017 in mega units.
- J&K: Japan & Korea; AAMEO: Africa, Asia, Middle-East and Oceania; LATAM: Latin America.

**Human insulin**

**Modern insulin**

**New-generation insulin**

1 Reported sales for the first nine months of 2017; Volume = Sales for the first nine months of 2017 in mega units.
Sales growth in International Operations has historically been 5-7%, this year driven by NovoRapid® and Tresiba®

Sales growth in IO has been stable around 5-7% despite regional fluctuations

Sales growth in local currencies

Top five product growth drivers in 2017 in International Operations

Sales growth (DKK million)

1 Sales for the first nine months of 2017 in local currencies
2 Reported sales for the first nine months of 2017
IO: International Operations; AAMEO: Africa, Asia, Middle-East and Oceania
Novo Nordisk aspires to outperform competition with a broad and innovate product portfolio

Market access and intensified competition are the key challenges in International Operations

- Increased focus on cost containment and health technology assessments
- Use of reference pricing across regions

Intensified competition
- Several competitive products are expected to enter the diabetes market across International Operations in the coming years

Market fit and dedicated growth initiatives are in focus to outperform competition

Market fit approach
- Focus on bringing products to the market based on individual country demand and market access
- Leverage broad portfolio with three generations of insulins

Growth initiatives
- Drive additional growth through dedicated investments in growth initiatives across regions
Examples of challenges and opportunities in each of the five regions within International Operations

Region Europe

Market access challenges for Tresiba® in the EU

Region Japan & Korea

Roll-out of Ryzodeg® in Japan

Region AAMEO

Local manufacturing in Iran to support market access

Region China

Victoza® obtained national reimbursement in China

Region Latin America

Saxenda® is driving sales growth in Brazil

AAMEO: Africa, Asia, Middle-East and Oceania
Improving market access for Tresiba® remains a key priority in Region Europe

Modest market access for Tresiba® in Region Europe despite being launched in 22 countries

**EU approval of Tresiba® label update supports the ongoing market access negotiations**

**Market access challenge**
- Market access for Tresiba® is currently limited or restricted in several countries in Region Europe
- Ongoing negotiations with payers could lead to improved market access during 2018
- Negotiations are supported by the recent Tresiba® label update in the EU where both SWITCH 1 and 2 as well as DEVOTE data have been included in the label

**Countries in Region Europe where Tresiba® is available**

<table>
<thead>
<tr>
<th>Broad market access¹</th>
<th>Limited market access²</th>
</tr>
</thead>
<tbody>
<tr>
<td>🇨🇿 🇬🇷 🇪🇸 🇪🇺 🇫🇷 🇷🇺 🇷🇴 🇸🇪</td>
<td></td>
</tr>
<tr>
<td>🇬🇧 🇸🇮 🇸🇪 🇸🇮 🇸🇮 🇸🇮 🇸🇮 🇸🇮</td>
<td></td>
</tr>
</tbody>
</table>

**Total market access in Region Europe³**

~30%

¹ Countries with broad market access have a market access rate of 80% or above
² Countries with limited market access have a market access rate below 80%
³ Market access rate estimated as proportion of total market volume in Region Europe
Strong market uptake of Ryzodeg® in Japan has resulted in improved Novo Nordisk premix volume market share

Successful conversion of premix volume from NovoMix® to Ryzodeg® in Japan

NovoRapid® and NovoMix® will be subject to statutory price reductions in 2018

Market access challenge

- Regulatory authorities in Japan provide a 15-year price protection to new innovative products
- After 15 years products are subject to a statutory price reduction
- NovoRapid® and NovoMix® are subject to statutory price reductions in 2018

---

Volume added/lost YoY¹

<table>
<thead>
<tr>
<th></th>
<th>Jan 2016</th>
<th>Sep 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>NovoMix®</td>
<td>0%</td>
<td>40%</td>
</tr>
<tr>
<td>Ryzodeg®</td>
<td>67%</td>
<td>71%</td>
</tr>
<tr>
<td>NN premix market share</td>
<td>0%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Market share

Source: IQVIA (formerly IMS) rolling MAT volume, Sep 2017; MS% rolling MAT volume, Sep 2017

¹ Year-on-year change in volume

NN: Novo Nordisk

Source: IQVIA (formerly IMS) rolling MAT volume, Sep 2017; MS% rolling MAT volume, Sep 2017
Local commitment and investments in Iran have enabled Novo Nordisk to overcome market access challenges

Sales growth in Iran is predominantly driven by NovoMix® and NovoRapid®

- **Biopharm**
- **NovoMix®**
- **NovoRapid®**
- **Victoza®**
- **Other diabetes**

CAGR: +25%

CAGR: +48%

Local manufacturing strategically established in Iran to improve market access

**Market access**

- In 2013, NovoMix® and NovoRapid® obtained coverage by three main insurance companies in Iran
- In 2015, a Memorandum of Understanding (MoU) for local manufacturing was signed by Novo Nordisk
- Following the MoU, reimbursement for Levemir® and Victoza® was obtained

**Commercial focus and growth opportunities**

- Expand diabetes market leadership with modern insulins
- Drive GLP-1 market growth with Victoza®
- Develop obesity market with Saxenda®
The reimbursement of Victoza® in China constitutes a significant growth opportunity

National reimbursement for Victoza® obtained in China in 2017

- Prescription
  - Drive GLP-1 penetration and Victoza® differentiation
- Bidding and hospital listings
  - Bidding succeeded in all provinces and hospital listings ongoing
- Provincial reimbursement
  - Provincial reimbursement obtained in 27 of 31 provinces
- National reimbursement
  - Victoza® national reimbursement in 2017
- Regulatory approval
  - Victoza® approved by Chinese FDA in 2010

GLP-1 only accounts for 1% of the value in the Chinese diabetes care market

GLP-1 value share of total diabetes market

- World: 12%
- North America: 14%
- Region EU: 10%
- Region AAMEO: 3%
- Region J&K: 4%
- Region LATAM: 5%
- Region China: 1%

