Trends in the Global Pharma-Market and its Impact on the Supply Chain

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Top line growth forecast at 4-7% CAGR to 2020 (in constant US$)

Pharmerging growth declines to single digits

Global Sales and Market Growth

Developed Markets CAGR 2016-2020	
US	6%-9%
Japan	(-1)%-2%
Germany	3%-6%
UK*	4%-7%
Italy	2%-5%
France	(-2)%-1%
Spain	2%-5%
Canada	3%-6%
Developed	**4%-7%**

Pharmerging Markets CAGR 2016-20 LCUS$	
China	5%-8%
Brazil	7%-10%
India	10%-13%
Russia	6%-9%
Turkey	12%-15%
Mexico	2%-5%
Pharmerging LCUS$	**6%-9%**
Pharmerging US$	**4%-7%**

At par with region CAGR

Lower than region CAGR

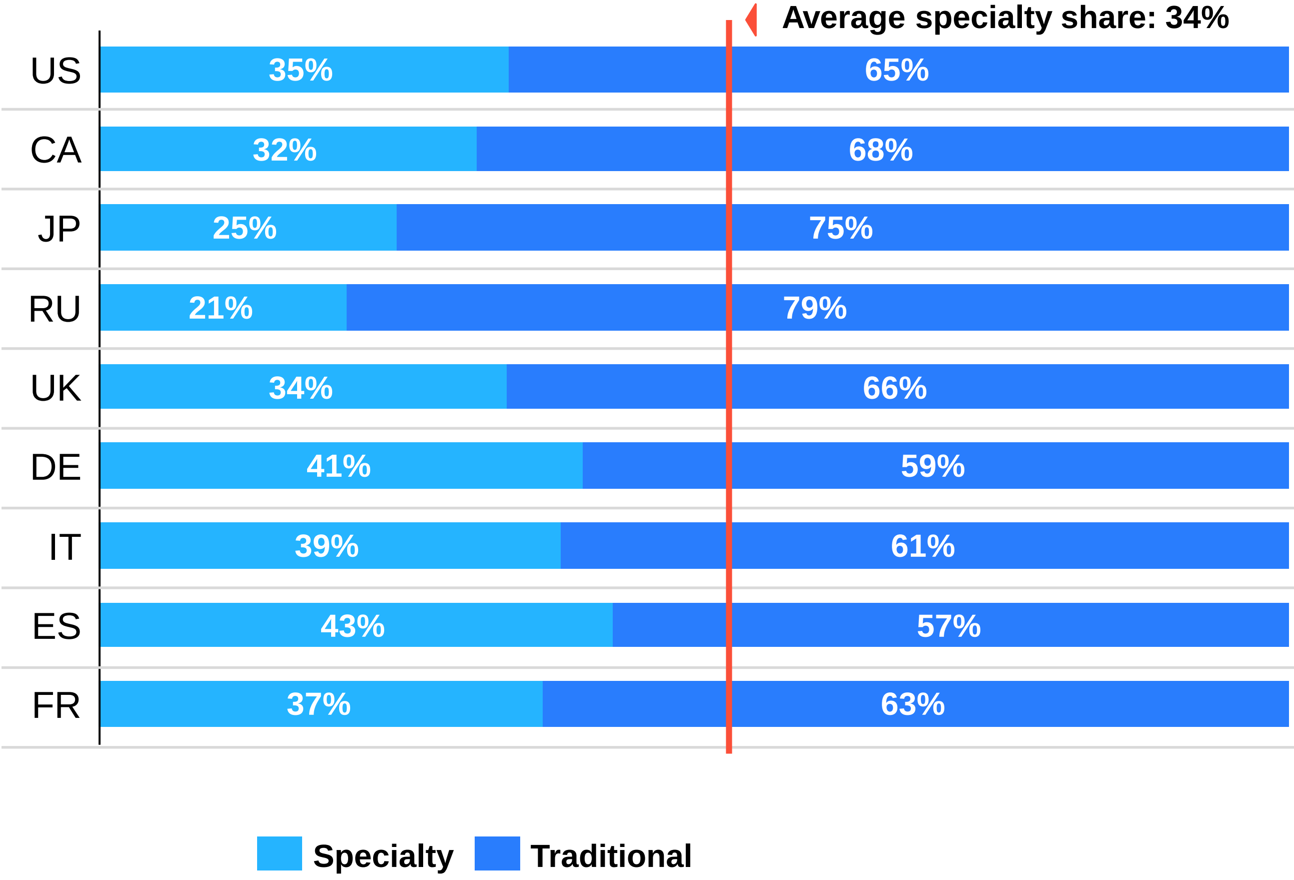
Higher than region CAGR

*Subject to clawback

Source: IMS Market Prognosis March 2016; at ex-manufacturer price levels, not including rebates and discounts. Contains Audited + Unaudited data; Sept 2015 forecasts used for all countries outside of top 52

