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Leveraging biosimilars for better access and lower cost

Per Troein, VP Strategic Partners

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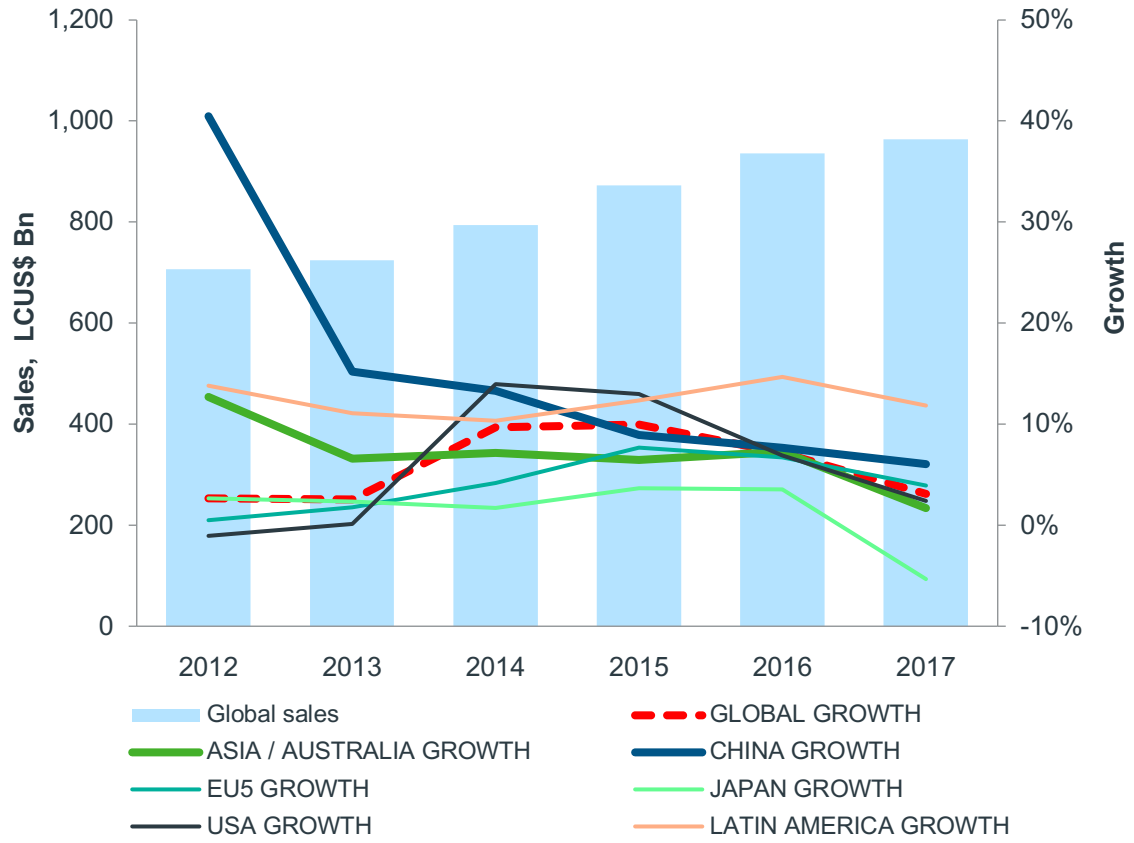
No conflict of interest to declare

Global pharma has grown 6.4% over the last 5 years to $964BN

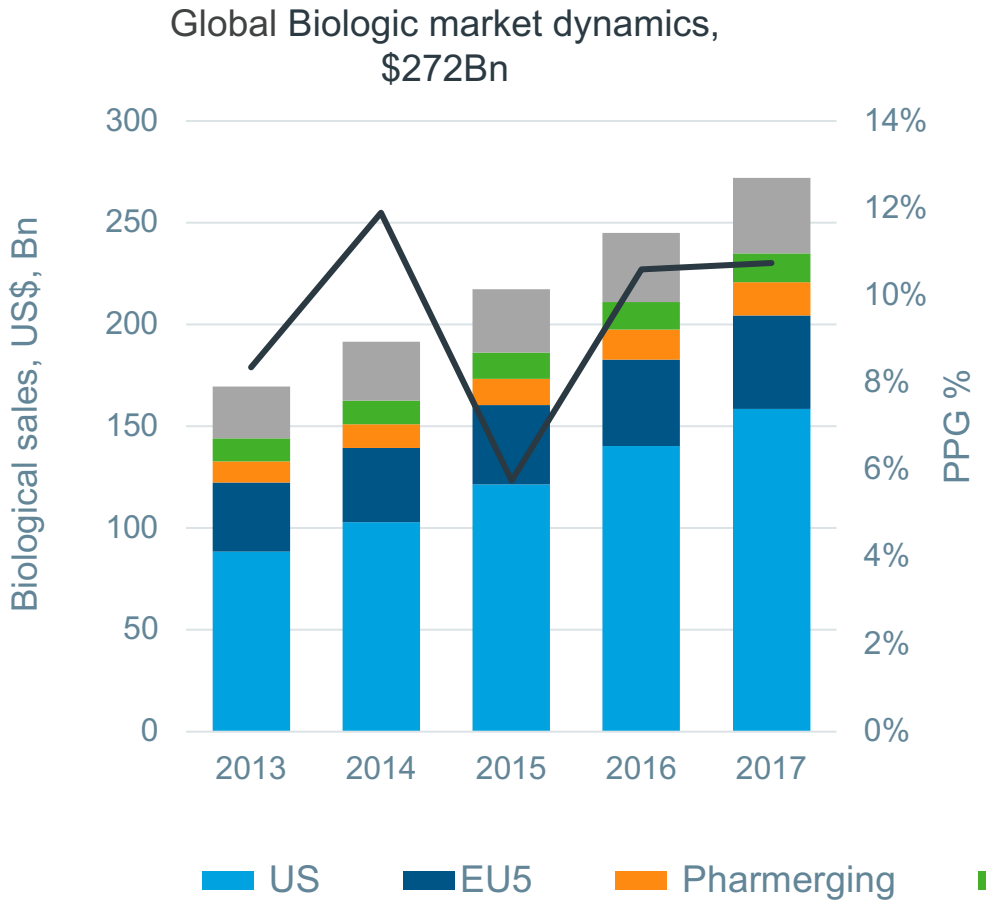
Global sales (2012-17)

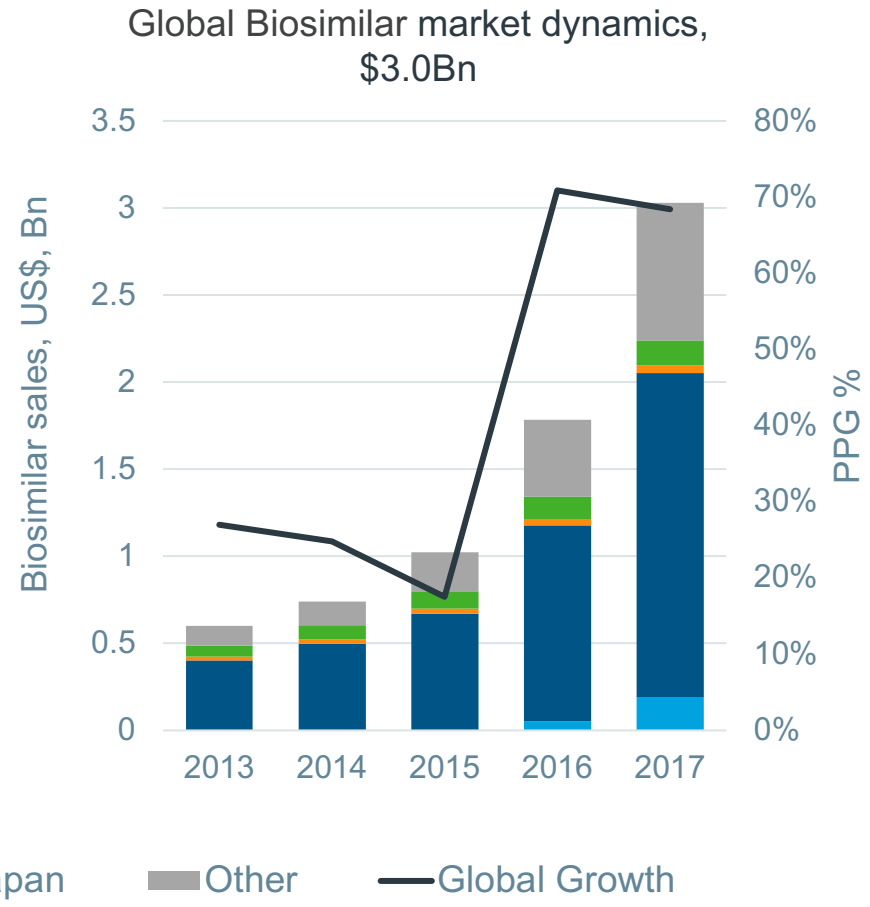


	Global Sales/Growth 2017		
	Sales $LCUS Bn	% Share	% Growth 2012-17
Global Total	964		6.4%
USA	441	45.4%	7.1%
CHINA	82	8.2%	10.2%
JAPAN	73	7.6%	1.1%
GERMANY	42	4.0%	5.1%
FRANCE	32	3.1%	1.4%
ITALY	29	2.8%	5.7%
BRAZIL	24	2.5%	12.1%
UK	22	2.2%	7.1%
SPAIN	11	1.1%	9.1%
CANADA	19	1.9%	5.1%

Source: IQVIA MIDAS, Rx, MAT Q3 2017, audited sales

Biologics account for almost ¼ of Global sales. Biosimilars only account for ~1% of biologics.



