



EHR*, ePrescription & Barcode at POC*

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Amman, 26 April 2010



*EHR: electronic health record; POC: point of care



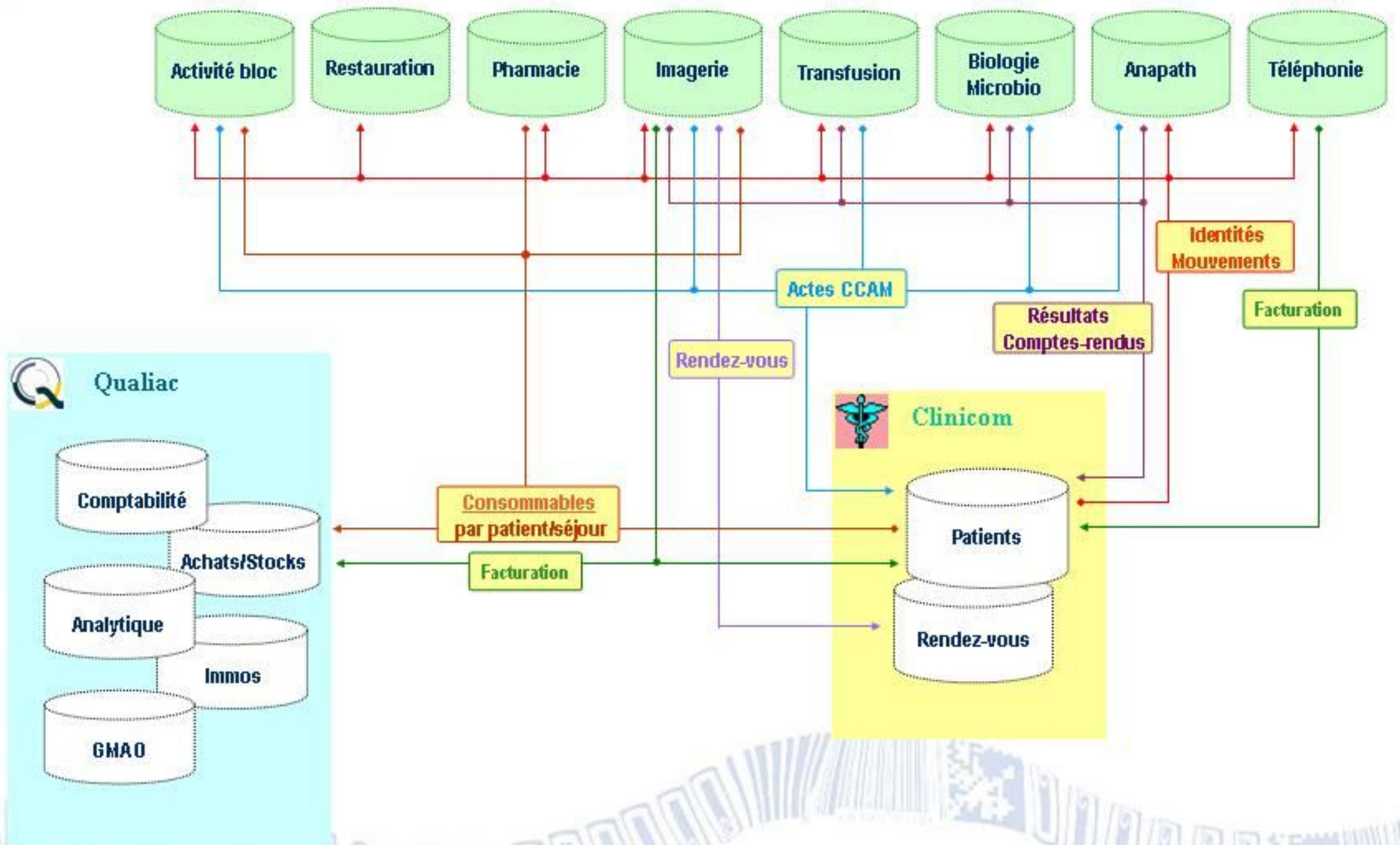
GS1 Healthcare Agenda