Over time growth in specialty markets out-performed traditional markets in terms of value…

2015 value share specialty vs. traditional in TOP 5 EU + focus countries



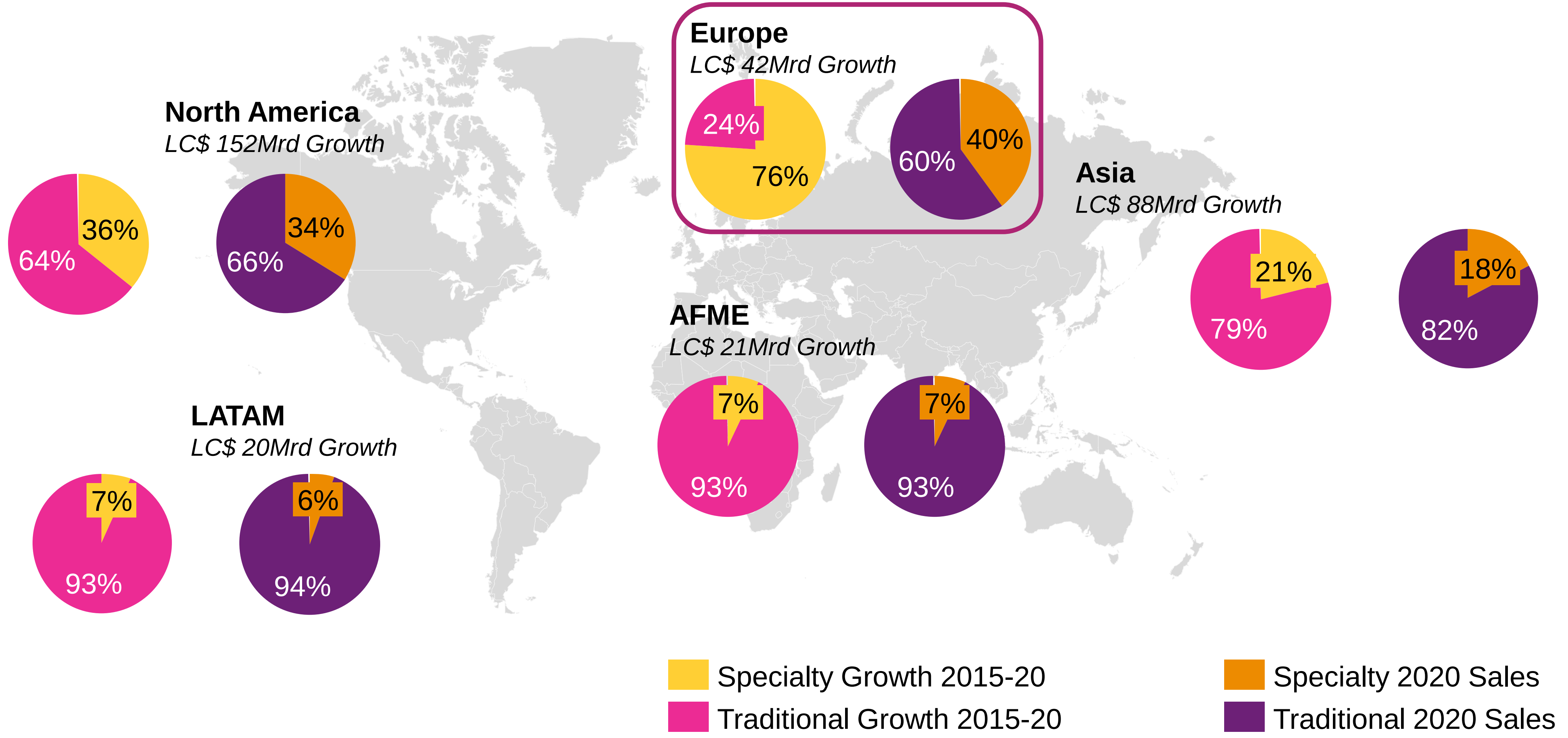
5 year CAGR ('10-'15)

	Specialty	Traditional
US	15%	2%
CA	13%	-2%
JP	10%	2%
RU	11%	11%
UK	14%	2%
DE	11%	0%
IT	11%	1%
ES	10%	-2%
FR	5%	-3%

Source: IMS Health, MIDAS, MAT Q4 2015

…. and are expected to remain the main growth driver in Europe till 2020

Share of Absolute Growth 2015-2020 and 2020 Sales by Region



Source: IMS Health Market Prognosis September 2015; at ex-manufacturer price levels, not including rebates and discounts.
Contains Audited + Unaudited data; IHII analysis

