Pharmacoeconomic potential of Biosimilars

Marc Koopmanschap, Erasmus University
Rotterdam
koopmanschap@bm.eur.nl
Agenda

• Lessons from tendering for generics in the Netherlands

• Loss aversion in physicians and patients?

• Biosimilars, lower but sustainable prices?

• Biosimilars, what savings are realistic?
Tendering: results, risks and opportunities

• The acquisition of pharmaceuticals based on a competitive bidding process where the contract is granted to the pharmaceutical supplier who offered the best bid following strict criteria (Leopold 2008)

• Tendering for outpatient generic pharmaceuticals in several EU countries (e.g. Belgium, Denmark, Germany, Malta, Netherlands, Romania, Slovenia)
Figuur 3.9 | Prijsondalingen onder invloed van preferentiebeleid generieke geneesmiddelen, 2004-2013

1 = 1 EURO

- omeprazol
- simvastatine
- losartan
- atorvastine

Tendering: lower prices generics NL (www.gipdatabank.nl)
Price per generic DDD, tendered vs not, Netherlands
NL, volume and price

Figuur 3.1 | Farmaceutische zorg: volume- en prijs-component, 2004-2013

1 = 1 MILJOEN EURO
Results of tendering Netherlands

• Estimated savings in Netherlands 2013: 879 mln euro (Gipeilingen 2013), -> very successful

BUT

• Patients often have to change (package, colour and form of the tablet)
• Production often in low cost countries (eg India) -> Ranbaxy scandal 2014 (manipulation of test results on raw materials).
• Dutch authorities trust test certificates
• Appeal to Dutch health insurers: please pay a bit more for better quality (van Gelder & Vulto, 2014)
Discussion tendering Netherlands

- SFK report: in 4% of preferent drug prescriptions, the preferred drug is not deliverable

- Health insurer Menzis considers new way of tendering: when patent ends, insurer chooses maximum reimbursed price

- **Every manufacturer** that is willing to deliver for that price can become a **preferred provider**
Loss aversion (1)
Loss aversion (2)

- people are known to form reference points and evaluate outcomes as gains and losses relative to these reference points.
- Moreover, losses as seen from a reference point often ‘loom larger’ than gains, which is termed loss aversion (Kahneman and Tversky, 1979; Kahneman et al., 1991).

- This may explain why individuals tend to be very risk averse and stick to their status quo, the originator drug.

- More experimental research needed to estimate AMOUNT of loss aversion in physicians and patients
Biosimilars: lower, but sustainable prices?

- In October 2014 biologic medicines accounted for 27% of pharma sales in Europe (IMS Health, 2014)

- Annual growth rate sales biologics: 5.5% (2013)
  - (total market grew 1.9%)

Prominent biosimilars:
- EPO (dialysis, oncology);
- Somatropin (human growth hormone);
- G-CSF (certain cancers);
- Anti-TNF (RA, psoriasis, Crohn’s disease)
- Insuline Glargyline (Diabetes).
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avastin (bevacizumab)</td>
<td>12 Jan 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21 Jan 2022</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 Feb 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 Jul 2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herceptin (trastuzumab)</td>
<td>28 Aug 2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28 Jul 2014**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 Sep 1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18 Jun 2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synagis (palivizumab)</td>
<td>13 Aug 1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9 Aug 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erbitux (cetuximab)</td>
<td>29 Jun 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29 Jun 2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 Feb 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13 Feb 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enbrel (etanercept)</td>
<td>3 Feb 2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 Feb 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Nov 1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humira (adalimumab)</td>
<td>8 Sep 2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16 April 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31 Dec 2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31 Dec 2016</td>
<td></td>
</tr>
<tr>
<td>Remicade (infliximab)</td>
<td>13 Aug 1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Feb 2015</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 Aug 1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MabThera/Rituxan (rituximab)</td>
<td>2 Jun 1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12 Nov 2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26 Nov 1997</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22 Sep 2016</td>
<td></td>
</tr>
<tr>
<td>Avonex/Rebif (interferon beta-1a)</td>
<td>19 Mar 2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 Feb 2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Biosimilar penetration: 3 examples
Average Price differential between originator and biosimilars by country

- France: -18%
- Germany: -20%
- Italy: -20%
- Spain: -30%
- UK: -7%

Source: PRICENTRIC™ - January 2013 data
Methodology: calculation based on Eprex®, Neupogen® and Genotropin® current ex-factory price per unit versus their lowest biosimilar, using 2 different strengths by brand
Biosimilars, how low will they go (1)?

Difficult to predict future price reductions (& uptake)

- For a new biosimilar producer -30% probably possible;
- For original biological producer that recouped R&D costs, maybe 60-70% possible?
- Switching policy (biologicals -> biosimilars)
- Tendering for biosimilars?
- Dilemma for government: very low prices attractive, but good to have a few biosimilars in each class.
Biosimilars, how low will they go (2)?

Rough suggestion:
• Government (preferably EU) offers a lump sum (a la prize fund) for first and second biosimilar in a class to recoup development costs;

• when first and second biosimilar on the market: tendering price with about 60-70% reduction,

• gives about equal playing field for biological and biosimilars
What savings are realistic

• Savings depend on:
• uptake biosimilars and price reduction (as compared to the biological price before patent expiry)
• Uptake: **all new patients** on biosimilars
• Norway: by tendering price reduction 70% feasible

• Rough guess: NL 2019:
  – TNF alfa blockers -> about 10% cost reduction in 1st year (45 mln euro), increasing in subsequent years
• If switching patients on treatment allowed
Discussion

• Biosimilars: huge potential for savings in health care expenditure

• Reluctance explainable?

• Future savings very uncertain (price & uptake)

• Tendering attractive for biosimilars?

• best road to lower but sustainable prices?