EU: Europe; AAMEO: Africa, Asia, Middle-East and Oceania; J&K: Japan & Korea; LATAM: Latin America
Source: IQVIA (formerly IMS) rolling MAT value, Sep 2017

FDA: Food and Drug Administration
The successful roll-out of Saxenda® in Brazil continues and the value market share is 29% after 15 months

The Saxenda® volume sold in Brazil since launch is similar to the volume sold in the US

Dedicated investments in building the obesity market in Brazil with local initiatives

Accumulated volume (in 1,000)

<table>
<thead>
<tr>
<th></th>
<th>Brazil</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>24</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Market access and market share
- No reimbursement for Saxenda®
- Saxenda® value market share: 29%
- Saxenda® volume market share: 4%

Commercial activities
- Expansion of dedicated obesity sales force
- Establishment of obesity clinics
- Development of commercial partnerships to activate and drive patient engagement and disease awareness

Source: IQVIA (formerly IMS) rolling MAT value, rolling MAT volume, Sep 2017
Closing remarks

Sales growth in International Operations has been stable around 5-7% the last five years

Improving market access for Tresiba® is a key priority in Region Europe

Local investments can enable Novo Nordisk to overcome market access challenges

Reimbursement of Victoza® in China constitutes a significant growth opportunity
US update

Doug Langa
EVP North America Operations and President Novo Nordisk Inc

David Moore
SVP US Commercial

ANTHONY ANDERSON, USA
Anthony has type 2 diabetes
Forward-looking statements

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- Saxenda® (liraglutide 3 mg) is approved in the US and EU for the treatment of obesity only
Growth of US diabetes care market is driven by novel treatment options

US diabetes care market is growing modestly despite declining modern insulin sales

GLP-1 is largest contributor to diabetes care growth followed by new-generation insulin

Growth by segment 2014-2017 (USD billion)

Note: New-generation insulin includes Tresiba®, Xultophy®, insulin glargine U300 and iGlarLixi

1 Moving annual total based on company reported quarterly sales covering 26 brands estimated to comprise ~95% of US diabetes care sales based on data from IQVIA (formerly IMS) MIDAS, Sep 2017
Integration, localisation and focus are key for Novo Nordisk to succeed in the growing diabetes and obesity care market

**Integrate**
- Aligning functions for stronger commercial execution

**Localise**
- Tailoring approach to local needs in a heterogeneous market

**Focus**
- Dedicating resources to our largest opportunities

---

*Images and logos depict specific products and initiatives relevant to the diabetes and obesity care market.*
Succeeding in the US market requires a localised approach to serve the needs of a heterogeneous healthcare system.

Different geographies have distinct local healthcare systems and different approaches must be applied.

**Controlled**
- High payer influence
- Highest IDN influence
- Lower HCP access
- Lower consumer price sensitivity

**Developing**
- High payer influence
- Lower IDN influence
- High HCP access
- Lower consumer price sensitivity

**Organised**
- High payer influence
- Higher IDN influence
- Average HCP access
- Moderate consumer price sensitivity

**Traditional**
- High payer influence
- Lower IDN influence
- Highest HCP access
- Highest consumer price sensitivity

IDN: Integrated delivery network
HCP: Healthcare professional
Succeeding in the US market requires a localised approach to serve the needs of a heterogeneous healthcare system

Local leadership given discretion on how to market brands and invest differentially

**Boston, Massachusetts – Controlled**
- Develop relationships with key IDN stakeholders to understand broader organisational goals
- Emphasis on patient outcomes, treatment protocols and patient/disease management
- Develop payer relationships and reinforce formulary positioning

**Birmingham, Alabama – Traditional**
- High level of face-to-face interaction between physicians and sales representatives given high physical access to HCPs
- Focus on patient/disease management and clinical information with prescribers
- Focus on management of cost for consumers
- Develop payer relationships and reinforce formulary positioning

IDN: Integrated delivery network
HCP: Healthcare professional
Novo Nordisk is focusing on three must-win battles to succeed in the US diabetes and obesity care market:

- **Grow volume share in the basal insulin market**
- **Grow value share in the GLP-1 market**
- **Grow the US obesity market**
Steady market share gains for Tresiba® with contract win and increased focus offering opportunity for further growth

Basal insulin market share development since Tresiba® launch

<table>
<thead>
<tr>
<th>Basal volume TRx MS</th>
<th>Tresiba®</th>
<th>Levemir®</th>
<th>glargine U100</th>
<th>NN Total Basal</th>
<th>glargine U300</th>
<th>biosimilar glargine U100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2016</td>
<td>4%</td>
<td>9%</td>
<td>9%</td>
<td>22%</td>
<td>32%</td>
<td>49%</td>
</tr>
<tr>
<td>Oct 2017</td>
<td>4%</td>
<td>9%</td>
<td>9%</td>
<td>22%</td>
<td>32%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Actions taken to drive further market share gains for Tresiba® in 2018

- Tresiba® TRx volume market share is now 9.4%
- Recently announced changes to the formulary access of competing basal insulins offer unique opportunity for Tresiba® to grow volume market share in 2018
- Dedicated sales force to exclusively promote Tresiba® in 2018
- Increased focus on establishing the understanding of the impact of hypoglycaemia and the need to treat to avoid hypoglycemia to increase preference for Tresiba®

Note: The graph does not show NPH, which accounts for the residual market share. TRx volume: Insulin volume in mega units associated with total number of prescriptions; MS: Market share. Source: IQVIA (formerly IMS) weekly Xponent Plantrak (excludes Medicaid), 27 Oct 2017.
Adoption of Tresiba® higher among endocrinologists as avoiding hypoglycaemia is a key prescription driver

**Tresiba® market share development since launch**

<table>
<thead>
<tr>
<th>Basal volume TRx MS</th>
<th>PCP</th>
<th>ENDO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jan 2017</strong></td>
<td>0%</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Oct 2017</strong></td>
<td>8%</td>
<td>17%</td>
<td>9%</td>
</tr>
</tbody>
</table>