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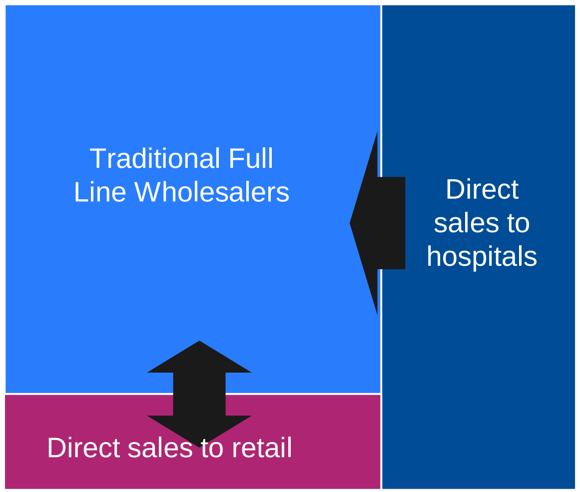
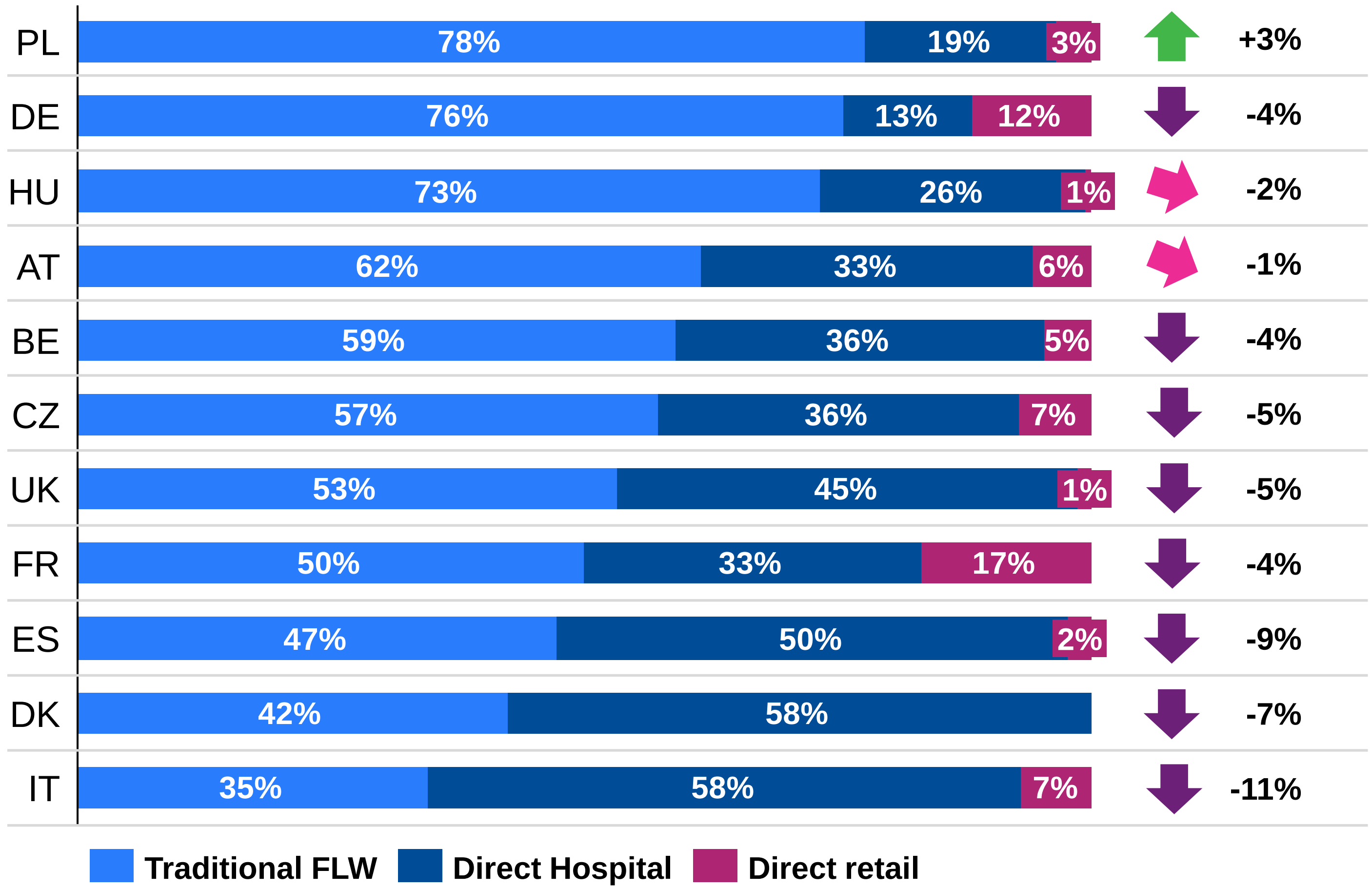
At the same time, wholesalers loosing ground amongst European countries