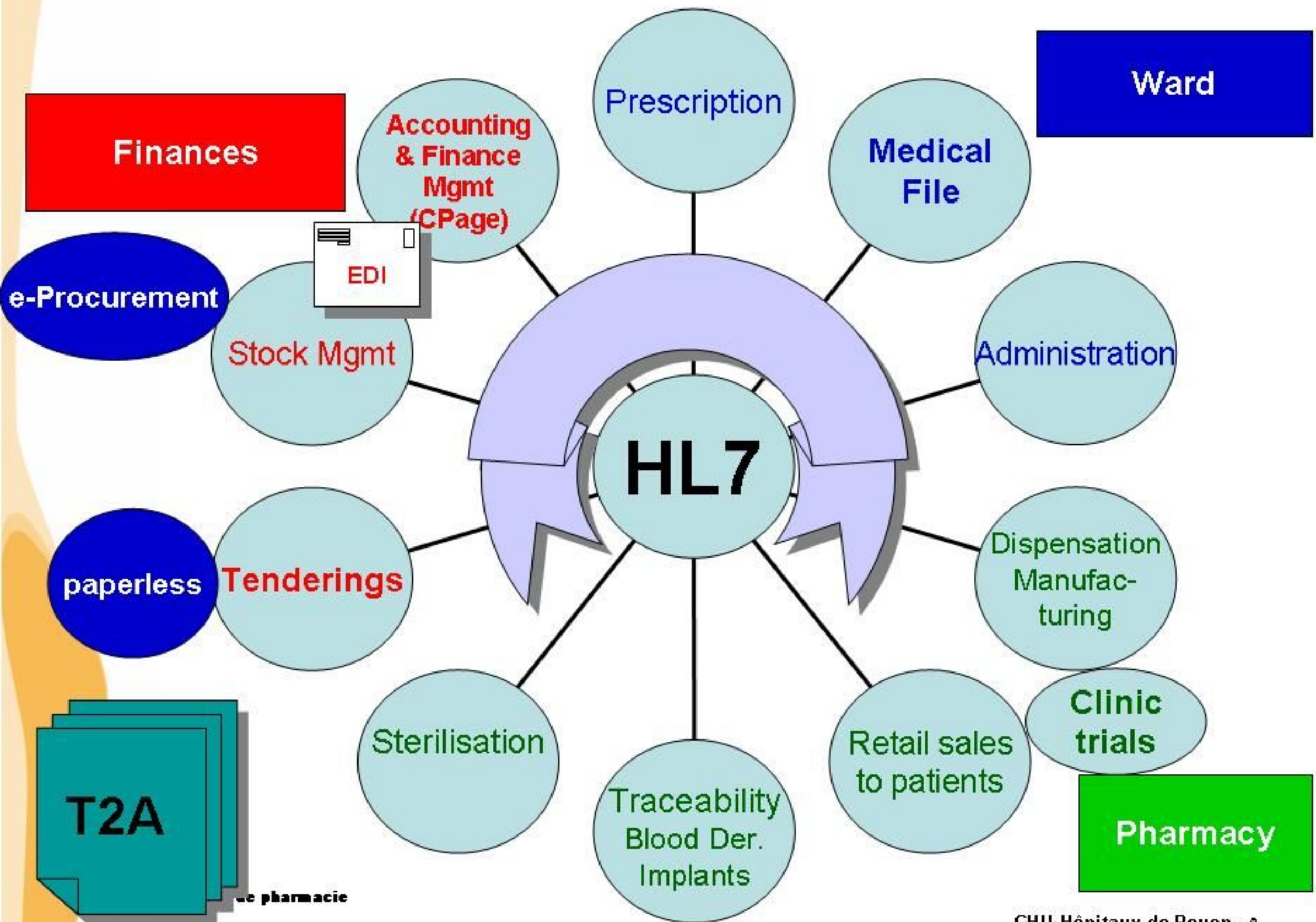
- Positioning the process in Health Information Technology (HIT)
- About EHR
- The use of standards in the medication process

POSITIONNING THE PROCESS IN HEALTH INFORMATION TECHNOLOGY (HIT)



