Novartis 2009 Performance

- Supplied 27 million doses of trivalent seasonal influenza doses to US market
  - Shipments began in early August, weeks ahead of schedule

- Largest supplier of H1N1 vaccine and vaccine components to US government
  - Shipments to US began in end September

- Significant improvements to manufacturing infrastructure
  - New production facilities in UK
  - Ribbon-cutting on newest vaccine plant in Holly Springs, North Carolina - first cell culture-derived influenza vaccine manufacturing plant in the US
H1N1: Novartis received 45% of initial US bulk orders

Distribution of HHS Orders for H1N1 (bulk material) $ Millions

- **Total = $2.2 B**
  - ($1.5B Antigen, $0.7B Adjuvant)

  - Novartis (MF59)
  - MedImmune
  - CSL
  - Sanofi
  - GSK (ASO3)

  - **Largest provider of US H1N1 bulk material**
  - **Delivered 100% of United States Government orders**
  - **No product recalled**
  - **No product returned for quality related issues**
  - **Largest adjuvant stockpile source for potential future pandemics**

Source: https://www.medicalcountermeasures.gov/BARDA/MCM/panflu/factsheet.aspx

2010 Outlook

- **Continuing to see strong demand for this upcoming season**
  - Commitments made earlier than in previous years, no longer taking direct orders on website
  - Limited requests for order cancellations

- **Seeing low yields on all 3 strains**
  - However, new manufacturing facilities in UK have double the capacity of old facilities

- **Expect to deliver 35-40 million doses to US market**
  - Deliveries to begin in August and continue through early November
  - Primarily Fluvirin, but also Agriflu
  - ~75% of demand for MDV presentation
  - Final volumes dependent on final yields
2010 Retail Growth Expected to Exceed 30% Growth Rate of 2009

Estimated Flu Doses Administered (Retail Channel)

<table>
<thead>
<tr>
<th>Year</th>
<th>Doses (in m)</th>
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<tbody>
<tr>
<td>2008</td>
<td>10</td>
</tr>
<tr>
<td>2009</td>
<td>13</td>
</tr>
<tr>
<td>2010 (Proj)</td>
<td>18-26</td>
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Retail Vaccination Benefits
- Convenience
- Cost effective
  - In a published model, the mean cost of vaccination was lower in mass vaccination ($17.04) and pharmacy ($11.57) than in Drs office ($28.67)^1


Opportunities and Challenges for this Flu Season

**Opportunities**
- Universal recommendation driving increase in immunization rates
- H1N1 strain included in trivalent seasonal vaccine
- Continued growth in immunizations at alternate venues such as retail pharmacies

**Challenges**
- Convincing those who received H1N1 vaccine in early 2010 to revaccinate with trivalent seasonal flu vaccine this fall
- Demand for early vaccinations due to 2009 experience – need to emphasize vaccinations through December and into Jan as well
- Risk of safety concerns from public from Australia situation
- H1N1 fatigue
**Novartis Influenza Pipeline**

<table>
<thead>
<tr>
<th>Novartis Influenza Pipeline</th>
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<tbody>
<tr>
<td><strong>Fluad</strong></td>
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<tr>
<td>▪ Adjuvanted flu vaccine</td>
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<tr>
<td>▪ Approved in EU, not yet licensed in US</td>
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<tr>
<td><strong>OPTAFLU</strong></td>
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<tr>
<td>▪ Cell culture flu vaccine</td>
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<tr>
<td>▪ Potentially faster production times</td>
</tr>
<tr>
<td>▪ Will be manufactured in Holly Springs, NC</td>
</tr>
<tr>
<td>▪ Not yet licensed in US</td>
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