Q4/2015 value share by channel in TOP 5 EU + focus countries

Delta WHS 2015 vs 2011



Source: IMS Health, total market, shares are based on value, Q4 2015, direct shares from local affiliates

Specialty products require a special handling leading to a rise in new distribution models

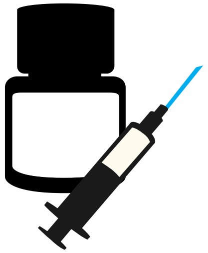
Distribution

- Many specialty products need refrigeration or freezing
- Often requires maintaining cold chain distribution during the whole delivery process

Preparation

- Specialty products can require compounding of individual ingredients in an exact strength and dosage form tailored to the patient's need

Administration



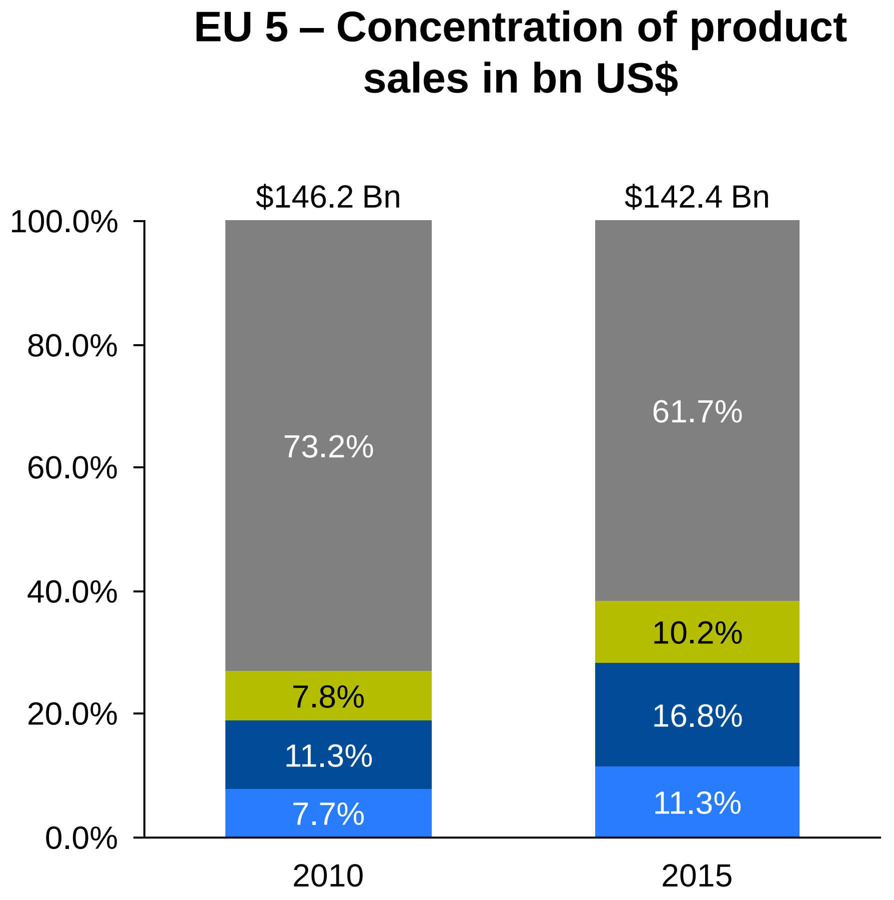
- Many specialty products are self-administered injectable
- Requires patient training to administer
- Support to achieve adherence needed