Healthcare The challenge of HIT

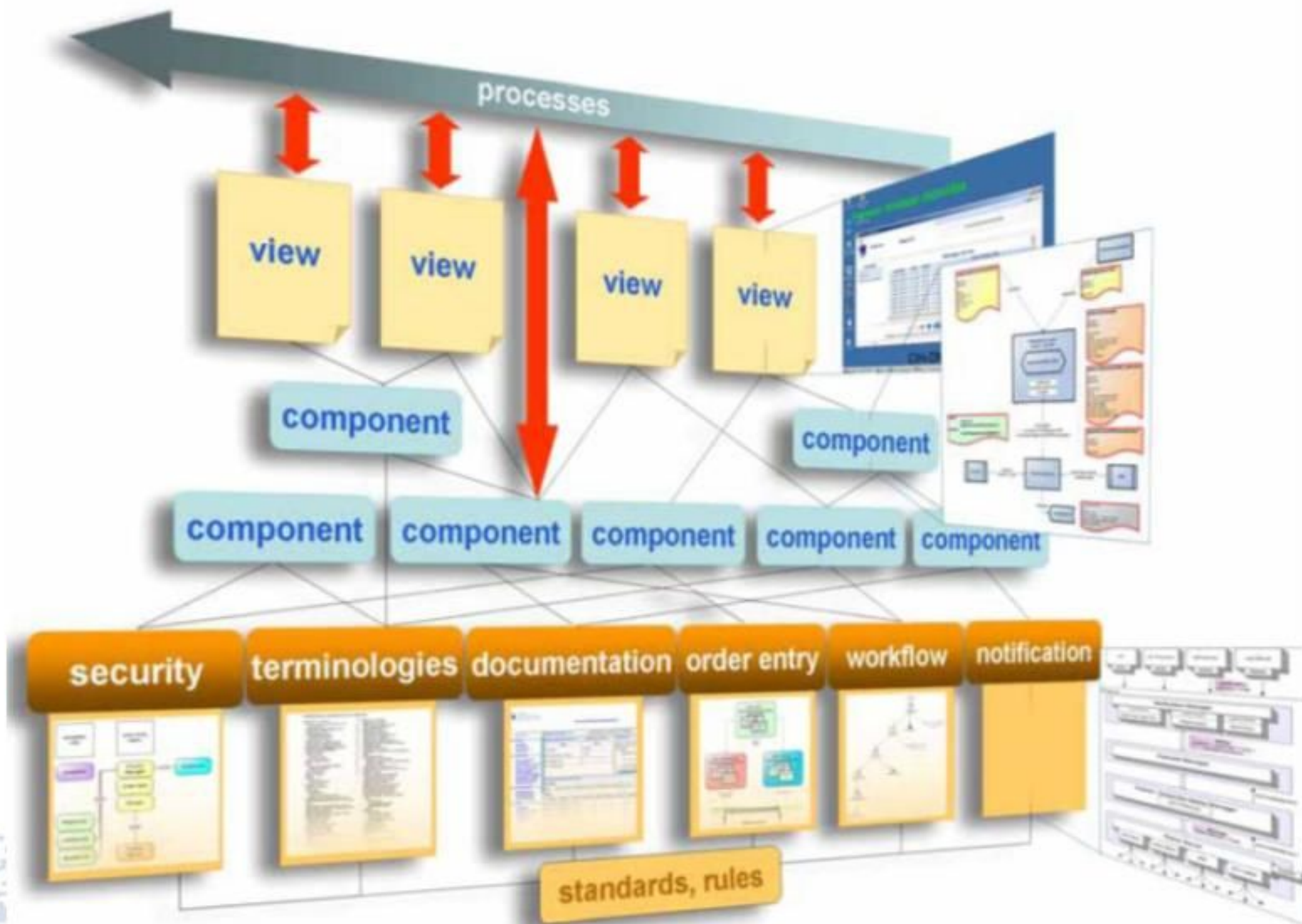




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Healthcare The challenge of HIT



ABOUT EHR



Healthcare **What do we mean with EHR?**

individual patient's medical record in digital format

- that can be shared
- in different health care settings
 - inside a single hospital,
 - inside a hospital group,
 - inside a country,
 - across the globe.

collection of electronic medical record (EMR)

