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Reducing Medication Errors in Danish Hospitals with Primary Packages Barcoding

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A Short Introduction to Amgros



- ▶ Owned by the 5 Danish regions
- ▶ Founded in in 1990 as a drug procurement organization with a focus on getting discounts by making tender and framework agreements and controlling the supply chain
- ▶ More than 99,5% of all medicine to Danish hospitals are supplied by Amgros and Amgros also register 100% of the hospitals own manufacturing
- ▶ Every part of drug transactions is IT based covering eTender, eProcurement, Supply Chain Management & CPOE

2013 Numbers

- ▶ Turnover 6.6 B DKK (0,9 B Euro)
- ▶ Savings generated 1.6 B DKK



Mission and vision for Amgros



Vision

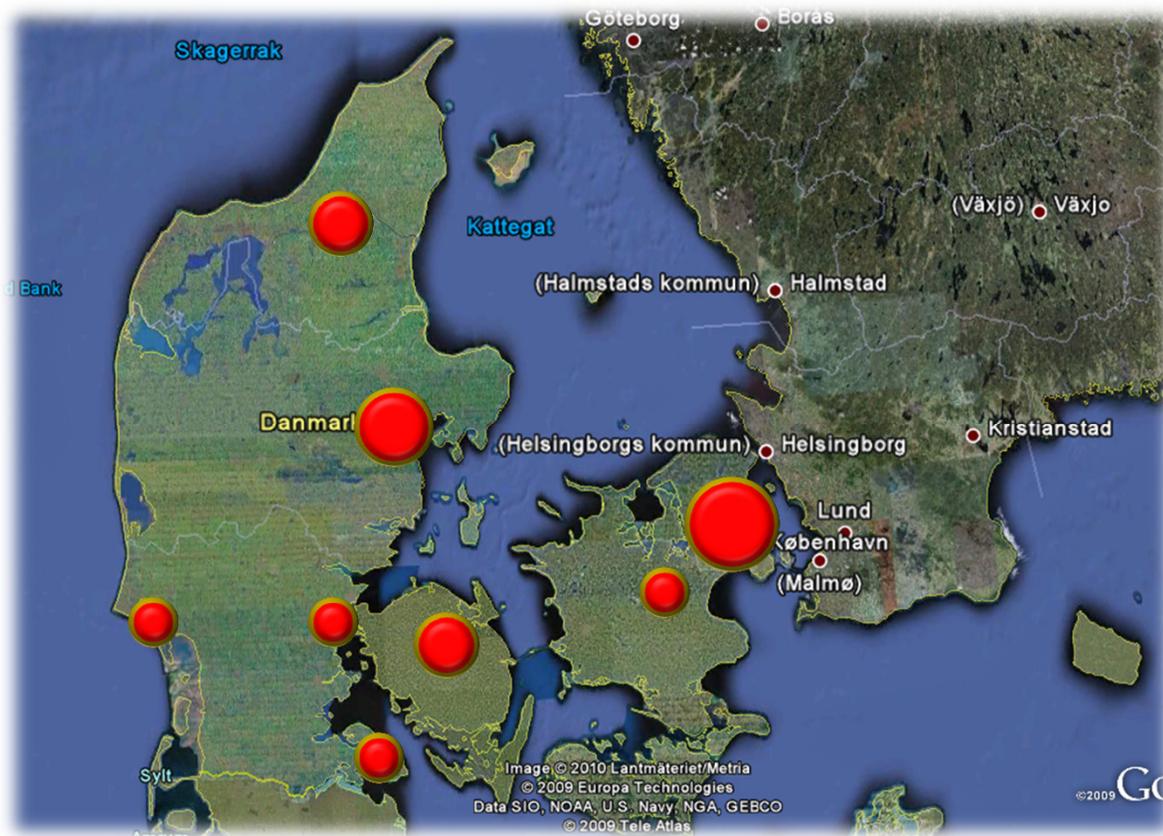
- ▶ Amgros wishes to be known by taking significant social responsibility by creating groundbreaking results and solutions within the drug area

Mission for Amgros

- ▶ Amgros ensures effective supply and safe use of medicine to patients at hospitals