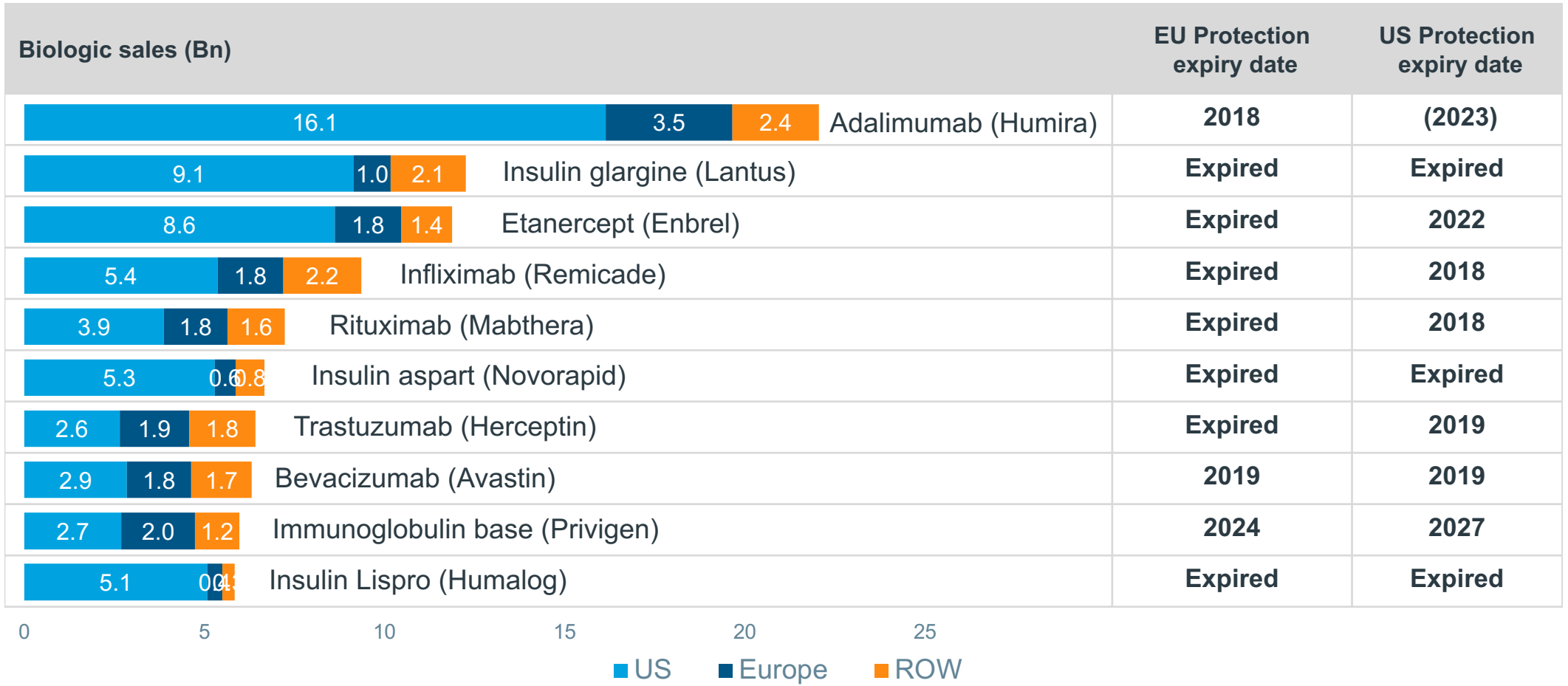


Source: IQVIA MIDAS MAT Q3 2017

Important Biologics have already lost or are about to lose exclusivity

Global Top 10 Biologics Sales

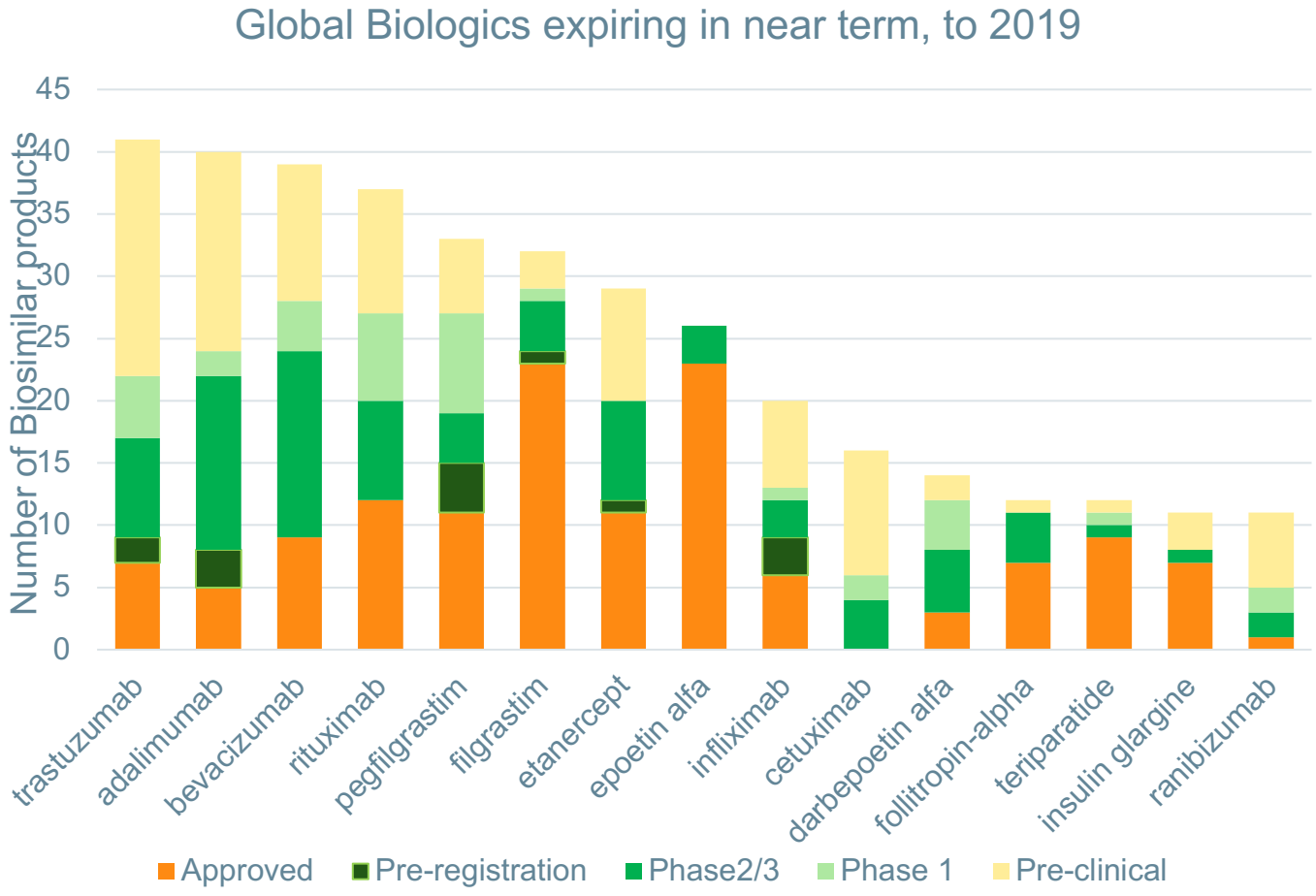
US$ MAT Q3 2017

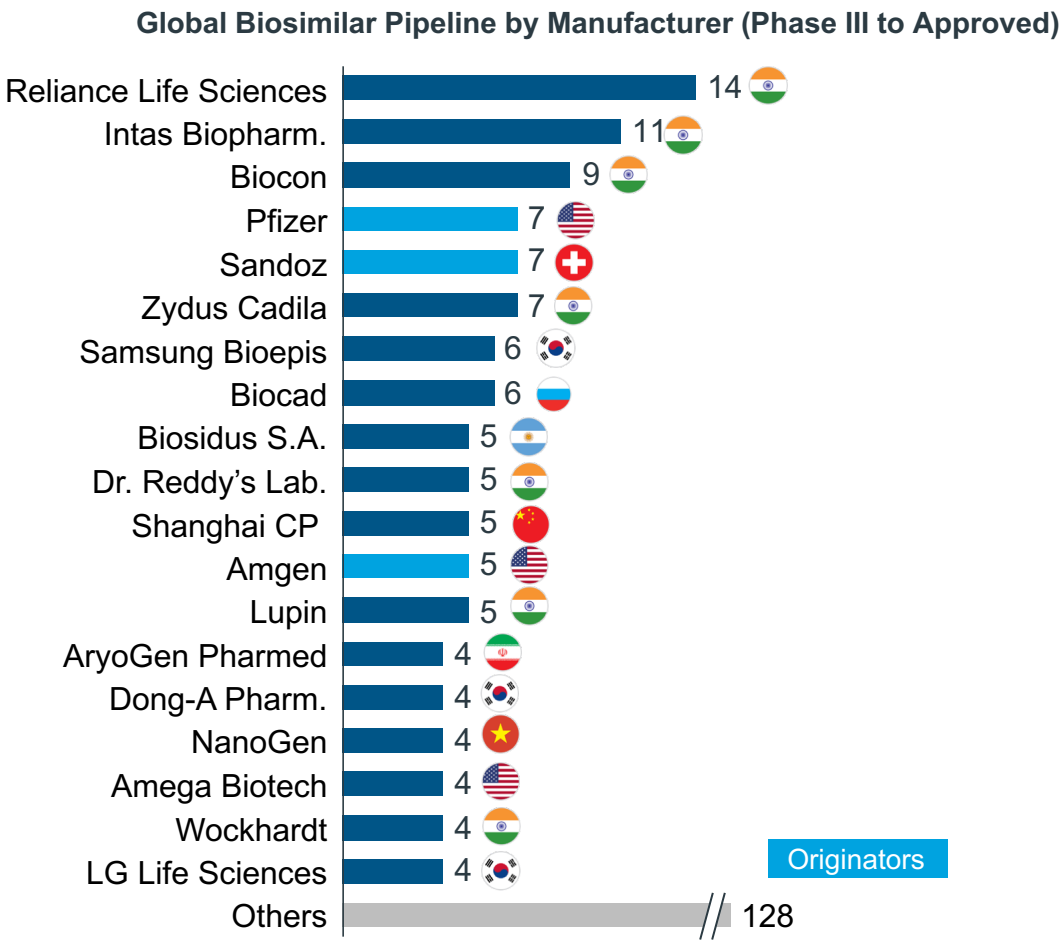


Biologic sales (Bn)	EU Protection expiry date	US Protection expiry date
Adalimumab (Humira)	2018	(2023)
Insulin glargine (Lantus)	Expired	Expired
Etanercept (Enbrel)	Expired	2022
Infliximab (Remicade)	Expired	2018
Rituximab (Mabthera)	Expired	2018
Insulin aspart (Novorapid)	Expired	Expired
Trastuzumab (Herceptin)	Expired	2019
Bevacizumab (Avastin)	2019	2019
Immunoglobulin base (Privigen)	2024	2027
Insulin Lispro (Humalog)	Expired	Expired

Source: IQVIA MIDAS MAT Q3 2017; IQVIA Institute Jan 2018; *Approved by EMA / FDA and on market

Biosimilar development is being actively pursued by a large number of companies for the leading molecules



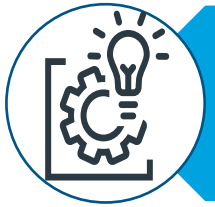


Source: IQVIA MIDAS MAT Q3 2017; IQVIA Institute Jan 2018