- out of different organisations
- out of different encounters





Healthcare Today's issues



REGULAR PRESCRIPTIONS		DOSE	DATE OF ADMINISTRATION							METHOD OF ADMINISTRATION	SIGNATURE	TIMING	DATE
DATE COMMENCED	Prescription Name		8	9	10	11	12	13	14				
2/1/01	ROXITRONE	1mg								PO	MT	D 5	
2/1/01	VENDEXIN	5mg	✓							PO	MT	D 5	
2/1/01	ATROVAT	2mg	✓							PO	MT	D 5	
2/1/01	ROXITRONE	1mg	✓							PO	MT	D 5	
2/1/01	ROXITRONE 20mg	1mg	✓							PO	MT	D 5	
2/1/01	TIPROLOFEN	100mg	✓							IV	MT	D 5	
2/1/01	MEZLOXOLONE	500mg	✓							IV	MT	D 5	
2/1/01	MEZLOXOLONE	500mg	✓							IV	MT	D 5	
2/1/01	Loxalox	15mg	✓							PO	MT	D 5	
2/1/01	Prinivil A	T	✓							PO	MT	D 5	
2/1/01	Bimatoprost	T	✓							PO	MT	D 5	
2/1/01	Carbimazole	150mg	✓							PO	MT	D 5	
2/1/01	PROPRANOLOL	100mg	✓							PO	MT	D 5	
2/1/01	100mg	100mg	✓							PO	MT	D 5	
2/1/01	Midol	100mg	✓							PO	MT	D 5	



[New patient](#)[Search](#)[Archive](#)[New person](#)

:: Immunization

Admission Nr.	2004500000
Title:	Senor
Family name:	Mario
Given name:	Banderas
Date of birth:	08/07/2004
Sex:	male
Blood group:	AB



Options for this patient ?

- Confirmation of inability to work
- Charts folder
- Diagnostic Results
- Medocs
- DRG (composite)
- Prescriptions
- Notes & Reports
- Immunization
- Measurements

Date	<input type="text" value="08/07/2004"/>
Type	<input type="text" value="Tetagam"/>
Medicine	<input type="text" value="Anti-tetanus immunization"/>
Dosage	<input type="text" value="2 mg/dl"/>
Titer	<input type="text" value="345"/>
Refresh date	<input type="text" value="08/06/2006"/>
Application type	<input type="text" value="Subcutaneous"/>
Application by	<input type="text" value="admin"/>
Notes	<input type="text"/>

[Save](#)[Admission data](#)[Barcode labels](#)[Make](#)

Search :: Immunization (Immunization) - Mozilla

Search :: Immunization (Immunization)

Please enter search keyword:

[Search](#)

Top 10 Quicklist

- Immunization
- Tetagam**
- Yes, this one!

EHR.... Connecting the dots

EHR differs from paper-based files

- Data are stored electronically,
- Preferrently in a structured format
- Preferrently by referring to common agreed semantics, including images, lab results, etc.

EHR belongs to the clinical IT

In Summary:

- EHR is a prerequisite for computer supported diagnosed and prescription



Healthcare CPOE...