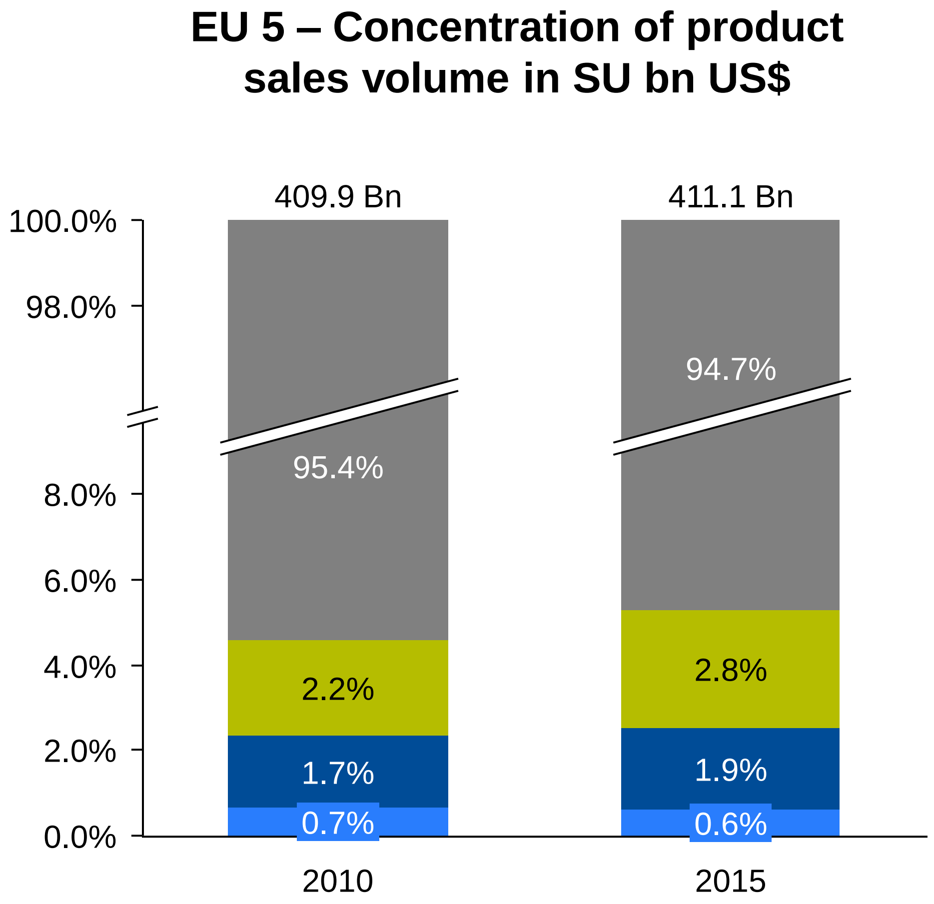
Rise of Homecare and specialty pharmacies

- "Total service" to patient
- Aseptic services (e.g. oncology)
- Compliance programs/ patient support
- Elimination of indirect payer costs

Source: ASHP Specialty Pharmacy Resource Guide, available at: http://www.ashp.org/menu/PracticePolicy/ResourceCenters/Specialty-Pharmacy-Resource

Typically specialty products are high price products with simultaneously low volumes





Source: IMS Health, MIDAS MAT Q4 2015, US$ and SU

They have a large impact on WHS margins – manufacturers try to keep those by direct sales

		HUMIRA		ENBREL		GLIVEC	
	Mark up	Price per pack €	WHS mark up	Price per pack €	WHS mark up	Price per pack €	WHS mark up
AUSTRIA	€23.74 fixed mark-up	975	**23.7**	858	**23.7**	2,705	**23.7**
BELGIUM	€2.30 + 0.9%	951	**10.9**	918	**10.6**	2,284	**22.9**
FRANCE	6.68% for first €450 (with a minimum mark-up of 0.30€) 0% above €450	829	**30.1**	732	**30.1**	1,737	**30.1**
GERMANY	Fixed fee of €0.70 plus 3.15% mark-up to a limit of €37.80 on the percentage mark-up element.	3,631	**38.5**	3,164	**38.5**	5,331	**38.5**
SPAIN	€7.54 where ex-MNF price excl sales tax is >€91.63	N/A		845	**7.54**	1.184	**7.54**

Why direct sales?

- Ability to control discounting
- Ability to receive information about the dispenser
- Eliminate wholesaler exporting
- Manage distribution costs

Source: IMS Health

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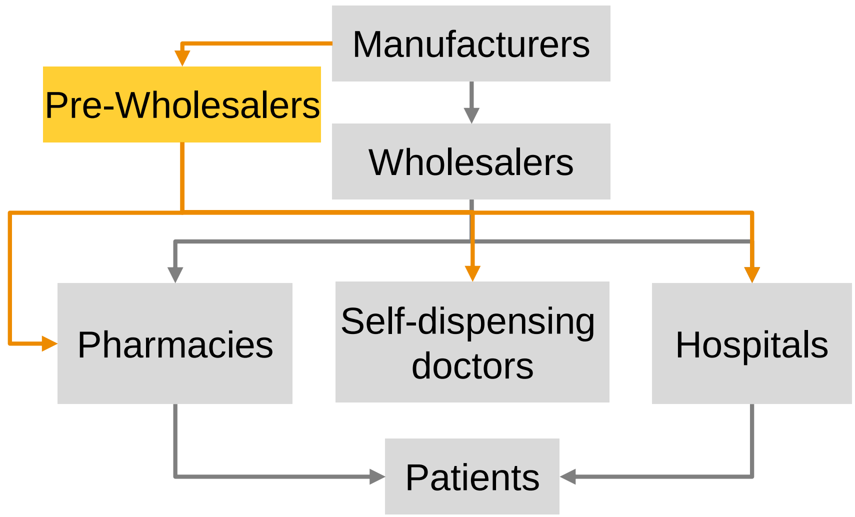
Wholesalers offer pre-wholesaling carrying out warehousing & logistic for manufacturers