The promise – savings and increased access

Price reduction through competition

Increased access driven by a lower price



Savings can finance new innovation

The limitations of use

The EMA's approval of biosimilars states that they are equally safe and effective as the biologic, however the EU does not have a formal position on the interchangeability of biosimilars.

Each member state decides the policy framework guiding the use of biosimilars.

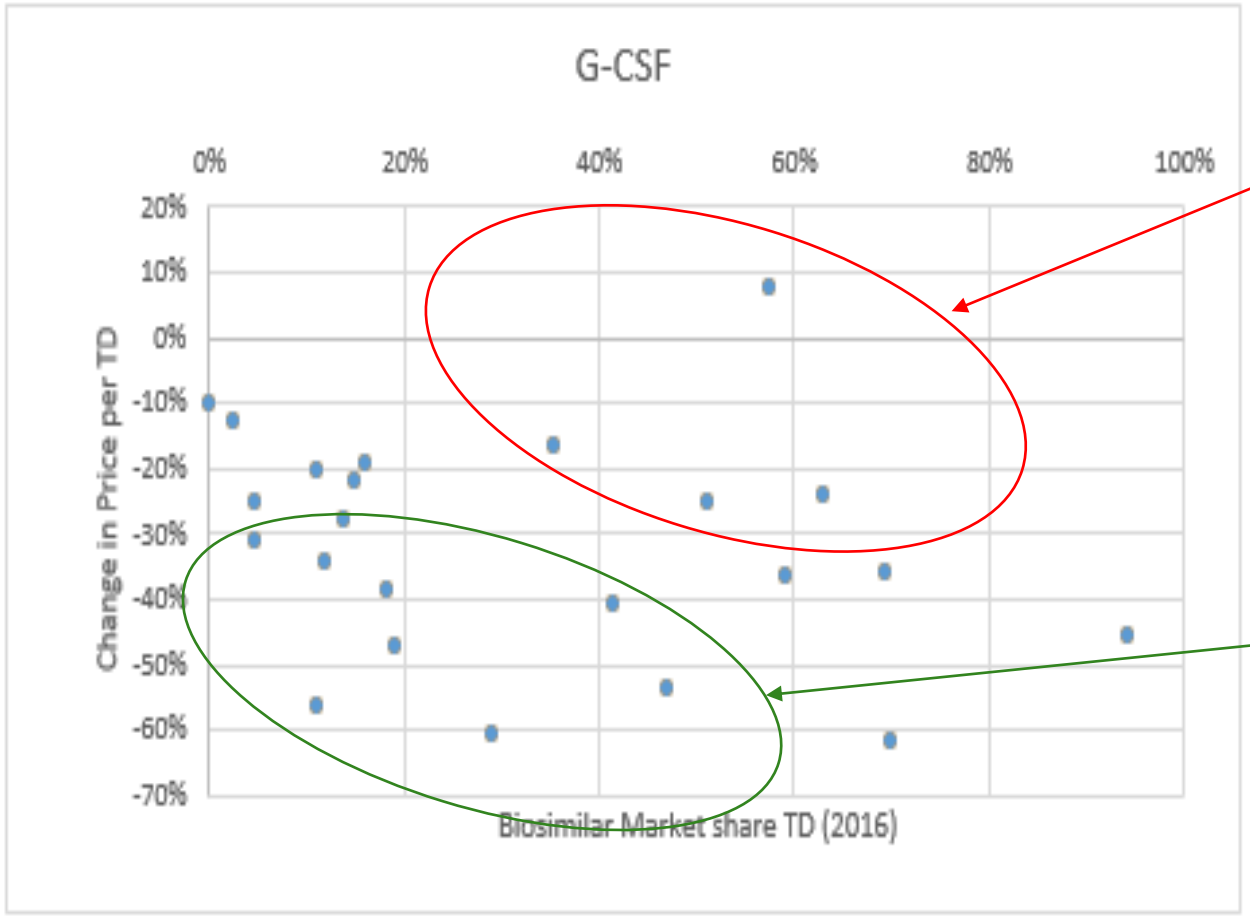
Substitution

- What is it? A pharmacist dispensing either the biologic or biosimilar, without consulting the prescriber.
- What's the policy? In the EU, in general there is no policy supporting pharmacy substitution for biologics.

Switching

- What is it? A prescriber can exchange one product to another, taking into account patient information, baseline testing, monitoring, etc.
- What's the policy? Most EU country authorities support physician-led biosimilar switching. The prescribers decision can be influenced by other stakeholders.