**Prescription drivers - Endocrinologist vs PCP**

- **ENDO**
  1. Low intra-patient variability
  2. Flat and stable profile
  3. Fits patient lifestyle
  4. Confidence in the product
  5. Lower overall hypoglycaemia

- **PCP**
  1. Confidence in the product
  2. Comfortable prescribing
  3. Fits patient lifestyle
  4. Simple option
  5. Pen simplicity/ functionality

**Focus on importance of reducing hypo risk is crucial**

Note: Highlighted prescription drivers related to reduction in hypoglycaemia

TRx volume: Insulin volume in mega units (MU) associated with total number of retail prescriptions; MS: Market share; ENDO: Endocrinologist; PCP: Primary care physician; Hypo: Hypoglycaemia

Source: IQVIA (formerly IMS) weekly Xponent Plantrak (excludes Medicaid), 27 Oct 2017; IPSOS Basal insulin Awareness, Trial and Usage study Q3-2017: N=200 US physicians, of whom 100 are primary care, 100 are endocrinologists
CV launch in the US as Victoza® is now indicated to reduce the risk of major cardiovascular events as the only GLP-1

Campaign linking HbA$_{1c}$ and the life saving CV benefit of Victoza® launched

Engagement of key stakeholders to drive increased Victoza® uptake based on CV benefit

- **Patients**
  'Heart of Type 2' disease awareness campaign rolled-out to drive understanding of the link between T2D and CV risk

- **Physicians**
  Promotion aiming to establish CV risk reduction as a key driver for prescription and increasing advocacy from cardiologists

- **Payers**
  Engaging payers with the improved Victoza® value proposition following the CV indication being granted

Note: Victoza® is indicated to reduce the risk of major adverse cardiovascular events in adults with type 2 diabetes and established cardiovascular disease
CV: Cardiovascular; T2D: Type 2 diabetes
Increased Victoza® NBRx after CV launch, while once-weekly growth remains high with large opportunity for semaglutide

**Strong Victoza® NBRx growth following label update**

<table>
<thead>
<tr>
<th>GLP-1 NBRx market share</th>
<th>Victoza®</th>
<th>Dulaglutide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 2017</td>
<td>38%</td>
<td>42%</td>
</tr>
<tr>
<td>Oct 2017</td>
<td>38%</td>
<td>42%</td>
</tr>
<tr>
<td>Oct 2017</td>
<td>42%</td>
<td>42%</td>
</tr>
</tbody>
</table>

**Further NBRx growth required to defend total market share**

<table>
<thead>
<tr>
<th>GLP-1 TRx market share</th>
<th>Victoza®</th>
<th>Dulaglutide</th>
<th>Exenatide</th>
<th>Albiglutide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 2016</td>
<td>23%</td>
<td>38%</td>
<td>14%</td>
<td>4%</td>
</tr>
<tr>
<td>Oct 2017</td>
<td>50%</td>
<td>44%</td>
<td>19%</td>
<td>8%</td>
</tr>
</tbody>
</table>

**Growth of once-weekly GLP-1 remains high**

<table>
<thead>
<tr>
<th>GLP-1 TRx MAT volume (million)</th>
<th>Weekly GLP-1</th>
<th>Daily GLP-1</th>
<th>Total GLP-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct 2017</td>
<td>+23%</td>
<td></td>
<td>+49%</td>
</tr>
</tbody>
</table>

CV: Cardiovascular; NBRx: New-to-brand prescriptions; TRx: Total prescriptions; MAT: Moving annual total
Source: IQVIA (formerly IMS) LRx and NPA, weekly data, 27 Oct 2017 (TRx market share is measured as a 4-week rolling average)
Semaglutide expected to launch in the US in Q1 2018 with promotion intensifying as market access emerges

Semaglutide to be launched in the US in the first quarter of 2018, pending approval

- SUSTAIN 7 read out
- FDA adcom meeting
- FDA regulatory decision
- Formulary negotiations
- US launch

Semaglutide market access expected to improve gradually similar to other weekly GLP-1

Unrestricted market access

- 

Quarters since approval

0% 20% 40% 60% 80% 100%

0 2 4 6 8 10 12

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

Despite strong Saxenda® growth, US obesity care market remains small at USD ~700 million

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

<table>
<thead>
<tr>
<th>TRx market share</th>
<th>mUSD /value market share</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>800</td>
</tr>
<tr>
<td>80%</td>
<td>600</td>
</tr>
<tr>
<td>60%</td>
<td>400</td>
</tr>
<tr>
<td>40%</td>
<td>200</td>
</tr>
<tr>
<td>20%</td>
<td>0</td>
</tr>
</tbody>
</table>

- Saxenda®: 82%
- Other branded AOM: 15%
- Generic AOM: 3%
- 7%
- 42%
- 51%

- Current state
  - Acute weight loss focus with Saxenda® stay-time ~5 months
  - Few prescribers engaged
  - Limited patient access

- Key initiatives
  - Advocate for chronic treatment through partnerships
  - Launch obesity educator programme
  - Obtain Medicare coverage through support of “Treat and Reduce Obesity Act”

AOM: Anti-obesity medication; TRx: Total prescriptions
Source: IQVIA (formerly IMS) NSP and NPA moving annual total, Sep 2017
Closing remarks

Integration, localisation and focus are imperative for Novo Nordisk to succeed in the US market

Tresiba® growth to be sustained with increased hypoglycaemia focus and dedicated sales force

GLP-1 leadership to be maintained with Victoza® CV indication and launch of semaglutide

Saxenda® continues to grow, but market development is needed to expand the obesity market
ADMIRE MUSHURWA, UK
Admire has haemophilia A with inhibitors

Biopharm dynamics

Christian Kanstrup
SVP Biopharm operations

Mads Krogsgaard Thomsen
EVP and Chief Science Officer

novo nordisk
– a focused healthcare company
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Biopharm constitutes 17% of Novo Nordisk sales and a strategy has been defined to return to growth