Classic distribution system for pharmaceuticals with pre-wholesalers



Characteristics

- Manufacturers outsource the warehousing and logistic to pharmacies, self-dispensing doctors and hospitals to so called pre-wholesalers
- Wholesalers often offer pre-wholesaling services

Source: IMS Health

Parallel trade is a huge threat for specialty products due to different price levels in the EU

Import markets context

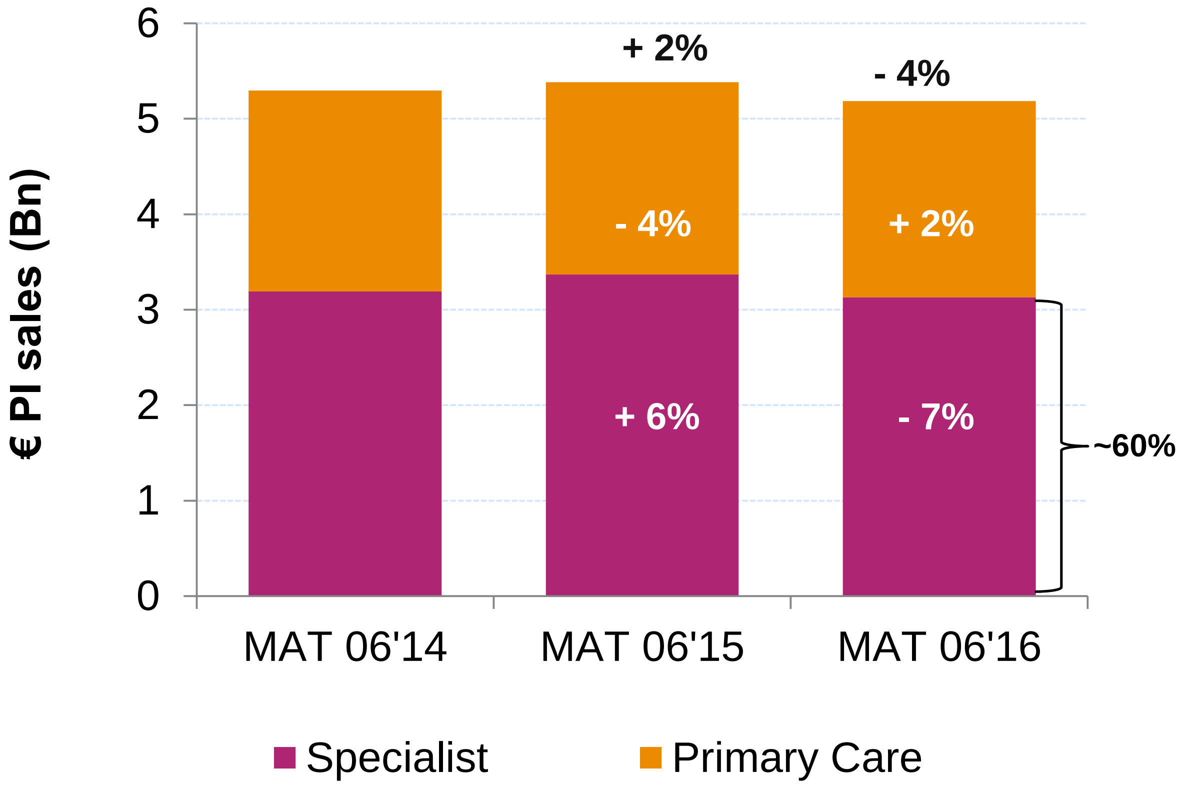
Size — **€5.2bn** (EU 8)

Growth — **- 4%** PI
+ 5% Non-PI growth
+ 4% Total market growth

Share — **9%** PI
(8 main import markets only)