rechercher Aide

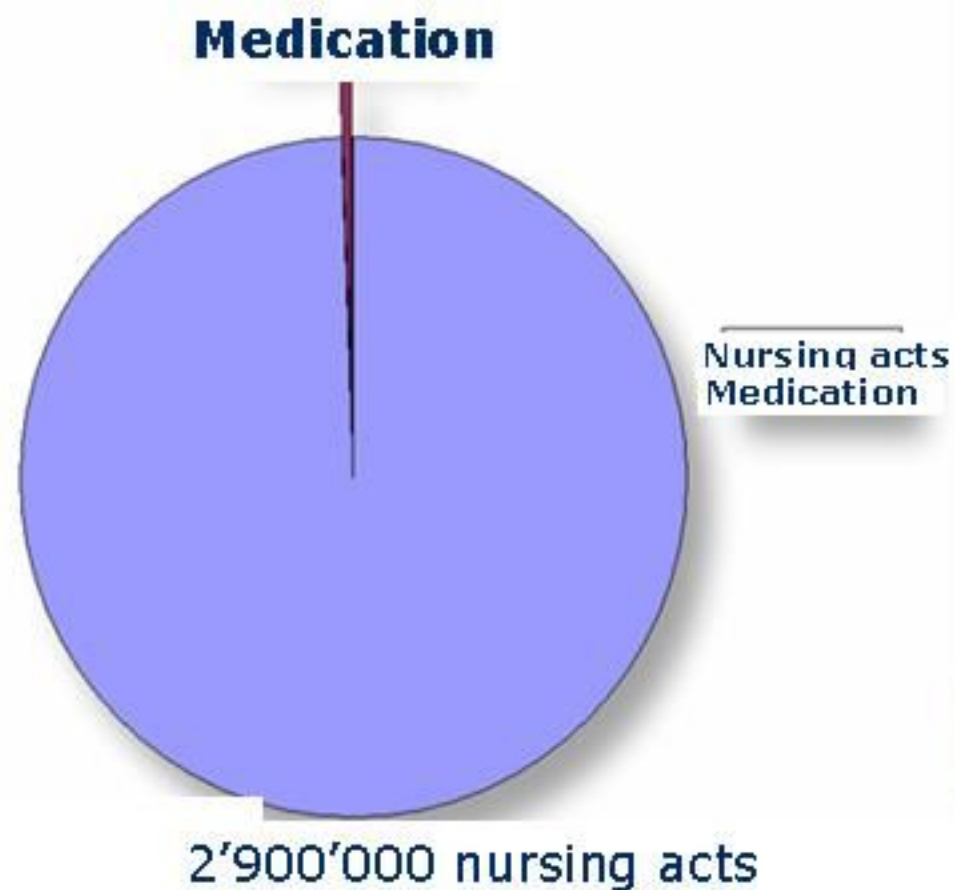
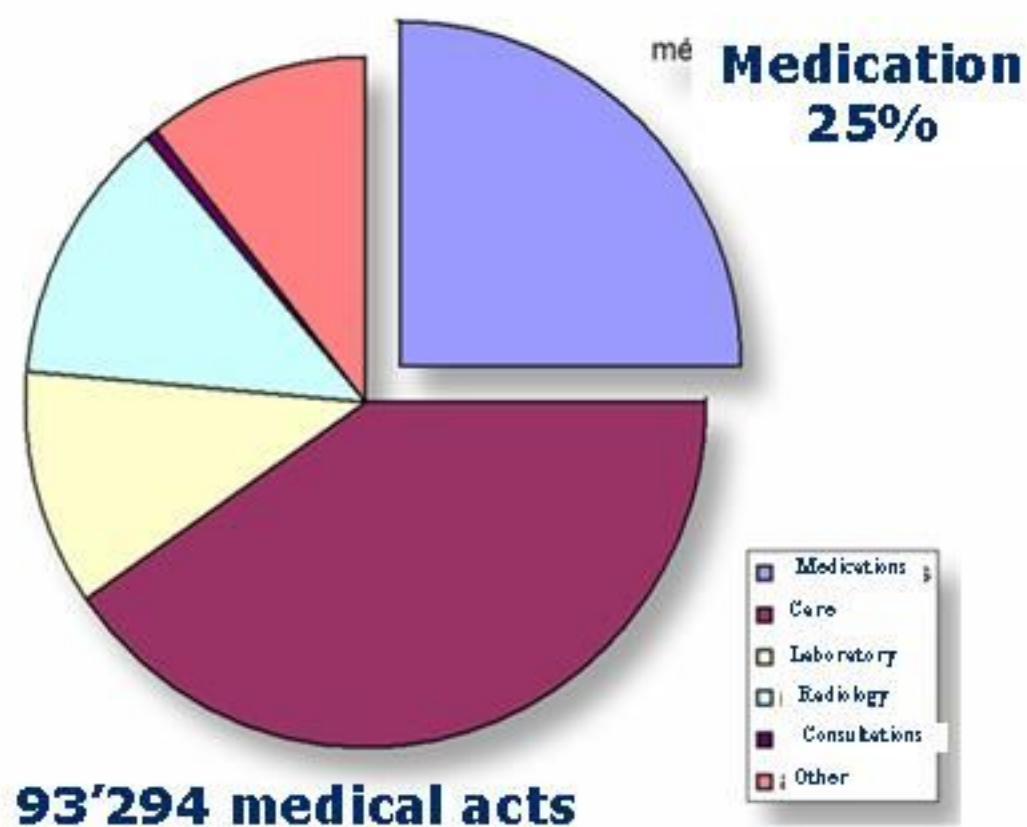
acénocoumarol Sintrom cp
Laboratoires
Sains