Danish hospital pharmacies





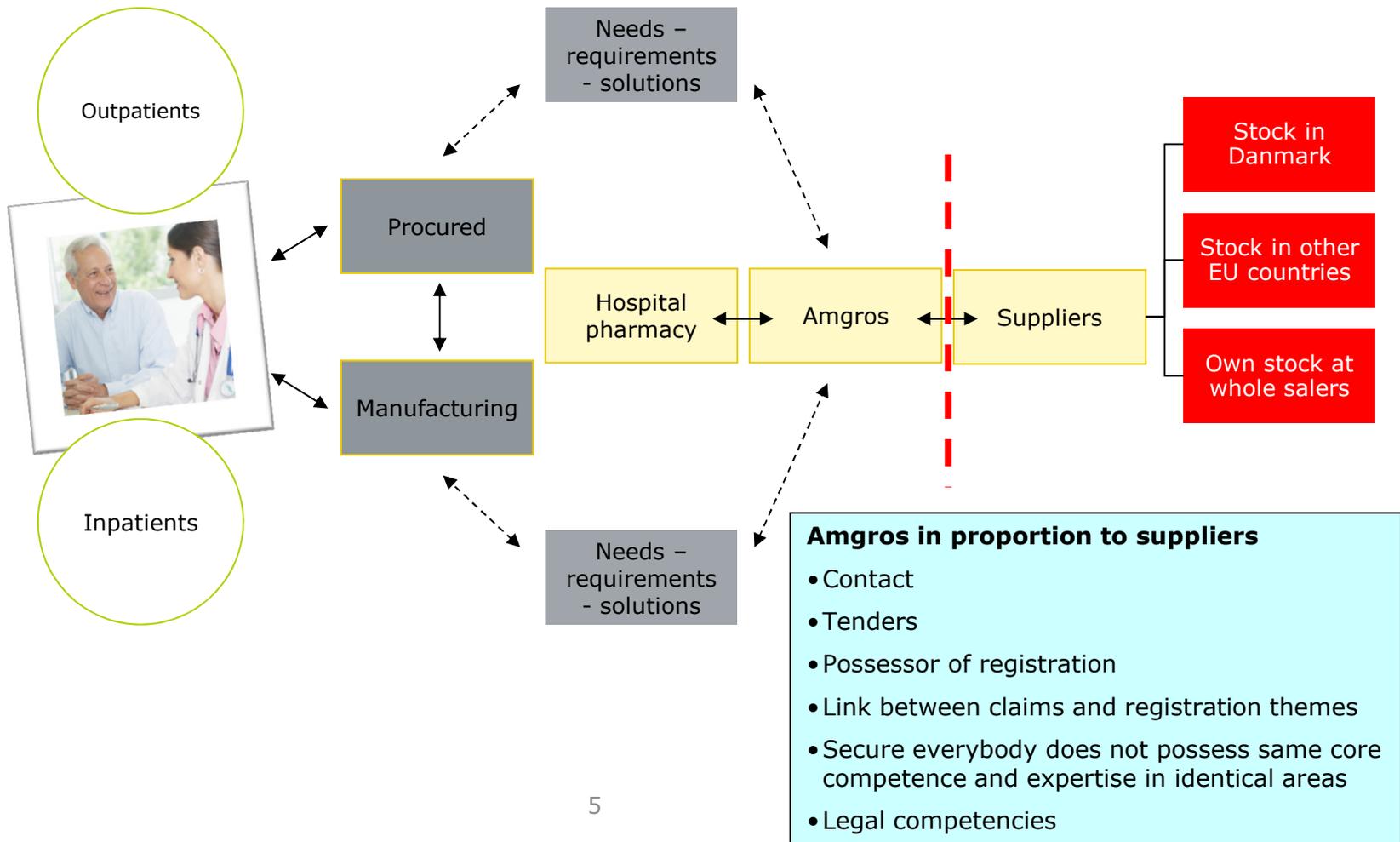
Differences between hospital pharmacies and private pharmacies

	Private pharmacies	Hospital pharmacies
Number	App. 220	8
Owners	Privately owned	Five Healths Regions
PPP turnover in 2013	DKK 7,8 bn.	DKK 8.1 bn.
Growth rate	< 0%	Around 6-8%
Type of procurement	Private purchase	Public procurement
Discount on drugs	Few possibilities	More possibilities
Substitution	Generic subst. every 2 wks.	Changes with annual EU tenders
Patients	Regular	Unusual/Special diseases
Can special requirements be made	No	Yes, e.g. for patient safety



Medicines way from supplier to patient

One thought!
Tasks performed by several parties, but can be performed in one place, could be grouped in Amgros to benefit of everyone.