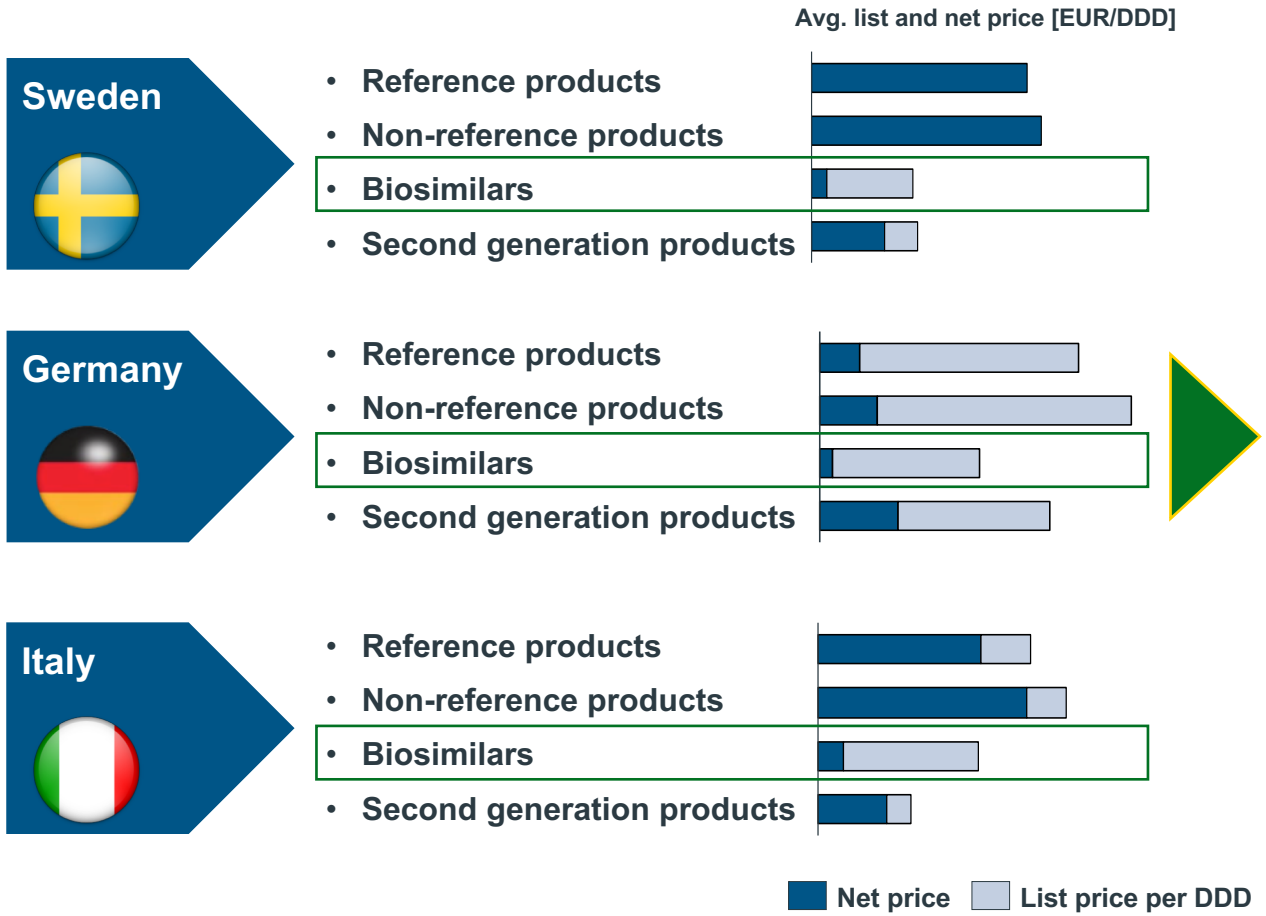
There is not necessarily a correlation between biosimilar uptake and list price



- Moderate saving but high biosimilar share
- High saving but low biosimilar share

Increased competition drives down prices

Case study GCSF in European markets

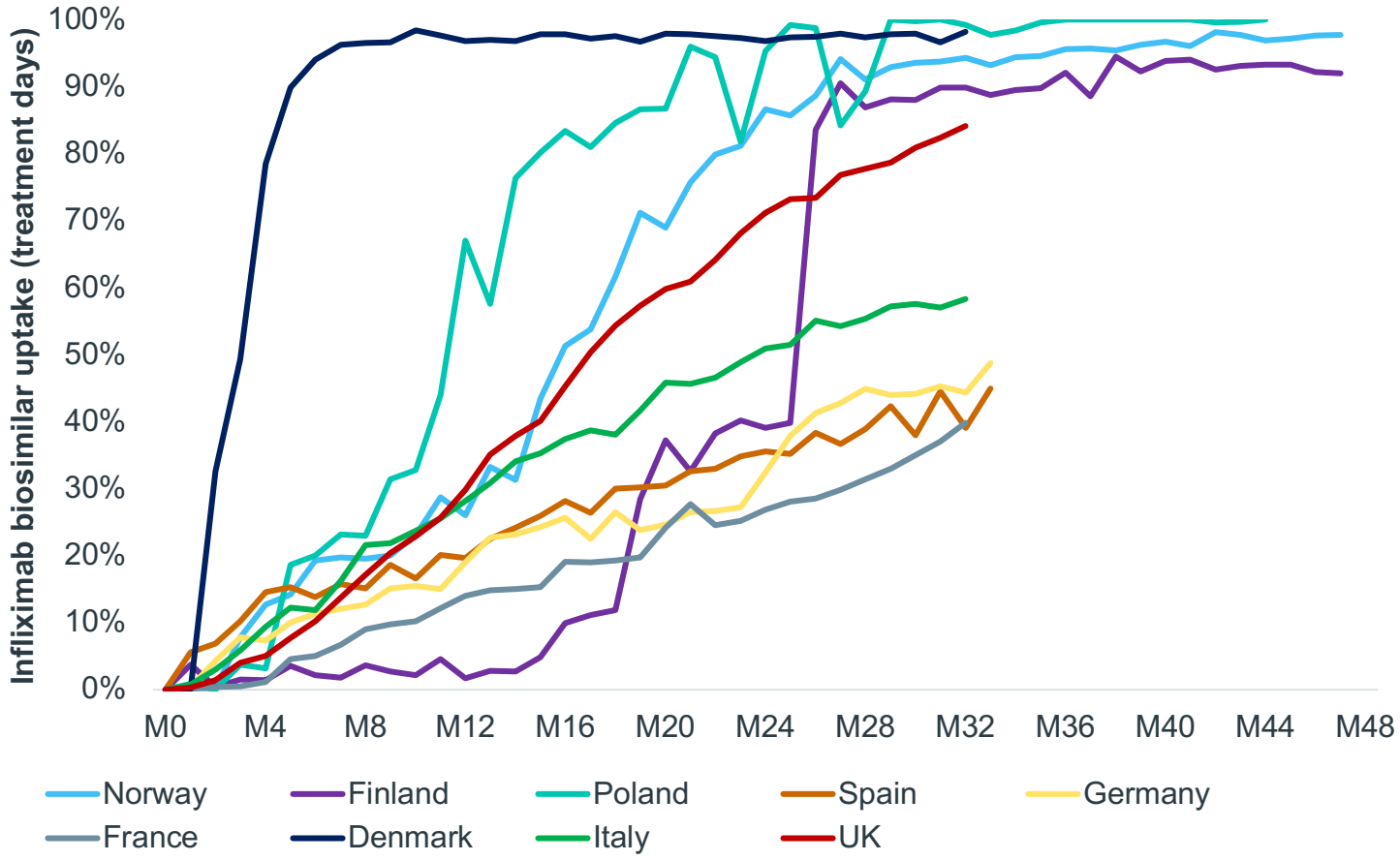


- The originator has focused the defence on switching users to second generation and it is also where the rebates has been given
- The competion has been fierce and Biosimilar discounts can be 80-90%
- The net prices are actually fairly similar
- Markets illustrate that even if very low net prices are available in a market, this doesn't always determine the highest sales market share

Source: IQVIA Consulting: Q1 2017

Infliximab – the new wave of biosimilars

Europe:
Infliximab biosimilar market share in treatment days



- Denmark and Norway are examples of 1 national tender which get high penetration of the biosimilar very quickly
- UK; a market tendering in 4 waves, 6 months apart
- Finland; the result of originators offering a very attractive deal up-front
- Markets with more fragmented buying