**NovoSeven® and Norditropin®** account for 84% of Biopharm sales\(^1\)

<table>
<thead>
<tr>
<th>DKK billion</th>
<th>Other biopharmaceuticals</th>
<th>Norditropin®</th>
<th>Other haemophilia products</th>
<th>NovoSeven®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 2012</td>
<td>4.5</td>
<td>4.3</td>
<td>0.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Q3 2017</td>
<td>5.1</td>
<td>4.9</td>
<td>0.8</td>
<td>0.5</td>
</tr>
</tbody>
</table>

\(^1\) Reported sales for the first nine months of 2017

‘Return to Growth’ strategy builds on organic, non-organic and organisational initiatives

- Drive in-market brands beyond current plans and ensure successful pipeline launches
- Pursue licensing or acquisition of complementary assets or companies
- Strengthen the organisation to drive the Biopharm return to growth agenda
Unique characteristics of individual markets represent different opportunities and challenges

Biopharm share of regional sales differs by region

Key regional differences

1. Reimbursement
   Tender vs non-tender market and public vs private market

2. Diagnosis and treatment rate

3. Treatment choice
   eg prophylaxis vs on demand

4. Indicated use of products

5. Plasma derived vs recombinant products

6. Availability of home treatment

Note: Reported sales for the first nine months of 2017
AAMEO: Africa, Asia, Middle East and Oceania
~50% of historic NovoSeven® sales to be exposed to competition, but opportunities remain in other indications

**Estimated NovoSeven® sales by indication**

- CHwI PPx (A&B)
- CHwI on demand (A&B)
- CHwI surgery (A&B)
- Other indications

**NovoSeven® sales of DKK 6.8 billion**

**Opportunities and challenges for NovoSeven® franchise**

**Challenge**
- Emicizumab expected to be launched imminently leading to intensified competition in the segment for haemophilia A with inhibitors

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

---

1 Based on internal Novo Nordisk estimate
2 Other indications include areas like acquired haemophilia, Glanzmann's thrombastenia and congenital FVII deficiency
3 Reported sales for the first nine months of 2017

CHwI: Congenital haemophilia with inhibitors; PPx: Prophylaxis; A&B: Haemophilia A and B
NovoEight® volumes continue to grow despite increasing penetration of long-acting FVIII products

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

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

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

Next generation
- N8-GP expected to be filed in 2018
- Global roll-out of NovoEight® and N8-GP to pave the way for subcutaneous N8-GP

1 Novo Nordisk estimated accumulated patient number
2 Novo Nordisk estimated accumulated patient number as of October 2017

FVIII: Coagulation factor VIII
Strong growth among long-acting haemophilia B products as Refixia®/Rebinyn® is set for launch in the EU and the US

**Reported recombinant FIX sales**

<table>
<thead>
<tr>
<th>Sales (USD million)</th>
<th>Benefix®</th>
<th>Alprolix®</th>
<th>Idelvion®</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CAGR: +10%

- Launched in the first EU countries in 2017, US launch expected in the first quarter of 2018
- Refixia®/Rebinyn® offers a unique clinical profile that brings factor levels into the non-haemophilia range for adults and adolescents
- Dialogue ongoing with the FDA and EMA to establish path forward to obtain routine prophylaxis indication in the US and complete paediatric indication in Europe to include children younger than 12 years old

**Refixia®/Rebinyn® launched in first countries**

---

**FIX:** Coagulation factor IX  
**Source:** Company reports (Does not include Rixubis® as sales are not reported separately)

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

**rFIX:** Recombinant coagulation factor IX
Novo Nordisk well-positioned to remain the leader in the DKK 18 billion human growth deficiency market

Norditropin® has a broad label covering most indications in the growth deficiency market

Ease of use and less frequent dosing key to drive adherence and product preference

- **Saturated market with competitive pricing** due to limited differentiation among marketed products
- **Device/product characteristics** supporting ease of use and adherence are main differentiators between marketed products
- Further broadening of Norditropin® indication
  - Introduction of **extended half-life compounds** such as somapacitan with key benefits providing:
    - Once-weekly dosing vs once-daily
    - Convenient subcutaneous administration
    - Potential for increased adherence to therapy

Market for growth deficiencies (volume share)

- GHD: 44%
- AGHD: 10%
- Small for gestational age: 12%
- ISS: 11%
- Turner Syndrome: 4%
- Noonan Syndrome: 7%
- Others: 12%

1 Other predominantly comprised of Prader-Willi syndrome and chronic renal insufficiency

GHD: Growth hormone deficiency; AGHD: Adult growth hormone deficiency; ISS: Idiopathic Short Stature

Continued search for bolt-on acquisitions and in-licensing to support ‘Return to Growth’ strategy

Aim to identify bolt-ons and partnerships in adjacent areas

Bolt-on acquisitions needed to support return to growth and help build strategic capabilities

- Organic growth initiatives not expected to satisfy mid-term growth ambitions
- Increased focus on both in-licensing and bolt-on acquisition opportunities to drive growth
- Transitioning from opportunistic to strategic approach for external sourcing
  - Systematic scans performed
  - Disease area specific strategies in development

Relation to present business: Core  Non-core
Biopharm R&D efforts reflect Novo Nordisk’s commitment to satisfy unmet patient needs

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

Pursue leadership in **HAEMOPHILIA**
- Pursue subcutaneous delivery of long-acting coagulation factors and bypassing agents

Strengthen leadership in **GROWTH DISORDERS**
- Bring long-acting growth hormone somapacitan to market and expand indications

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

---

**Novo Nordisk Biopharm portfolio**

<table>
<thead>
<tr>
<th>Research/preclinical</th>
<th>Phase 1/2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N8-GP sc</td>
<td>concizumab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N8-GP IV</td>
<td>somapacitan¹</td>
</tr>
<tr>
<td>Approved/Launched</td>
<td>NovoEight®, Refixia®, NovoThirteen®, Norditropin®, NovoSeven®</td>
<td></td>
</tr>
</tbody>
</table>

¹ Somapacitan is currently in phase 3 for adult growth hormone deficiency and phase 2 for growth hormone deficiency in children