Our Vision for Primary Packaging Barcodes

- *is to comply with The 5 Rights of safe medication practices*

The right medication

... in the right dose

... at the right time

... via the right route

... to the right patient

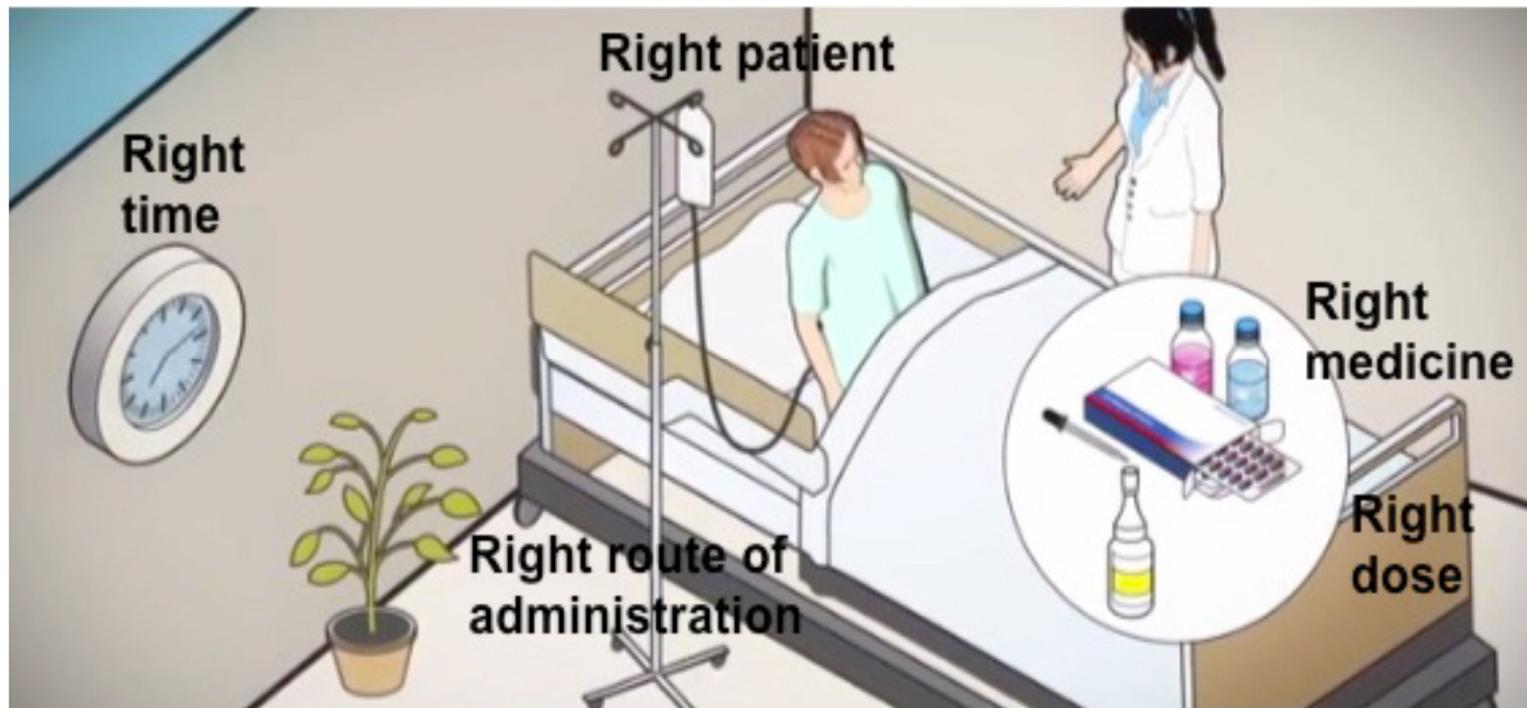


- ❖ Definition: *Primary packaging is the material that first envelops the product and holds it. This usually is the smallest unit of distribution or use and is the package which is in direct contact with the contents.*



Motivation: Primary Packages Barcoding Can Reduce Medication Errors

- ▶ Medication errors can be reduced significantly by improved drug distribution using automation control in
 - Dose dispensing in every hospital department
 - Administration of every dose related to each patient