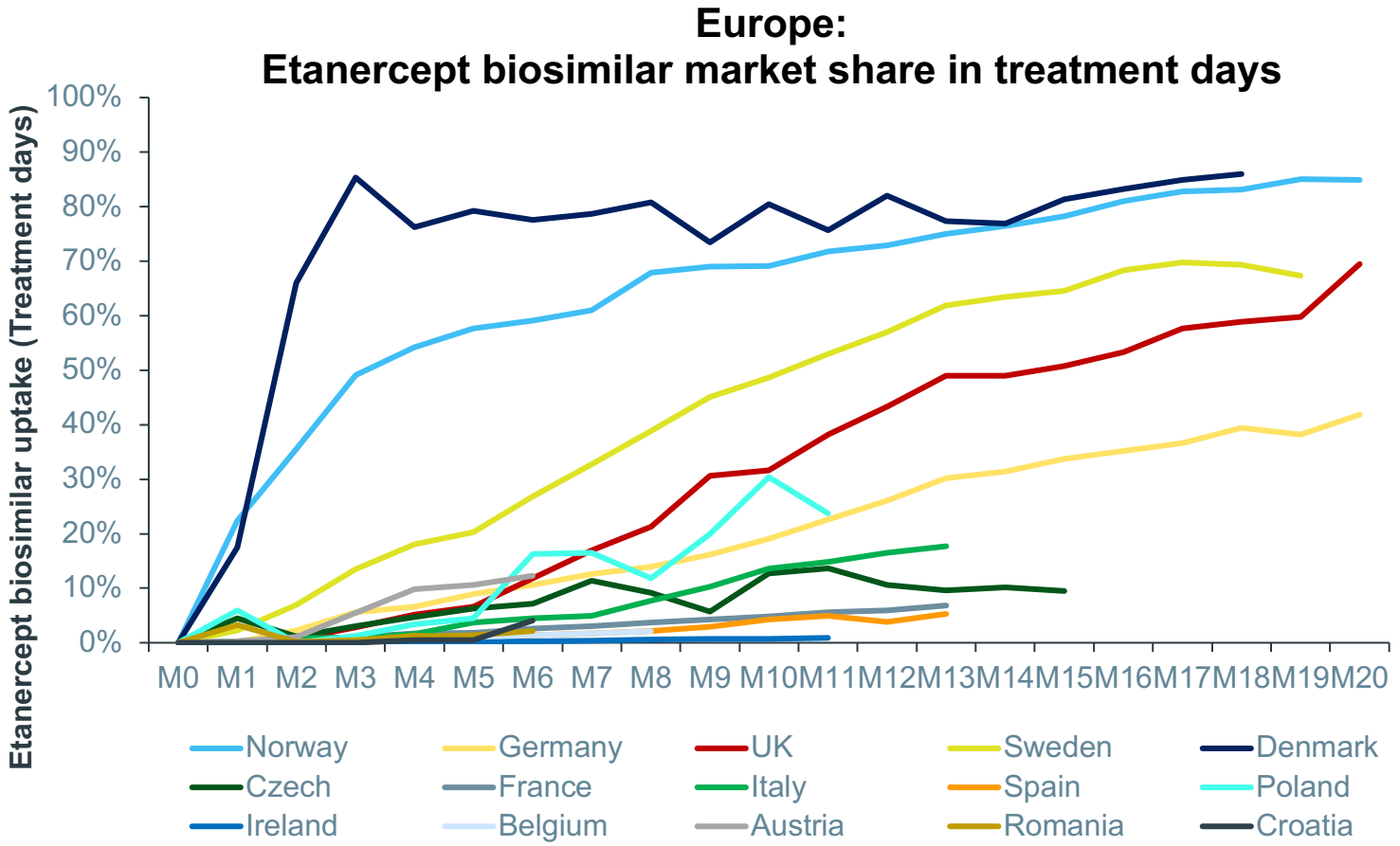
Uptake of hospital products is often influenced by:

- **Reimbursement**. Hospitals receive discounts so there is a financial incentive to switch.

- **Stakeholder influence**. Culture of “Incentives” to the prescriber, having local champions on safety etc.

Notes: Latvia and Bulgaria excluded because only biosimilar manufacturers present in market; Source: IQVIA MIDAS Restricted MTH Oct 2017

Etanercept shows a similar picture

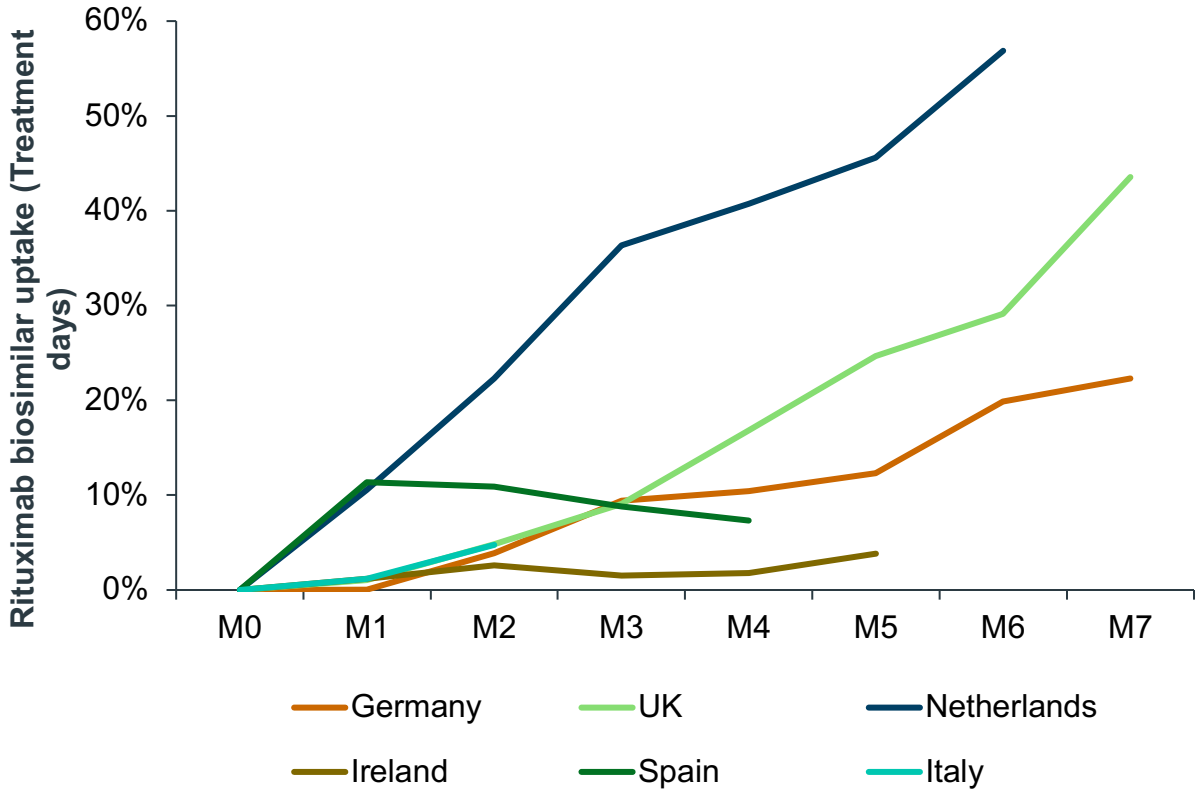


Uptake of Etanercept was influenced by how the drug payment was covered in a country - **general reimbursement vs hospital tender**

Notes: * Arranged in order of launch, FPB (VIAL DRY) and FMB (DRY AMPS.INJ) NFC coded molecules have been excluded; Source: IQVIA MIDAS Restricted MTH Oct 2017

Rituximab has only been launched in a limited number of markets

Europe: Rituximab biosimilar market share in treatment days (IV market only)



- Our assumption is that launching has been supply restricted.
- Some countries have a higher share of the Sub cutaneous version, making them less accessible.
- The most attractive markets get the first launch.

Notes: NFC code inclusions for IV market- FQC (INFUS.VIA/BOT.), FQD (INF DRY BOTTLE); Source: IQVIA MIDAS Restricted MTH Oct 2017

There is mixed uptake by molecule and country

No country has high penetration in all biosimilars

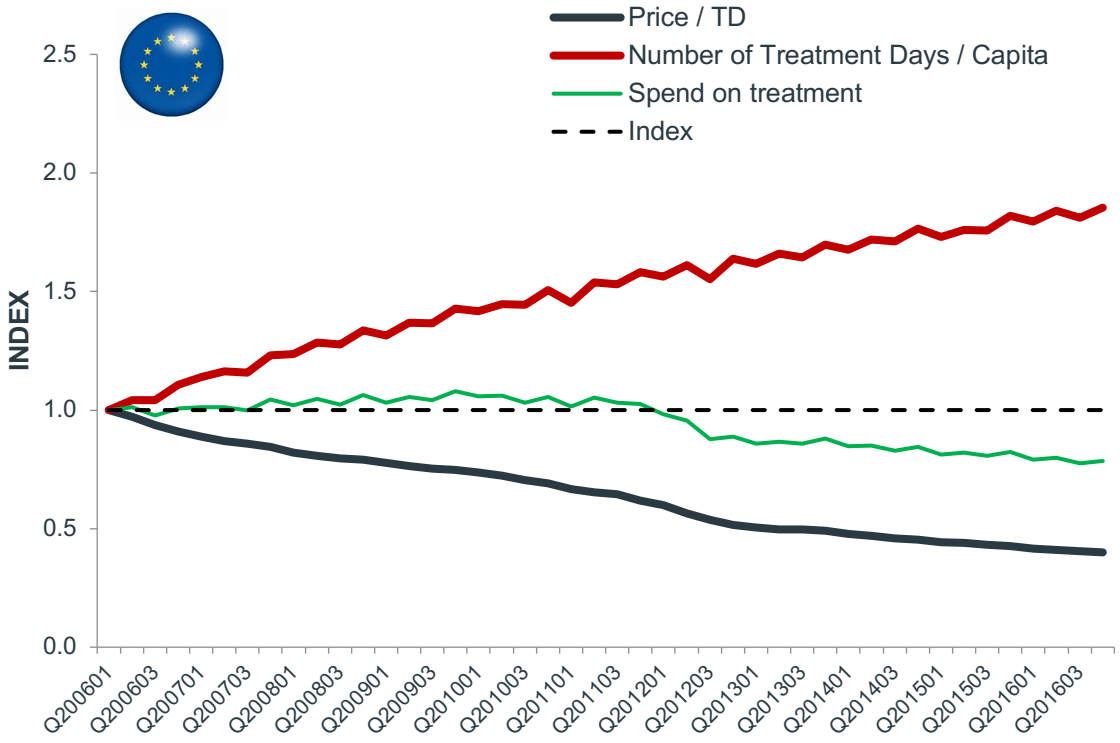
Europe, Japan, US & Canada- Biosimilar share of molecule treatment days