Note: NovoThirteen® and Refixia® are the brand names in the majority of countries, whereas these products are marketed as TRETEN® and Rebinyn® respectively in the US

sc: Subcutaneous; IV: Intravenous
Subcutaneous N8-GP holds the potential to become first FVIII replacement product for subcutaneous delivery

Human pharmacokinetic model of subcutaneous N8-GP

<table>
<thead>
<tr>
<th>FVIII activity (%)</th>
<th>IV FVIII (25 IU/kg/every other day)</th>
<th>sc FVIII (12.5 IU/kg/daily)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Phase 1/2 trial with sc N8-GP evaluates safety and PK of single and multiple doses

- 48 patients with haemophilia A

Part A
- Single dose incl. PK
- 12.5 IU/kg
- Days: 0, 1, 2, 3, 4, 5, 6, 7, 8
- FVIII activity (%): 0%, 10%, 20%, 30%, 40%

Part B
- 3 months daily treatment
- Daily administration at one selected dose
- 50 IU/kg
- 25 IU/kg
- 25 IU/kg
- 25 IU/kg

Note: Inclusion criteria: Haemophilia A with 150 efficacy doses (previously treated patients), 18 years and above (part A), 12 years and above (part B), no current or history of inhibitors

IU: International unit; PK: Pharmacokinetics

sc: Subcutaneous, IV: Intravenous; FVIII: Coagulation factor VIII
Source: Novo Nordisk data on file
Encouraging concizumab results with positive efficacy trends observed in blinded multiple dose phase 1 trial

- Changes in coagulation parameters were observed at highest exposure levels, consistent with activation of the coagulation and fibrinolytic pathways
- No safety signals or serious adverse events were observed in the trial and no events led to withdrawal
- No anti-concizumab antibodies were detected in any patient

Source: explorer 3 study, International Society on Thrombosis and Haemostasis 2017 Congress, Eichler et al., LB 01.2
Ongoing phase 2 proof-of-concept trial for concizumab in haemophilia patients with and without inhibitors

**explorer 5:** Phase 2 haemophilia A trial with concizumab administered sc once-daily

<table>
<thead>
<tr>
<th>Dose (mg/kg)</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>30</td>
</tr>
<tr>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>0.15</td>
<td></td>
</tr>
</tbody>
</table>

- **Bleeding episode**
- **Dose escalation to next dose level**

**Trial objectives and endpoints**

**explorer 5**
- Establish safety profile and clinical proof of concept
- Provide evidence that concizumab efficacy is on par with current replacement therapy

**explorer 4**
- Phase 2 trial also initiated with concizumab in 24 patients with haemophilia A and B with inhibitors age ≥18 years to establish safety, including treatment of bleeds with rFVIIa, and clinical proof of concept
- Patients will be treated with rFVIIa in addition to concizumab to test safety of co-use

**Next steps**
- Phase 2 trials to conclude in the second half of 2018 followed by extension phase and phase 3 decision

**Note:** Dose escalation criteria: 1. Increase to next dose level of concizumab if >2 bleeding episodes occur within 12 weeks of current dose level, 2. Markers will guide the decision monitored by the data monitoring committee and principal investigator, 3. Dose escalation at next scheduled visit

sc: Subcutaneous

rFVIIa: Recombinant coagulation factor VII activated
Phase 3 extension trial in adults and phase 2 trial in children for once-weekly somapacitan to conclude in 2018

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

<table>
<thead>
<tr>
<th>Cumulative frequency</th>
<th>Baseline</th>
<th>Norditropin®</th>
<th>Placebo</th>
<th>somapacitan</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGF-1 standard deviation score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Phase 3a AGHD trial successfully completed, phase 2 GHD read-out expected in 2018

REAL 1: Phase 3a, naïve AGHD
Objective: Efficacy (truncal fat %)/safety

REAL 2: Phase 2, GHD
Objective: Dose finding (height velocity)/safety

REAL 3: Phase 3, GHD
Objective: Efficacy (height velocity)/safety

REAL 4: Phase 3, GHD
Objective: Efficacy (height velocity)/safety

REAL 5: Phase 3, SGA
Objective: Efficacy (height velocity)/safety

Note: Filing for first indication (AGHD) expected in 2018
GHD: Growth hormone deficiency; SGA: Small for gestational age

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

NovoEight®, N8-GP and Refixia®/Rebinyn® sales growth expected to partly offset NovoSeven® sales erosion

Subcutaneous N8-GP and concizumab hold potential as a new generation of haemophilia agents

Novo Nordisk well-positioned within growth disorders with Norditropin® and somapacitan

Enhanced search for bolt-on acquisitions and partnerships within adjacent areas ongoing to support Return to Growth strategy
Oral semaglutide and production expansion

Henrik Wulff
EVP Product Supply

Peter Kristensen
SVP Global Development
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 2016 and Form 20-F, which are both filed with the SEC in February 2017 in continuation of the publication of the Annual Report 2016, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as ‘believe’, ‘expect’, ‘may’, ‘will’, ‘plan’, ‘strategy’, ‘prospect’, ‘foresee’, ‘estimate’, ‘project’, ‘anticipate’, ‘can’, ‘intend’, ‘target’ and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

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- 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
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- Statements regarding the assumptions underlying or relating to such statements.

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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.