3% across EU28

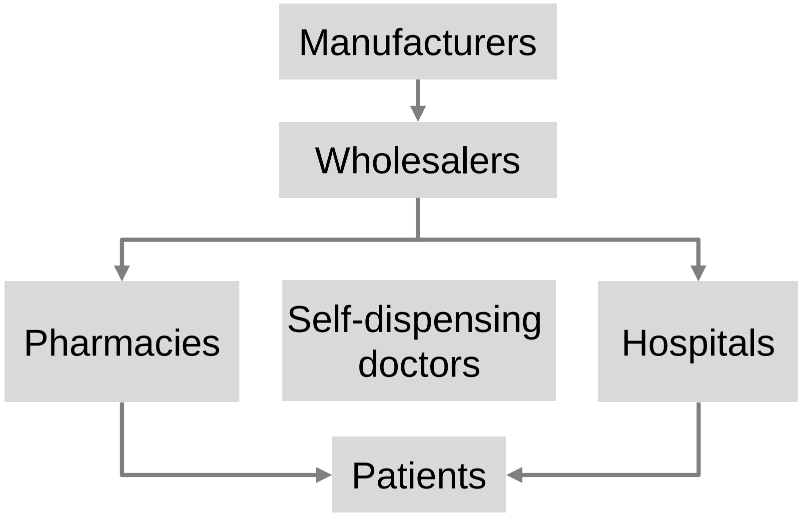
European annual parallel trade



Source: IMS MIDAS and internal database, import markets: DEU, GBR, NLD, Nordics and IRL, All sales at ex-MNF level.

The traditional dispensing and distribution model is changing…

Classic distribution system for pharmaceuticals



Trends:

Manufacturers
- Aim to control the supply chain (reduce distribution costs – increase margin, control exports)

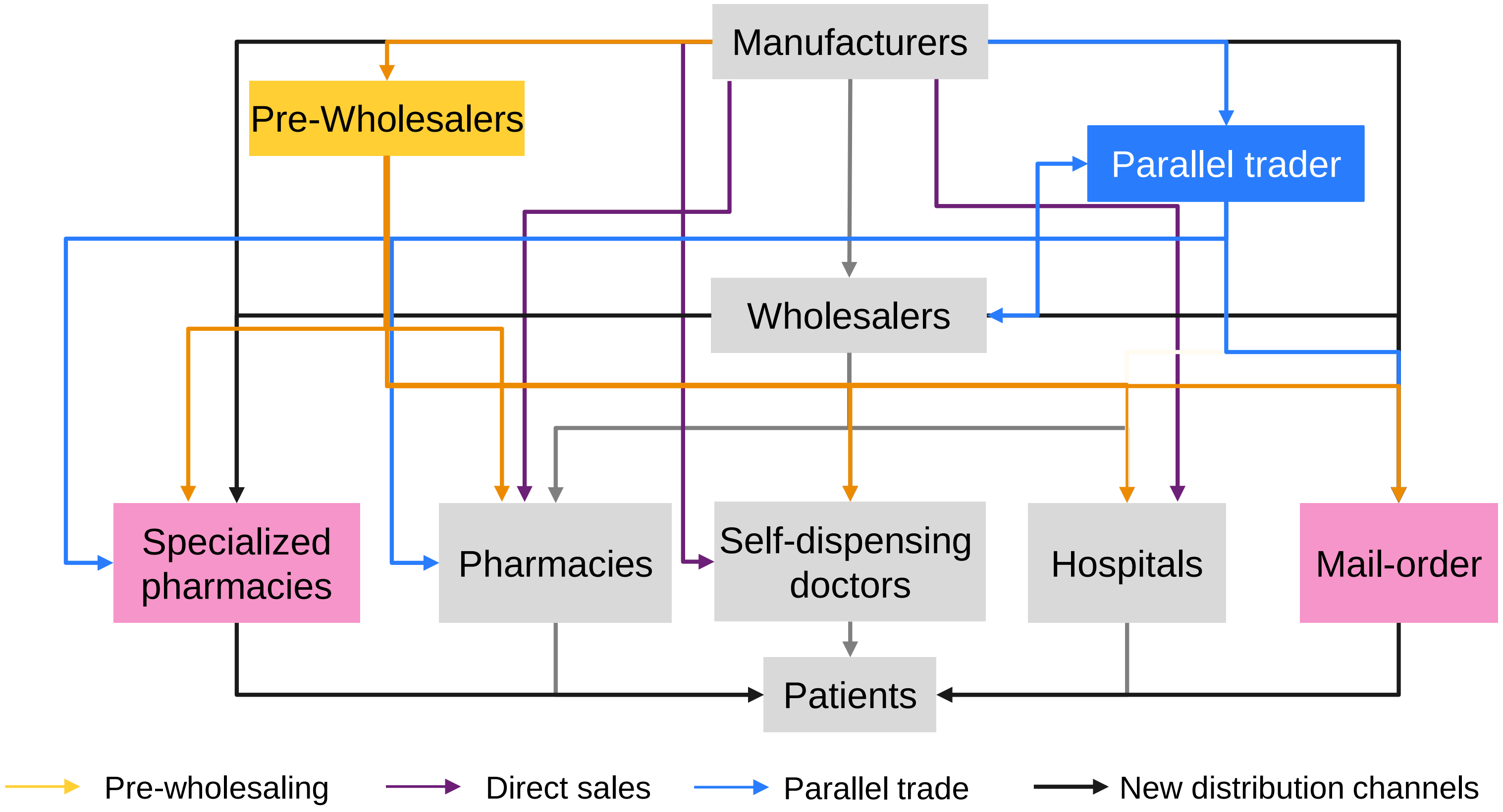
Pharmacies
- Discounts driven (mainly generics and PI)
- Trend towards dispensing fees