Medication Errors During Dispensing are Estimated to Have a Significant Impact

Errors in
1,8-4,1%
of all dispensing according
to Danish studies

An estimated
23-35%
of all these errors
are severe

Affecting an estimated
11-17.000
hospitalizations each year
in Denmark



Therefore Amgros Started to Demand Primary Packages Barcoding in Tenders in 2011

Category	Type	2011/12	2012/13	2014	2015
High risk	IV / Infusion / Injection			EAN 13 or 2D DataMatrix	
Medium risk	Unlicensed Pharmaceutical				
	Tablets, capsules etc. (not blister and single dose)	EAN 13 or 2D DataMatrix			
Low risk	Surface use	EAN 13 or 2D DataMatrix			
	Orale liquid	EAN 13 or 2D DataMatrix			
	Bed-side medicine / inhalators				

- The barcode requirements are only the GTIN for the pharmaceuticals.

It is required that primary package barcodes are applied by the manufacturers



Barcodes on Medications Also Have the Potential to Create Logistics Improvements

Inventory management in

2.000

dispensing rooms
may be simplified

More than

100

Withdrawals each year
may be less of an
administrative task

Early warnings for

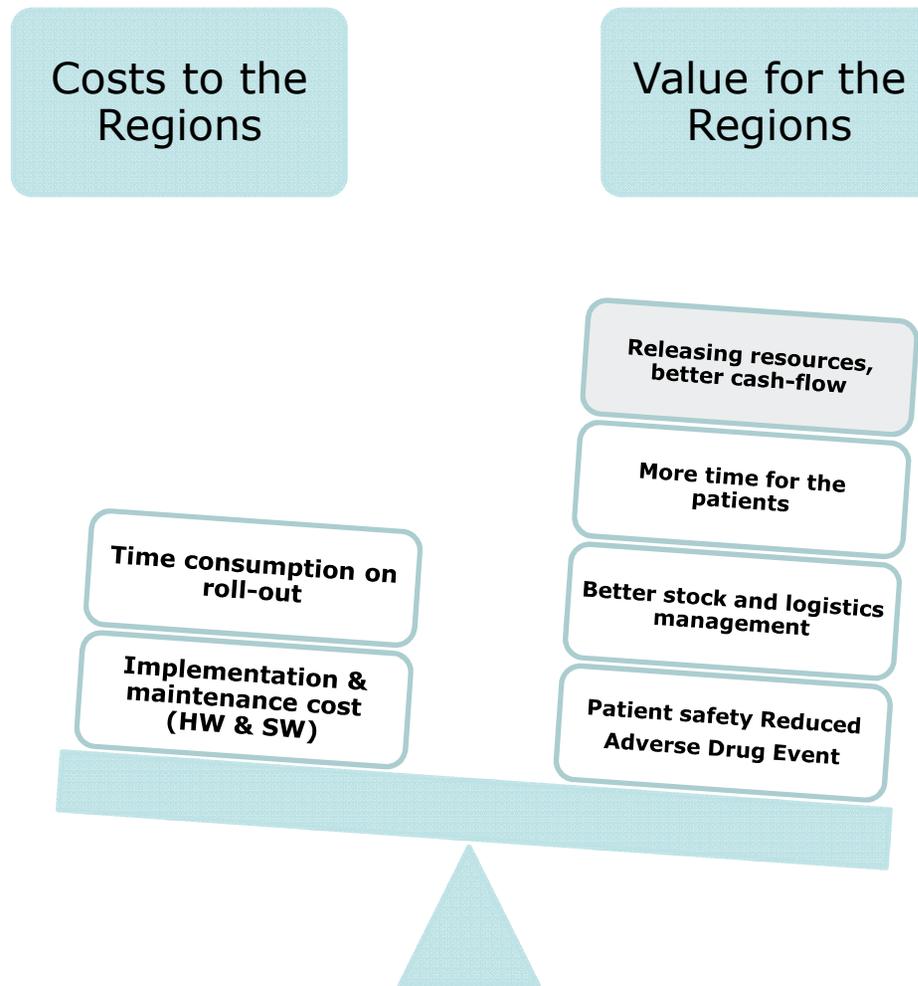
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Order backlogs each year
in Denmark