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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
Succeeding with an oral formulation of a protein requires multiple factors to be in place

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Need for a capable carrier technology</td>
<td>Effective formulation using SNAC carrier created ✓</td>
</tr>
<tr>
<td>2 Low absorption of protein</td>
<td>Long half-life and molecular stability ✓</td>
</tr>
<tr>
<td>3 Food-drug interaction</td>
<td>Simple dosing instructions ✓</td>
</tr>
<tr>
<td>4 Scale of API capacity</td>
<td>Oral semaglutide production ramp-up ✓</td>
</tr>
</tbody>
</table>

API: Active pharmaceutical ingredient; SNAC: Sodium N-[8-(2-hydroxybenzoyl) Amino] Caprylate
SNAC carrier facilitates semaglutide absorption

SNAC: Sodium N-[8-(2-hydroxybenzoyl) Amino] Caprylate
Long half-life and molecular stability

Lower day-to-day variability at steady state with once-daily semaglutide

Simulated semaglutide concentration (mM)

<table>
<thead>
<tr>
<th>Simulated semaglutide concentration (mM)</th>
<th>Once-daily semaglutide sc</th>
<th>Once-weekly semaglutide sc</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Semaglutide peptide characteristics

Long half life
- The long half-life of semaglutide and daily dosing limits day-to-day variability

Low molecular weight
- Compared to several other GLP-1 analogues, semaglutide has a low molecular weight, enabling absorption

High potency
- Semaglutide proven to be highly potent

Molecular stability
- Semaglutide is more stable against degradation by gastrointestinal enzymes and stomach acid

Sc: Subcutaneous; mM: Milimolar
Simple dosing instructions to avoid food-drug interaction

- Wake up and take your tablet with half a glass of water
- Wait at least 30 minutes before eating or drinking
- Have breakfast
Preparation of global filing of oral semaglutide expected during 2019 pending successful completion of phase 3 trials

<table>
<thead>
<tr>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>PIONEER 1: Monotherapy</td>
<td>PIONEER 2: vs empagliflozin</td>
<td>PIONEER 3: vs sitagliptin</td>
<td>PIONEER 4: vs liraglutide</td>
<td>PIONEER 5: Moderate renal impairment</td>
</tr>
<tr>
<td>PIONEER 7: Flexible dose escalation</td>
<td>PIONEER 8: Insulin add-on</td>
<td>PIONEER 9: Japan monotherapy</td>
<td>PIONEER 10: Japan OAD combination</td>
<td>Preparation of global filing</td>
</tr>
</tbody>
</table>

1 Expected to be published in the given quarter or in the subsequent quarterly company announcement; 2 Trial to rule out cardiovascular risk; 3 To be followed by 52-week extension trial

Note: Estimated timing of trials from first patient first visit to last patient last visit and subsequent completion of trial

OAD: Oral anti-diabetic
Two new facilities under construction for production of oral semaglutide

API production in North Carolina and tablet production in Måløv

North Carolina, USA
- API production facility
- Expected completion: 2021

Måløv, Denmark
- Tablet production facility
- Expected ramp up: 2019

Fermentation  |  Recovery  |  Purification
---|---|---
Tableting  |  Packaging

API: Active pharmaceutical ingredient
1 API production for clinical trials and initial launch of oral semaglutide in Kalundborg
API constitute the majority of direct production cost for oral semaglutide

The unit cost composition differs between oral semaglutide and Victoza®

Illustrative

API cost Delivery cost

oral semaglutide1 Victoza®2

Oral semaglutide gross margin expected to be on par with the current Novo Nordisk level

- Victoza® contributes positively to Novo Nordisk gross margin
- Oral semaglutide gross margin is expected to be on par with the current Novo Nordisk gross margin level following the initial ramp-up, assuming a price point similar to the current level of injectable GLP-1

---

1 Delivery cost for oral semaglutide: Tableting and packaging
2 Delivery cost for Victoza®: Device including formulation, filling, assembly and packaging
API: Active pharmaceutical ingredient
Capital expenditure in 2018 expected to be broadly unchanged compared to 2017 level

Increased CAPEX level in 2017-2018 reflecting investments in oral semaglutide capacity

CAPEX as % of sales

CAPEX expected to decline after 2018

CAPEX increase driven by USD ~2 billion investment in:

- Diabetes API production in Clayton, USA (USD ~1.8 billion)
- Tableting facility in Måløv, Denmark (USD ~0.2 billion)

2017-2020 CAPEX development:

- 2018 is expected to be similar to 2017
- 2019-2020 CAPEX expected to be around 2016 level as the construction activities for the API production facility in the US will gradually complete

CAPEX: Capital expenditure
API: Active pharmaceutical ingredient
Closing remarks

Effective formulation using SNAC carrier

Long half-life and molecular stability enabling protein absorption

Simple dosing instructions to avoid food-drug interaction

USD 2 billion production ramp-up for oral semaglutide

SNAC: Sodium N-[8-(2-hydroxybenzoyl) Amino] Caprylate
PIHU KUMARI, India
Pihu Kumari has type 1 diabetes

novo nordisk
– a focused healthcare company

Region AAMEO
and Region China

Mike Doustdar
EVP International Operations

Camilla Sylvest
Former SVP Region China

Frederik Kier
SVP Region AAMEO
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• Saxenda® (liraglutide 3 mg) is approved in the US and EU for the treatment of obesity only
471 million people with diabetes are expected to live in Region AAMEO or Region China by 2045

Number of people with diabetes in Region China and Region AAMEO

<table>
<thead>
<tr>
<th>Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
</tr>
<tr>
<td>303</td>
</tr>
<tr>
<td>471</td>
</tr>
</tbody>
</table>

AAMEO: Africa, Asia, Middle-East and Oceania
Guishan Han has type 2 diabetes.
The purpose of the recent Chinese healthcare reform is to increase quality of treatment and reduce cost.

**Access to innovation**
- More frequent updates of national reimbursement list
- Chinese FDA reform to improve new drug approval review process

**Cost management**
- Provincial biddings
- Second round of price negotiations
- Zero mark-up policy
- Two-invoice policies

**Public hospital reform**
- Implementation of tiered treatment policy
- Focus on improving quality of lower tier hospitals
Novo Nordisk is committed to solve the diabetes challenge in China through better access to care

**NN supports the aspiration of doubling the total number of people treated for diabetes in China**

- **30 million diabetes patients treated in 2016**
- **60 million diabetes patients treated in 2022**

**A wide range of initiatives to improve of diabetes care in China have been initiated**

- Increase patient diagnosis through screening and diagnosis programs for **150,000+** patients annually
- Drive better patient management and outcomes by establishing digital platform for **100,000+** patients annually
- Improve capabilities of healthcare providers through education of **25,000+** specialists and general practitioners annually
- Establish partnership with **300** county hospitals per year to build dedicated endocrinology departments