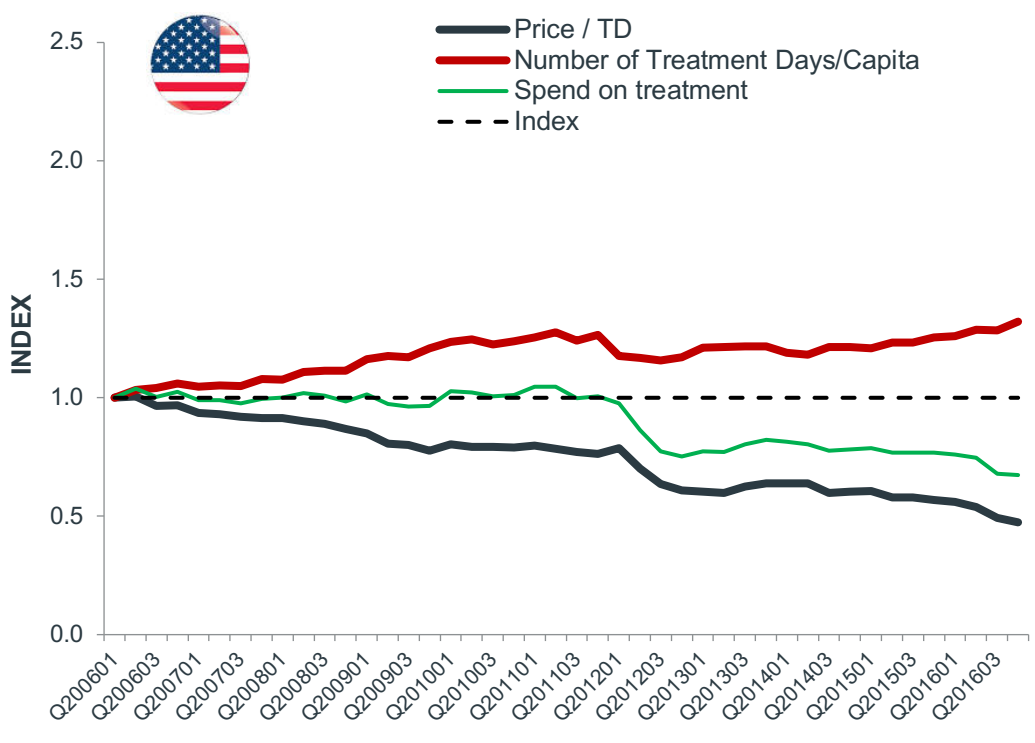
		Biosimilar treatment day share (Oct 2017)			
	Country	**infliximab**	**insulin glargine**	**etanercept**	**rituximab**
EU5	UK	84.1%	5.0%	69.5%	36.5%
EU5	France	39.8%	5.4%	6.8%	-
EU5	Germany	48.7%	7.3%	41.8%	-
EU5	Italy	58.3%	15.6%	17.7%	2.9%*
EU5	Spain	44.9%	8.2%	5.3%	4.0%*
High penetration EU	Finland	92.0%	4.3%	-	-
High penetration EU	Norway	97.7%	3.4%	84.9%	-
High penetration EU	Poland	100.0%	24.6%	23.8%	-
High penetration EU	Denmark	98.1%	5.6%	86.0%	-
	Japan	5.8%	35.6%	-	-
	Canada	3.6%	0.5%	1.6%	-
	US	2.6%	14.6%	-	-

Note: *Uptake represented within 6 months of launch; Source: IQVIA MIDAS Restricted MTH Oct 2017

In traditional areas, price reductions has resulted in volume increases in most markets

Evolution of therapy volume, price of treatment and overall treatment cost in 7 therapy areas,
Rx retail market from Q1 2006-Q4 2016
Normalized to population growth





Selected therapy areas: Angiotensin II antagonists, anti-depressants, anti-epileptics, anti-psychotics, anti-ulcerants, cholesterol regulators and oral anti-diabetics.

Source: IQVIA MIDAS QTR Dec 2016; Rx, retail, oral molecules ONLY, combinations excluded

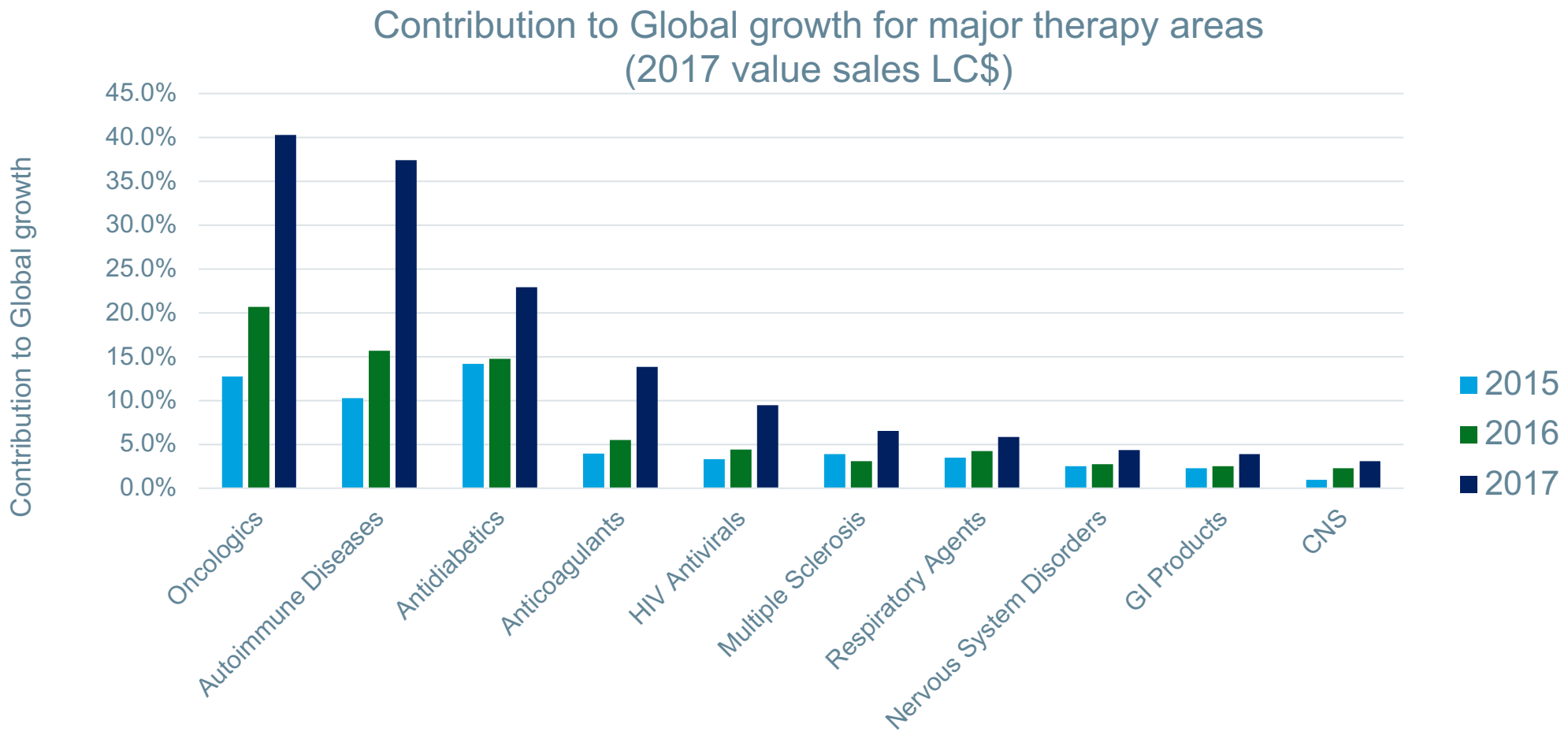
Volume growth impact in Europe

- The first wave:
  - HGH - Limited impact of lower price exempt Eastern Europe
  - Epo – Mixed development – some countries has reduced based on EMA guidelines
  - GCSF – strong development in most markets

- The later wave
  - Fertility, insulin, LMWH – no impact (low uptake)
  - Anti TNF – accelerating growth for molecule and slowly for class

Each product has a unique set of circumstances, but overall we will see similar pattern as for small molecules

Savings can finance new innovation



Source: IQVIA MIDAS Restricted MAT Q3 2017, Rx only

The risks

The society aspects

Too few companies ready to compete in tenders

- Tenders, to give good price reductions, require minimum of 3-4 competitors.
- If there are only few opportunities, with a long time lag in-between, the likelihood of having several bidders is lower.