The software to do this must be developed and implemented

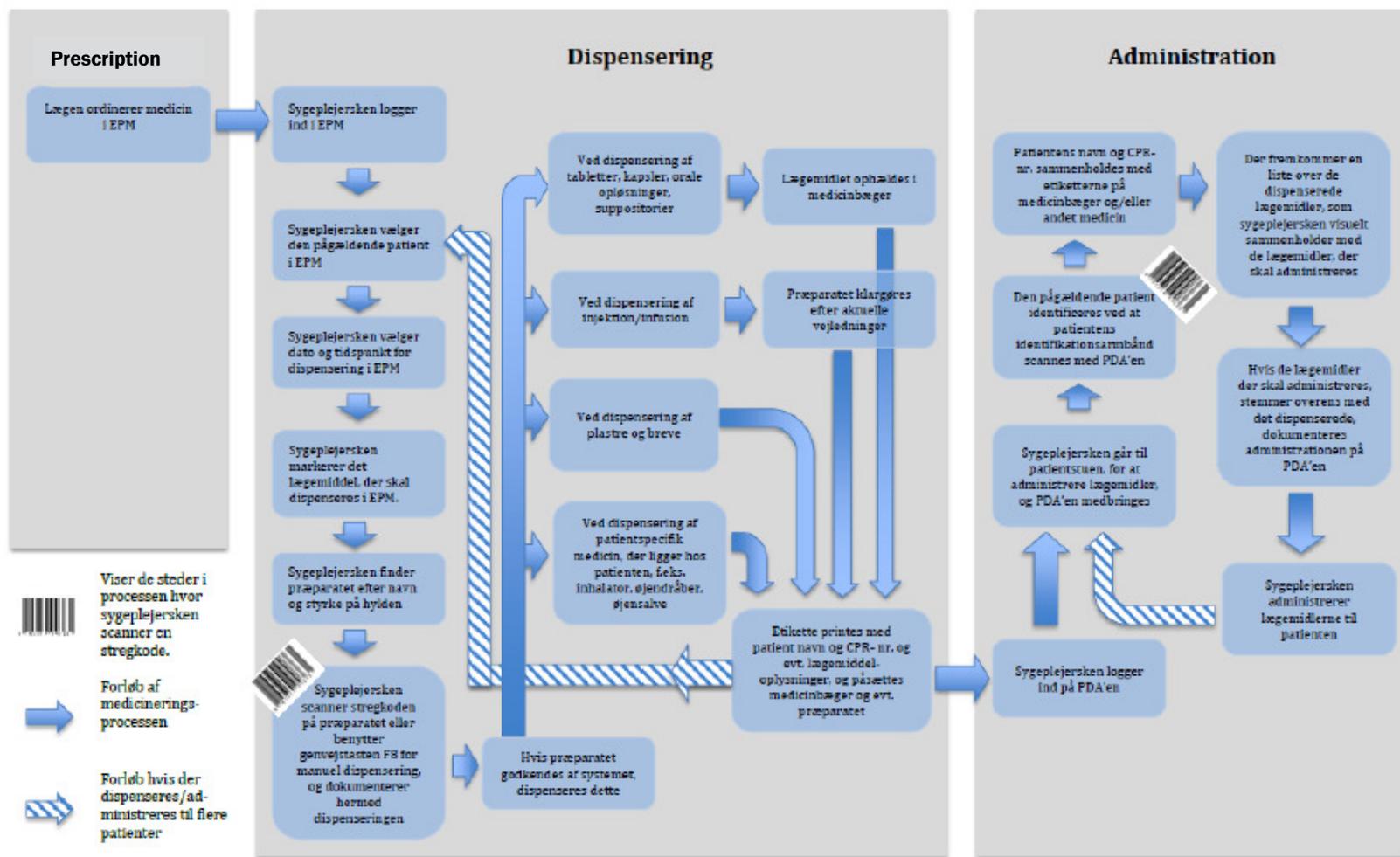


The Potential Business Case May Include Several Benefits...