---

1 Estimated number of diabetes patients treated in China, whereof Novo Nordisk is estimated to treat around 5 million people with diabetes

NN: Novo Nordisk

Novo Nordisk remains the market leader within the growing insulin market in China

The insulin market volume growth in China is driven by modern insulin

Novo Nordisk is the overall leader of the insulin market in China

Insulin market in volume
(in 1,000 mega units)

<table>
<thead>
<tr>
<th>Insulin Type</th>
<th>Sep 2012</th>
<th>Sep 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern long-acting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern fast-acting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern premix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human insulin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total CAGR: 12%

- Modern long-acting: 27%
- Modern fast-acting: 18%
- Modern premix: 4%
- Human insulin: 55%

Note: Numbers do not add up to 100% due to rounding
MS: Market share
Source: IQVIA (formerly IMS) MS% volume rolling MAT, Sep 2017
No Novo Nordisk current growth outperforms competition in all modern insulin segments in China

Modern premix insulin growth
Volume growth

Modern short-acting insulin growth
Volume growth

Modern long-acting insulin growth
Volume growth

Sep 2013 | Sep 2017 | Novo Nordisk | Eli Lilly | Novo Nordisk | Eli Lilly | Novo Nordisk | Gan & Lee | Sanofi
---|---|---|---|---|---|---|---|---
0% | 0% | 9% | 15% | 15% | 27% | 39% | 16% | 21%

Source: IQVIA (formerly IMS) rolling MAT volume, Sep 2017
The reimbursement of Victoza® in China constitutes a significant growth opportunity

National reimbursement for Victoza® obtained in China in 2017

- Prescription
- Bidding and hospital listings
- Provincial reimbursement
- National reimbursement
- Regulatory approval

Glucagon-like peptide-1 (GLP-1) only accounts for 1% of the value in the diabetes care market in China

GLP-1 value share of total diabetes

- World 12%
- North America
- Region EU
- Region AAMOE
- Region J&K
- Region LATAM
- Region China

 Victoza® national reimbursement in 2017
 Bidding succeeded in all provinces and hospital listings ongoing
 Provincial reimbursement obtained in 27 of 31 provinces
 Victoza® approved by Chinese FDA in 2010

FDA: Food and Drug Administration

EU: Europa; AAMEO: Africa, Asia, Middle-East and Oceania; J&K: Japan & Korea; LATAM: Latin America
Source: Value data; IQVIA (formerly IMS) MAT Sep 2017
Novo Nordisk obtained approval of Tresiba® in China in 2017 and is advancing the pipeline of key products

**Regulatory approval of Tresiba® obtained in China in 2017**
- Prescription
- Bidding and hospital listings
- Provincial reimbursement
- National reimbursement
- Regulatory approval

**Indicative timelines for key products in China and potential NDRL reviews**

- **Fiasp®**
  - Phase 3
  - Approval
  - Reimbursement
  - Full commercial launch
  - Potential NDRL review

- **semaglutide**
- **Ryzodeg®**
- **Tresiba®**
- **Victoza®**

- National Drug Reimbursement List expected to open in 3-5 years
- Tresiba® approved by Chinese FDA in 2017
- On-going in targeted regions
- Potential NDRL review 2025

FD: Food and Drug Administration

NDRL: National Drug Reimbursement List
Jane has type 2 diabetes.
Region AAMEO is the largest and the most diverse region which entails large opportunities and challenges.

Region AAMEO covers +110 countries

High GDP growth in several countries in Region AAMEO

Region AAMEO holds significant challenges

AAMEO: Africa, Asia, Middle-East and Oceania; GDP: Gross Domestic Product
In Region AAMEO the insulin segment accounts for around 40% of the expanding diabetes care market

The diabetes market value has grown 10% on average

Modern insulin accounts for the majority of the insulin segment

Novo Nordisk insulin market share in volume and value

Note: Market shares do not add up to 100% due to rounding.
HI: Human insulin; MI Modern insulin; NGI: New-generation insulin; AAMEO: Africa, Asia, Middle-East and Oceania; OAD: Oral anti-diabetic; MS: Market share.
Source: IQVIA (formerly IMS) volume rolling MAT, monthly Sep 2017; MS% volume rolling MAT, Sep 2017; MS% value rolling MAT, Sep 2017; (data only covers the following countries in Region AAMEO: Turkey, Russia, Kazakhstan, Australia, New Zealand, Algeria, India, Saudi Arabia, South Africa, United Arab Emirates)
Sales growth in 2017 is driven by modern insulin, new-generation insulin and GLP-1 in Region AAMEO

Insulin accounts for 73% of sales in 2017

- New-generation insulin
- Modern insulin

Sales of DKK 8,950 million

Sales growth in Danish kroner (million)

- Human insulin
- Victoza®
- Saxenda®
- Biopharm

1 Reported sales for the first nine months of 2017
2 Pie chart excludes Other diabetes care
AAMEO: Africa, Asia, Middle-East and Oceania
**Growth in Region AAMEO is driven by footprint expansion and roll-out of new-generation of insulin**

**Investing ahead of the curve in countries with highest growth potential**

- Establish early presence in high potential growth markets
- Build growth markets by investing in infrastructure through local manufacturing, diabetes awareness and access to care

**Countries with high growth potential**

<table>
<thead>
<tr>
<th>Country</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>Indonesia</td>
</tr>
<tr>
<td>Iran</td>
<td>Turkey</td>
</tr>
<tr>
<td>Algeria</td>
<td>Pakistan</td>
</tr>
</tbody>
</table>

**62 launches of new-generation insulin planned in Region AAMEO towards 2020**

<table>
<thead>
<tr>
<th>Country launched</th>
<th>Planned launches</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>

AAMEO: Africa, Asia, Middle-East and Oceania
**Victoza® and Saxenda® are expected to contribute significantly to future sales growth**

**Victoza® constitutes a significant growth opportunity in Region AAMEO**

**Market opportunity**
- The GLP-1 market in Region AAMEO only accounts for 3% of the total diabetes value market vs 12% globally\(^1\)