Shortages due to rapid switching or production problems

- Individual companies can have technical supply problems – if one winner takes all, the market is more exposed.
- The rapid switch from one producer to another can cause supply risks.
- The lowest cost producer may have had to make compromises, which increase risk

Long term sustainability

- Longer term, if the experience is that developing biosimilars doesn't give a return on investment, new development might slow down, or stop.

What are some tendering model alternatives?

Denmark

- Tendering entire market as soon as the competitive situation changes
- Fast switching of all patient

England

- Dividing tendering in 4 groups
- Tender each group for 2 years, the start date is staggered with 6 month between the groups

- Models supporting use of more than one product preferable
- Balance to be struck between sustainability and competition
- Price is important, but there are other factors to consider:
  - Must also demonstrate low risk for shortages
  - Must also account for value-add products / services

The hospital pharmacist role can vary

- Be the local scientific support for the use of biosimilars
- Be the champion for leveraging biosimilars in the institution/ support the champion
- Support purchasing collaboration/ tender best ratio price/other factors
- Monitor implementation/ pro-actively address issues as the arise

Take away

The experience base of use of biosimilars and switching are now very broad – it has proven to be safe

Versus generics – achieving the benefits is a team work between several functions; hospital pharmacy, purchasing, prescriber, payer

Price will not be all – who will be reliable suppliers?

Biosimilars are just now one of the largest “opportunities”

IMS Health & Quintiles are now IQVIA™

Leveraging biosimilars for better access and lower cost

Per Troein, VP Strategic Partners

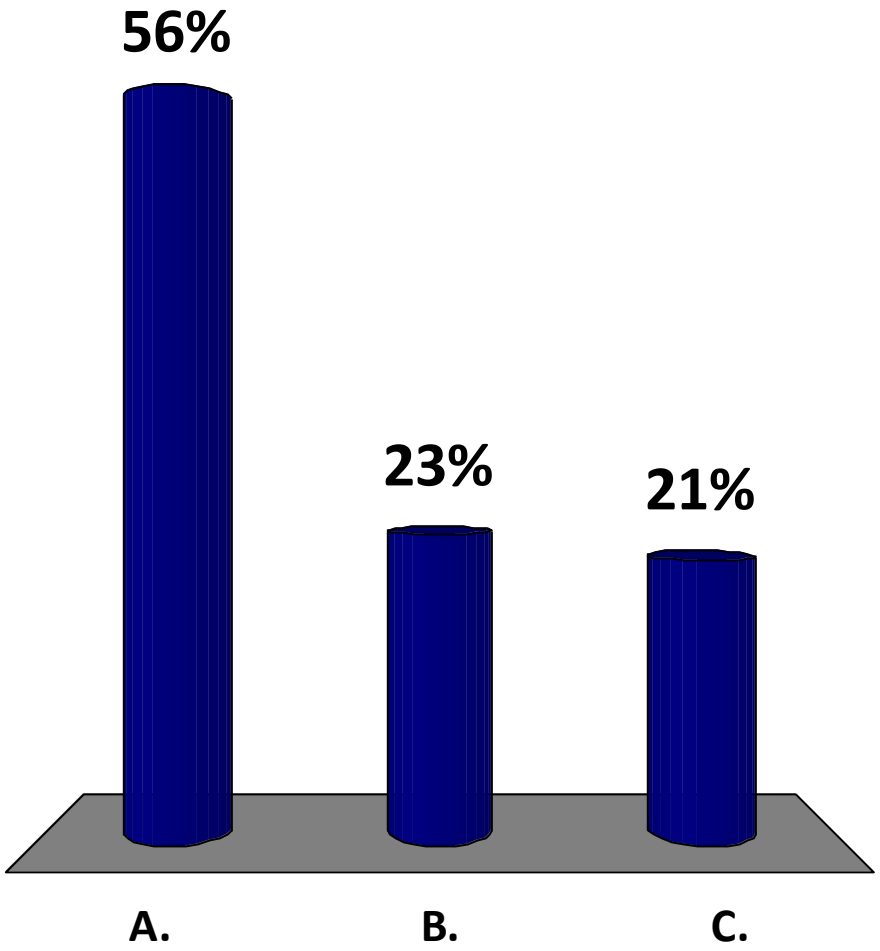
March, 2018

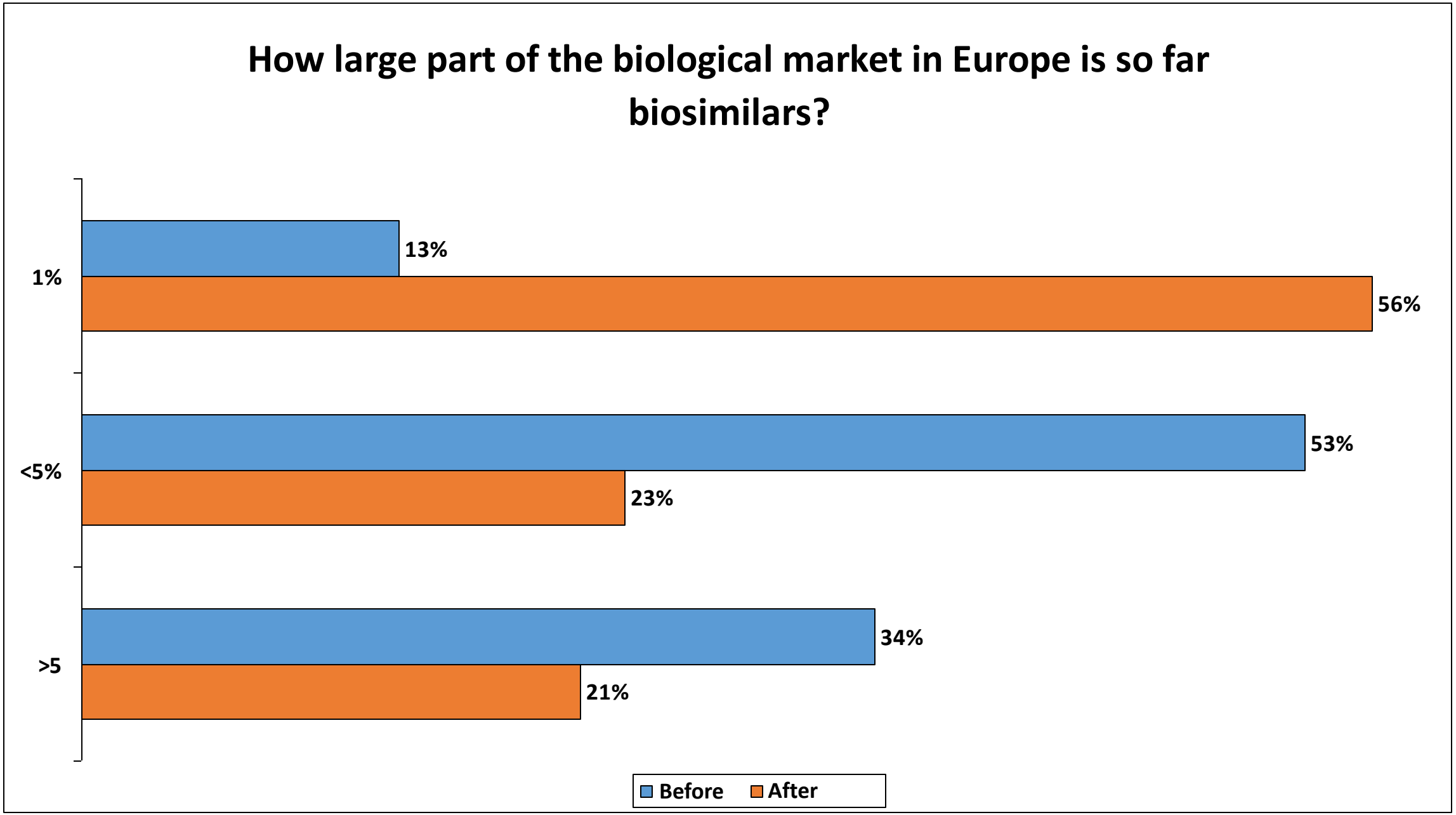
How large part of the biological market in Europe is so far biosimilars?