Using primary package barcodes is a complicated process in need of software and hardware



Barriers to the use of barcode systems

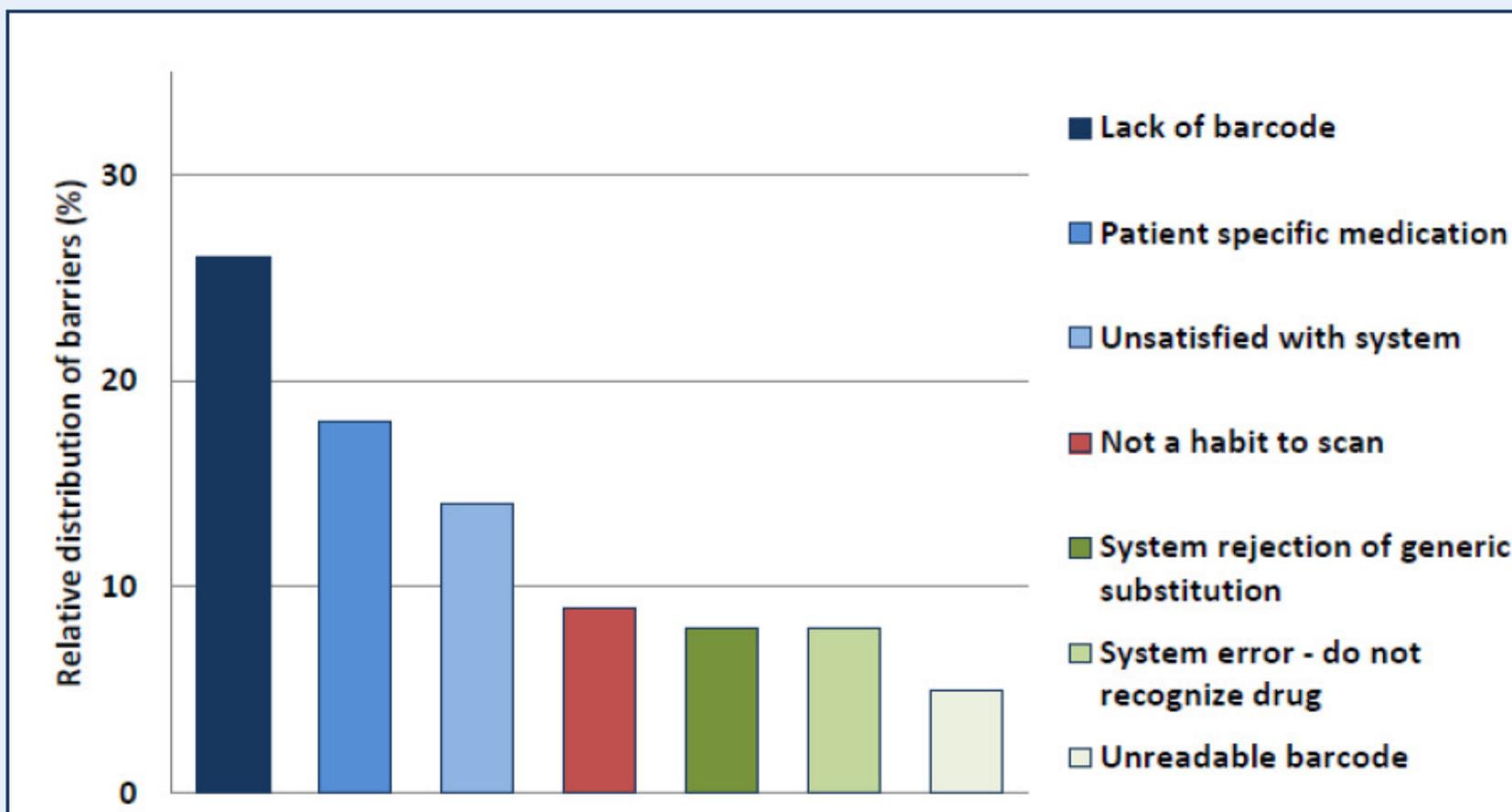


Figure 2. Relative distribution of main barriers identified by observation. Relative distribution (%) is calculated as the number of times a barrier was observed relative to total number of drugs that were not scanned (N=224).



All of This Requires a Complex & 'Whole Solution' with Contributions from Multiple Stakeholders

Implementation, monitoring, following up

Devices, Hardware and Other Equipment

Processes and Education in each Department

Barcodes on Medicine

Software



Responsible parties



Hospital & Clinic Management



IT Department



Hospital Pharmacies and Amgros



In Summary Barcodes May...

Reduce medication errors

Improve logistics

Require a complex
'whole solution'



Collaborate on a
shared vision,
business case and
implementation plan



When the drug gets to the patient...



Barcode scanning would medication errors?

Absolutely!



Thank you

