Product Supply update

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EVP Product Supply
Forward-looking statements

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

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

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

Please also refer to the overview of risk factors in ‘Be aware of the risk’ on p 42-43 of the Annual Report 2014 on the company’s website novonordisk.com.

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
Product Supply manufactures and distributes high quality biologic pharmaceuticals

Innovation

Operations in Product Supply

Customers and Patients

Manage supply of all marketed and phase 3 development products in Novo Nordisk

API: active pharmaceutical ingredient
AP: aseptic product
Economies of scale and standardisation by platforms provide Novo Nordisk with competitive advantages

Novo Nordisk’s competitive advantages in manufacturing

- Economies of scale with 47% global insulin volume market share
- Utilisation of standardised platforms across product portfolio
  - All marketed insulins and GLP-1 are produced from three yeast strains
  - Injection pen system, including FlexPen®, FlexTouch® and NovoPen®, applied across diabetes and growth hormone product portfolio
- Standardised manufacturing processes applied across product portfolio
- Global manufacturing footprint ensuring centralised economies of scale and proximity to markets

Example of how standardised platforms are utilised across the product portfolio

Yeast strain A

Yeast strain B

Yeast strain C

Note: Simplified overview of platforms and processes utilised across product portfolio
Novo Nordisk’s global manufacturing footprint is developing on the basis of clear criteria

Risk willingness dependent on strategic importance of processes

<table>
<thead>
<tr>
<th>Risk willingness</th>
<th>Economies of scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

Criteria for development of global manufacturing footprint

<table>
<thead>
<tr>
<th>API</th>
<th>Core capability</th>
<th>Location requirement</th>
<th>Location strategy</th>
<th>Local manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Political and regulatory stability and access to talent</td>
<td>DK and USA</td>
<td>Not possible</td>
</tr>
<tr>
<td>Filling</td>
<td>Yes</td>
<td>Current strategic sites</td>
<td></td>
<td>Possible, driven by market access</td>
</tr>
<tr>
<td>Assembly</td>
<td></td>
<td>Optimised distribution to growth regions</td>
<td>Expansion at new locations can be considered</td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>No</td>
<td>No additional consideration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Local manufacturing comprises all diabetes care production outside the strategic sites in Chartres (France), Clayton (USA), Bagsvaerd (Denmark), Kalundborg (Denmark), Hillerod (Denmark), Montes Claros (Brazil) and Tianjin (China)

Note: Outsourcing in Product Supply is as a main rule only possible for non-core capabilities.
Product Supply has a global footprint balancing centralised economies of scale with proximity to markets

- West Lebanon, NH, USA (~120)
  - Biopharmaceutical API production

- Clayton, NC, USA (~750 FTEs)
  - Diabetes API production
  - Filling
  - Assembly
  - Packaging of above

- Montes Claros, Brazil (~900 FTEs)
  - Filling
  - Assembly
  - Packaging

- Chartres, France (~1,100 FTEs)
  - Filling
  - Assembly
  - Packaging

- Kaluga, Russia (~170 FTEs)
  - Filling
  - Assembly
  - Packaging

- Denmark (~9,000 FTEs)
  - Diabetes and biopharmaceutical API production
  - Filling
  - Moulding and assembly
  - Packaging

- Koriyama, Japan (~70 FTEs)
  - Packaging

- Tianjin, China (~1,000 FTEs)
  - Filling
  - Moulding and Assembly
  - Packaging

Note: FTEs represent full-time employee equivalents in Product Supply as of end October 2015
1 New Hampshire facility is currently under establishment
2 Establishment of diabetes API facility at site Clayton expected to commence in 2016
The manufacturing footprint is expanding to meet future demands leading to an increase in capital expenditure.

Historically sales have increased at more than twice the rate of CAPEX.

**Significant increase in CAPEX ratio to sales expected in 2016-2020**

- CAPEX increase driven by ~2 bUSD investment\(^1\) in:
  - Multipurpose diabetes API production in Clayton, USA (~1.8 bUSD)
  - Tableting facility in Måløv, Denmark (~0.2 bUSD)

- Selected ongoing investments contributing to CAPEX:
  - Expansion of diabetes filling capacity in Hillerød, Denmark
  - Expansion of biopharm API capacity in Kalundborg, Denmark
  - Establishment of local manufacturing facilities in emerging markets

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API: active pharmaceutical ingredient

\(^1\) The final design and cost of the new production facilities is expected to be approved by the Novo Nordisk board of directors in 2016
After significant improvements, marginal reductions in unit manufacturing costs of mature products are declining

**Full manufacturing cost per product**

- NovoRapid/NovoMix FlexPen®
- Human Insulin Penfill®
- NovoRapid/NovoMix Penfill®
- Levemir FlexPen®
- Victoza®

**Comments on cost development**

- Up to 70% reduction in unit cost for all high volume diabetes products since 2005
- Utilisation, innovation, optimisation, LEAN and outsourcing have all contributed to unit cost improvements
- External benchmarking across industries has identified best practices and driven improvements
- The marginal improvements in manufacturing costs of mature diabetes products are declining
Manufacturing is increasingly complex as new advanced products are added to the portfolio at an increasing pace.

### Complexity of molecules by number of API sidechain production process steps

- **Levemir®**
- **Victoza®**
- **Tresiba®**
- **N8-GP/N9-GP**
- **NN8640 Once-weekly growth hormone**
- **Semaglutide**

### Number of new product variants added per year

- **2012**
- **2013**
- **2014**
- **2015E**

Number of new product variants increased by +55%

API: active pharmaceutical ingredient
Novo Nordisk has systems aiming to ensure quality and compliance with increasing regulatory requirements

Over the past five years, Novo Nordisk completed yearly ~100 inspections on average

Novo Nordisk conducts audits to ensure quality and compliance throughout supply chain

- Inspections by regulatory authorities
- Supplier quality audits
- Responsible sourcing audits
Concluding remarks

Novo Nordisk has competitive advantages through economies of scale and standardisation by platforms

Novo Nordisk has achieved significant manufacturing unit cost reductions

Increased utilisation and improvement of strategic sites can drive further cost reductions

Multiple factors are likely to pose a challenge to further unit cost improvements, including:

• Introduction of more complex products
• Increasing compliance requirements
• Increasing capital expenditure to meet future demand
• Requirements to establish local manufacturing outside strategic manufacturing sites