A. 1%

✓ B. <5%

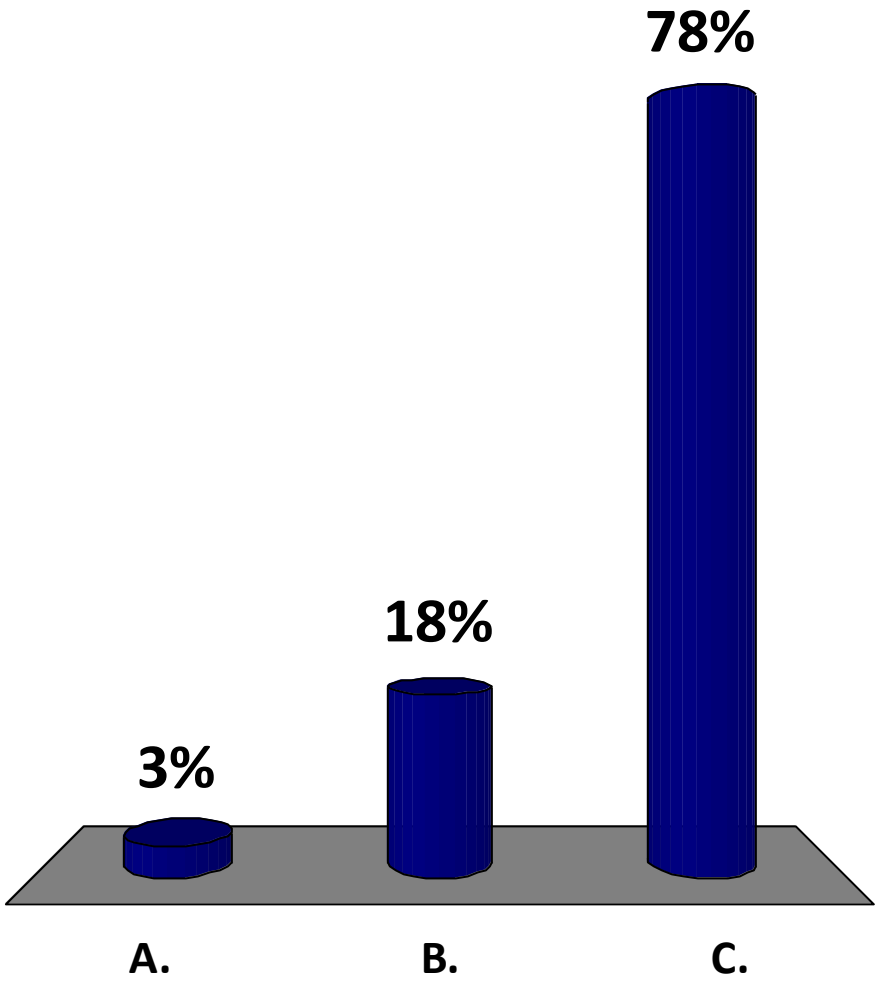
C. >5




How large part of the biological market in Europe is so far biosimilars?
1%
13%
56%
<5%
53%
23%
>5
34%
21%
Before
After

In 2018 we expect one significant new product with biosimilar competition

A. Enbrel
B. Mabthera
✓ C. Humira



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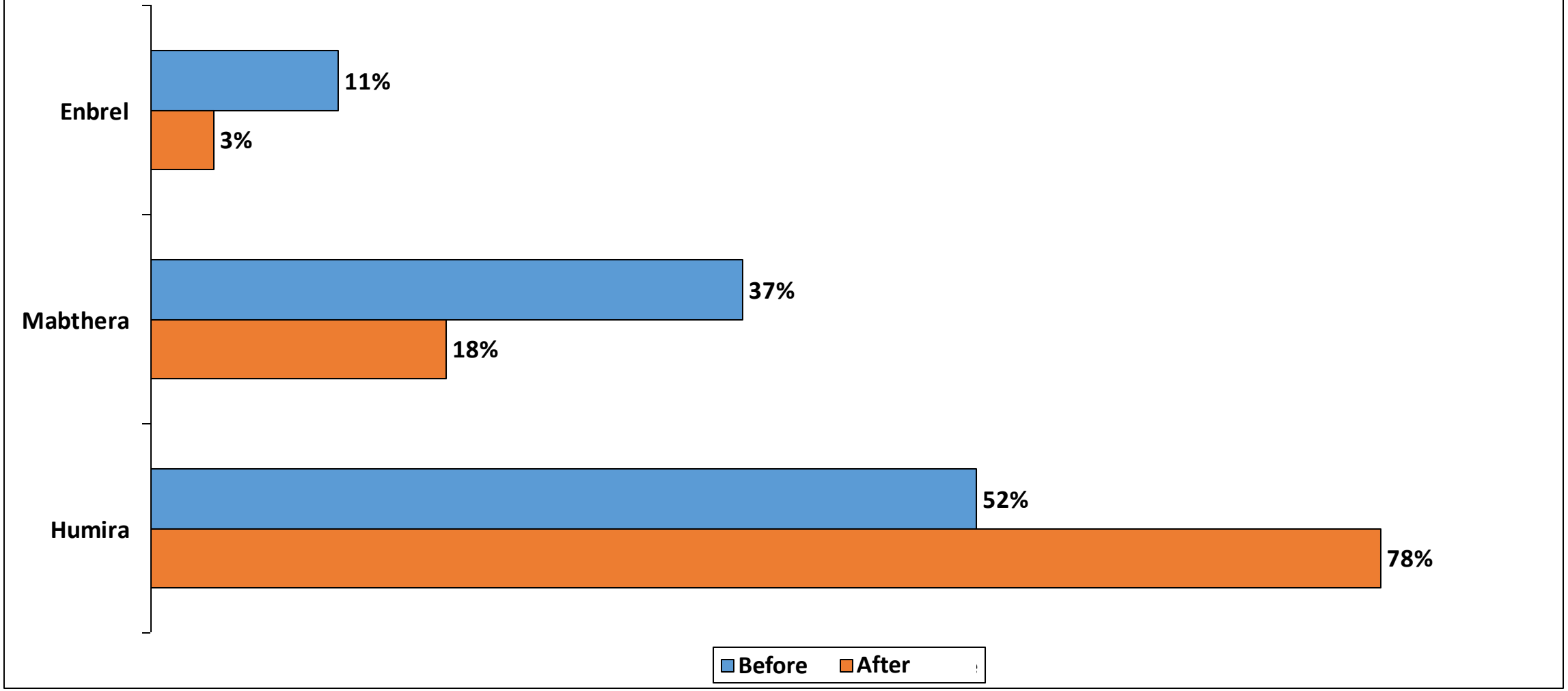
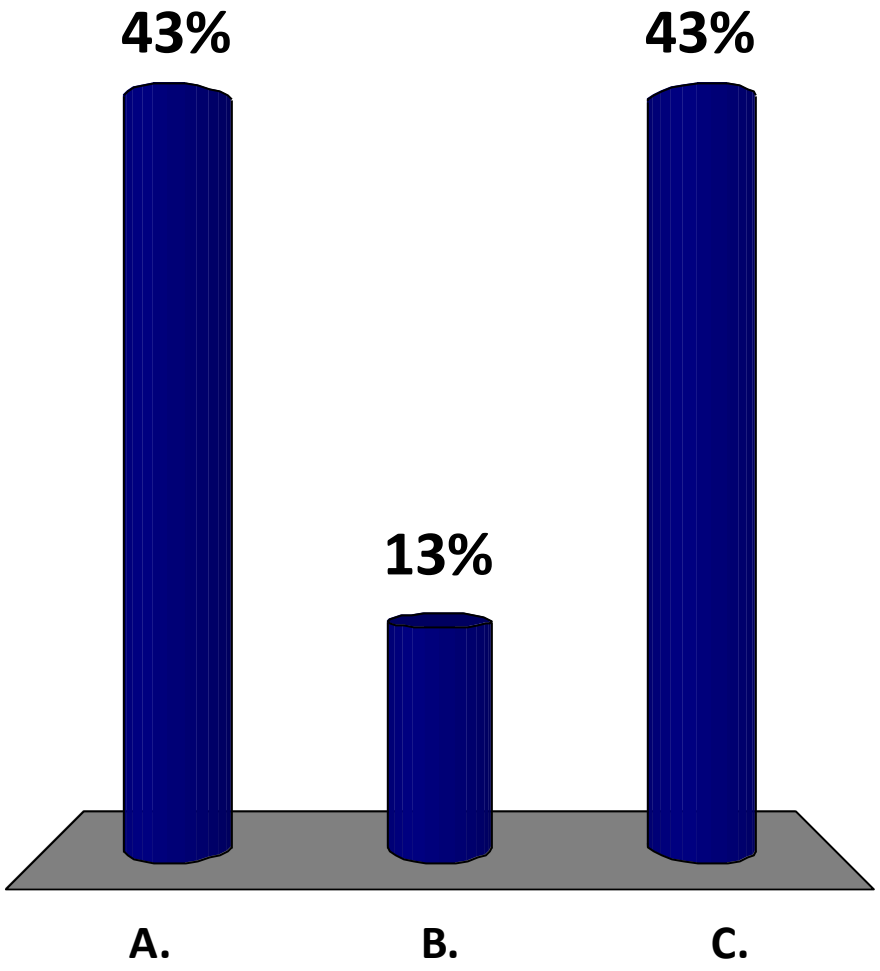


What is the practical implication of “switching”

- ✓ A. The final decision is made by the prescriber
- ✓ B. A drug committee can only do a recommendation
- ✓ C. Important to track which product is used



What is the practical implication of “switching”