Wholesalers
- Parallel Export important in several markets
- Offer pre-wholesaling to participate in direct sales business

New market players
- Homecare and Specialty pharmacies

Source: IMS Health

… to a highly complex environment



Source: IMS Health

Counterfeits are a high threat leading to another big challenge for distributing pharmaceuticals

Inside the fake Viagra factory

Which one is the counterfeit?

Source: The Telegraph “Inside the fake Viagra factory” (23 Aug 2005)

Politicians take actions and continue efforts to highly control the pharmaceutical supply chain

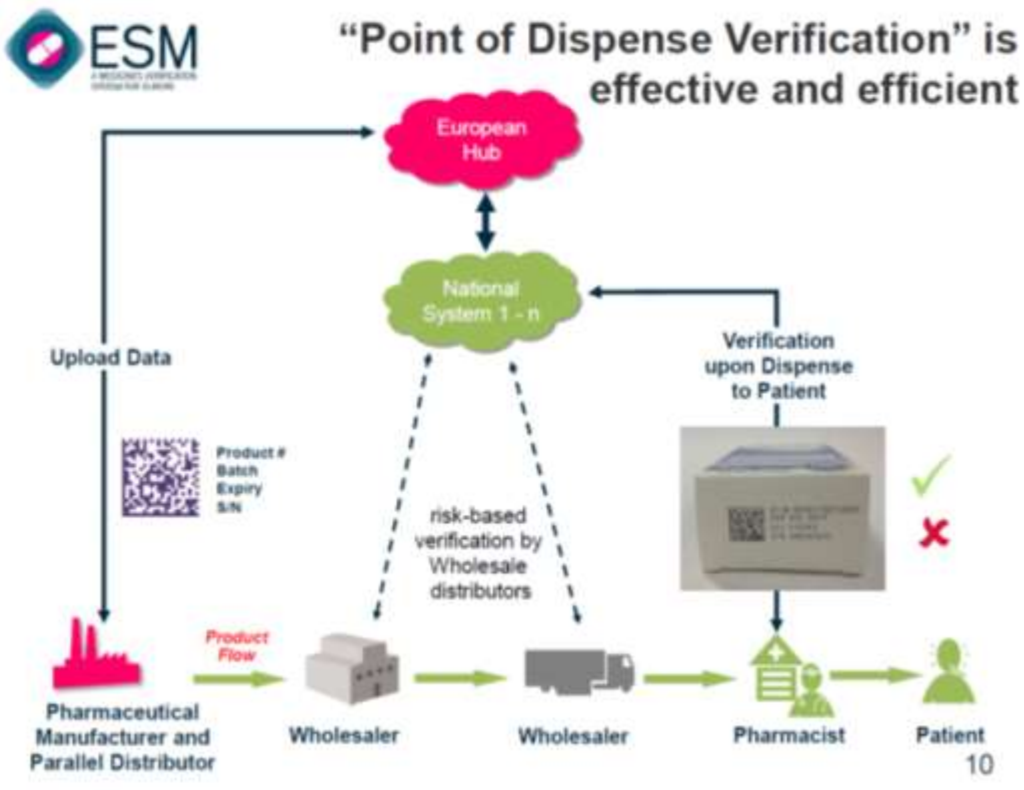
Introduction of Falsified Medicines Directive

Objective Protection of patients from falsified medicines in the legal distribution chain

Content Pan-European system to verify the authenticity of medicinal products

Scope All Rx-bound products); OTC-products cannot be subject to authentication

Due date Implementation in all countries by Q1/2019, **Non – compliance puts sales at risk!!!**



Additional tasks and new costs for the pharmaceutical supply chain

Source: EU "*Falsified Medicines*", ESM "A European Medicines Verification System "

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Key Insights to Take Away

1. Growth in the pharmaceutical market mainly comes from specialty care
2. Specialty products are typically high cost products with low volumes and require a specific handling in distribution, preparation and administration
3. Manufacturers seek to fully tap high margins for those products and keep control over the whole distribution process via direct sales
4. Wholesalers react to this development by expanding their business in offering manufactures pre-wholesaling services
5. Big threat of counterfeits leads to even stricter regulations (Falsified Medicine Directive) of the pharmaceutical supply chain in the next years

Please contact me for more information

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