**Commercial activities**
- Drive cardiovascular disease awareness campaigns to leverage LEADER data
- Dedicated Victoza® sales force established
- Obtain market access in countries with high growth potential, eg Algeria, Russia and Turkey

**Focus on establishing the obesity market with Saxenda®**

**Unmet need**
- The obesity prevalence in select countries is similar to the high level in the US:
  - Saudi Arabia: Men: 24% Women: 34%
  - Turkey: Men: 15% Women: 29%
  - Iran: Men: 15% Women: 28%

**Commercial activities**
- Saxenda® planned to be launched in 12 countries in the next 36 months
- Saxenda® is available in eight markets with recent launches in Saudi Arabia, Bahrain and Qatar

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\(^1\) IQVIA (formerly IMS) rolling MAT value, Sep 2017
CV: cardiovascular disease; AAMEO: Africa, Asia, Middle-East and Oceania

Source: worldobesity.org
Closing remarks

Novo Nordisk growth exceeds competition in all modern insulin segments in China

Reimbursement of Victoza® in China constitutes a significant growth opportunity

Region AAMEO growth is driven by footprint expansion and roll-out of new-generation insulin

Victoza® and Saxenda® are expected to contribute significantly to future sales growth
Financial update and closing remarks

Jesper Brandgaard
EVP and CFO
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 2016 and Form 20-F, which are both filed with the SEC in February 2017 in continuation of the publication of the Annual Report 2016, and written information released, or oral statements made, to the public in the future by or on behalf of Novo Nordisk, may contain forward-looking statements. Words such as ‘believe’, ‘expect’, ‘may’, ‘will’, ‘plan’, ‘strategy’, ‘prospect’, ‘foresee’, ‘estimate’, ‘project’, ‘anticipate’, ‘can’, ‘intend’, ‘target’ and other words and terms of similar meaning in connection with any discussion of future operating or financial performance identify forward-looking statements. Examples of such forward-looking statements include, but are not limited to:

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- 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
Ambitious plans in place to drive sales growth within diabetes and obesity care

Drive insulin value and volume market share

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Win with GLP-1

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

Build the global obesity market

Only 2% of the 650 million patients with obesity are treated with medication
Operating margin expected to be largely unchanged due to lower gross margin offset by prudent cost management

**Gross margin**
- Gross margin expected to decline with approximately 1-3%-points over the next 3-4 years
- Lower realised prices and new product launches expected to negatively impact gross margin partly offset by product mix and manufacturing efficiency

**Sales & Distribution costs and administration costs**
- Sales and Distribution costs to be streamlined leading to savings of 1-2%-points over the next 3-4 years
- Continued focus on administration costs leading to savings and an administration cost to sales ratio approaching 3%

**Research & Development costs**
- R&D to sales ratio expected to remain unchanged around 13%, but flexible should external opportunities arise
- Refocused research efforts free up resources for investment in other serious chronic disease areas
Long-term financial targets support focus on profitable growth, capital allocation and cash conversion

Operating profit growth

- Current long term financial target
- Previous long term financial targets

Operating profit after tax to net operating assets

- Current long term financial target

Cash to earnings (three-year average)

- Current long term financial target

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1 Long-term target established in connection with the Q3 2016 report. The target of an average operating profit growth of 5% is an average for the period of 4-5 years, with 2015 as the base year. Operating profit after tax to net operating assets target unchanged at 125% and Cash to earnings (three year average) target unchanged at 90%

Note: The long-term financial targets are based on an assumption of a continuation of the current business environment; 2015 and 2016 figures are adjusted for the partial divestment of NNIT A/S and inflammatory out-licensing in 2015
Continued return of free cash flow through twice yearly dividends and share repurchase programmes

Increased CAPEX level in 2017-2018 reflecting investments in oral semaglutide capacity

- CAPEX
- Expected CAPEX
- CAPEX as % of sales

DKK billion

Organic growth enables steady cash return via dividends and share buybacks

- Share repurchase
- Interim dividend
- Dividend

DKK billion

Note: Interim dividend for 2017 of DKK 3.00 per share of DKK 0.20 was paid in August 2017. For 2017 expected free cash flow is DKK 30-34 billion. Share repurchase programmes run for 12 months starting February until end January of the following year.
We have high ambitions for the coming years

**Strategic priorities**

**Expand leadership in DIABETES**
- Obtain approval of **semaglutide**
- Obtain approval of SWITCH/DEVOTE in the US
- Complete **oral semaglutide** phase 3 trials
- Advance early-stage insulin pipeline

**Strengthen leadership in OBESITY CARE**
- Initiate phase 3a programme with **semaglutide**
- Progress early-stage pipeline

**Return to growth in BIOPHARM**
- Filing of **N8-GP** and **somapacitan** in AGHD
- Advance **somapacitan** in GHD
- Advance **concizumab** and subcutaneous **N8-GP**

**Expand into other SERIOUS CHRONIC DISEASES**
- Advance **semaglutide** in NASH
- Pursue **semaglutide** into other chronic diseases

**R&D ambitions**

**Obtain approval of semaglutide**
- Obtain approval of SWITCH/DEVOTE in the US
- Complete **oral semaglutide** phase 3 trials
- Advance early-stage insulin pipeline

**Commercial ambitions**

**World class launch of Ozempic®**
- Continue global roll-out of **Tresiba®, Xultophy®, Ryzodeg®** and **Fiasp®**
- Expand leadership within both insulin and GLP-1

**Continue global roll-out of Saxenda®**
- Expand the global obesity market

**Maximise existing Biopharm portfolio**
- Successful launch of **Refixia®/Rebinyn®**

**Establish relationship with cardiologists**
- Build in-house commercial capabilities

AGHD: Adult growth hormone deficiency; GHD: Growth hormone deficiency; NASH: Non-alcoholic steatohepatitis
Closing remarks

Maintain global leadership within insulin and expand leadership within GLP-1

Expand leadership within obesity and return to growth in Biopharm

Solid platform for growth to deliver on long-term financial targets and continued disciplined return of cash flow to shareholders