autres :
autres médicaments
autres sites médicaux

seulement)	[0]	(magd)	
KCl KCl 7,5% inject 20 mmol 1x/j IV sur 24h - Dans la perfusion de 1000 ml de NaCl 0,9%	[0]	✓ 20 déc. 16:44 (magd)	Non relevé
mgso4 MgSO4 inject 4 mmol/h 1x/j IV sur 24h - Dans la perfusion de 1000 ml de NaCl 0,9%	[0]	✓ 20 déc. 16:45 (magd)	Non relevé
NaCl NaCl 0,9% perfusion 1000 ml 1x/j (par jour: 1000 ml) IV sur 24h	[0]	✓ 20 déc. 16:33 (magd)	Non relevé
nitroglycérine Perlinganit inject 1 mg/h 1x/jour IV sur 24h - Pour obtenir une TA < 160/100 mmHg	[0]	✓ 21 déc. 08:27 (magd)	Non relevé
Sous-cut	⚠ [0]	✓ 21 déc. 09:19 (magd)	Non relevé
insuline Insulatard inject 15 UI 1x/j (par jour: 15 UI) sous-cut - le matin	⚠ [0]	✓ 21 déc. 09:33 (magd)	Non relevé
insuline Insulatard inject 10 UI 1x/j (par jour: 10 UI) sous-cut - le soir			
PO			
acénocoumarol Sintrom cp 1 mg O.U. PO le 23/01/2006 (ce jour seulement)	[0]	✓ 21 déc. 10:26 (magd)	Non relevé
furosémide Lasix cp 10 mg 2x/j (par jour: 20 mg) PO du 09/01/2006 au 11/01/2006 y compris	[0]	✓ 21 déc. 08:59 (magd)	Non relevé
métoprolol Beloc ZOK cp retard 12.5 mg 1x/j (par jour: 12.5 mg) PO dès le 26/01/2006	⚠ [0]	✓ 21 déc. 09:04 (magd)	Non relevé
En réserve			
paracetamol Dafalgan cp 1000 mg 4x/j PO en Réserve	[0]	✓ 21 déc. 09:06 (magd)	Non relevé
Labo			
Labo sang veineux Hémostase : INR O.U. le 24/01/2006 (ce jour seulement)	[0]	✓ 21 déc. 10:26	Non relevé

CPOE... is not limited to the medication process

University hospitals of Geneva
 Pediatrics Dept, mai – october 2007 – 6'786 episodes, 93'294 medical acts



THE USE OF STANDARDS IN THE MEDICATION PROCESS

When do medication errors happen?

A review of 4031 patient records found an incidence of 6.5% actual and 5.5% potential errors:

Ordering stages 56%,
Administration 34%,
Transcription 6%,
Dispensing 4%

- **CPOE**
- **POC**
- **Nurse / Pharmacy**
- **Picking at Pharmacy/Ward**

Incidence of Adverse Drug Events & Potential Adverse Drug Events
Bates et al JAMA 1995;274:29-34

Source: Keith Farrar, Director of Pharmacy, Wirral Hospital (UK), (2003)

Cost savings from Electronic Orders

- Electronic orders cost 16p per message
 - Transferring prescription information using manual systems costs 43.8p per message
 - Savings for prescriptions alone £248,543 *
 - Extrapolating to Pathology messages represents a further saving of £556,000 *
- (* the numbers refer to the Wirral Hospital, calculation 2002)

Source: Keith Farrar, Director of Pharmacy, Wirral Hospital (UK), (2003)



Healthcare

At POC... the last possible check!

SATURDAY, SEPTEMBER 23, 2006

THE BOST

Deaths of 3 babies in Indiana spotlight medication mix-ups

By Tom Davies
ASSOCIATED PRESS

INDIANAPOLIS — Early last Saturday, nurses at an Indianapolis hospital went to the drug cabinet in the newborn intensive care unit to get blood thinner for several premature babies.

The nurses didn't realize that a pharmacy technician had mistakenly stocked the cabinet with vials containing a dose 1,000 times stronger than what the babies were supposed to receive. And they apparently didn't notice that the label said "separin," not "hep-lock," and that it was dark blue instead of baby blue.

Those mistakes led to the deaths of three infants. Three others also suffered overdoses but survived.

Now, their families, hospital officials, and prosecutors are asking the same question: How could this happen?

Experts say last weekend's overdoses at Methodist Hospital illustrate that, despite national ef-



GS1 Healthcare What is needed?

- Patient identification
- Care giver / prescriber / nurse identification
- Item identification
- +
- Real time access to IT (eMAR*)
- +
- Staff compliance

*eMAR: electronic Medication Administration Record



Healthcare Identification of patient



- Low cost
- Durability
- All patients
- Accommodates bar code.
- Potential for future applications:
 - Picture ID, RFID tags etc.
- eMAR Software will only accommodate one active ID bracelet at a time (uses check digit)

GS1 Healthcare Identification of care giver



- Cost effective
- Multi-usage (access control for locations, HIT, money for cafeteria, etc.)
- Easy to use
- Difficult to loose



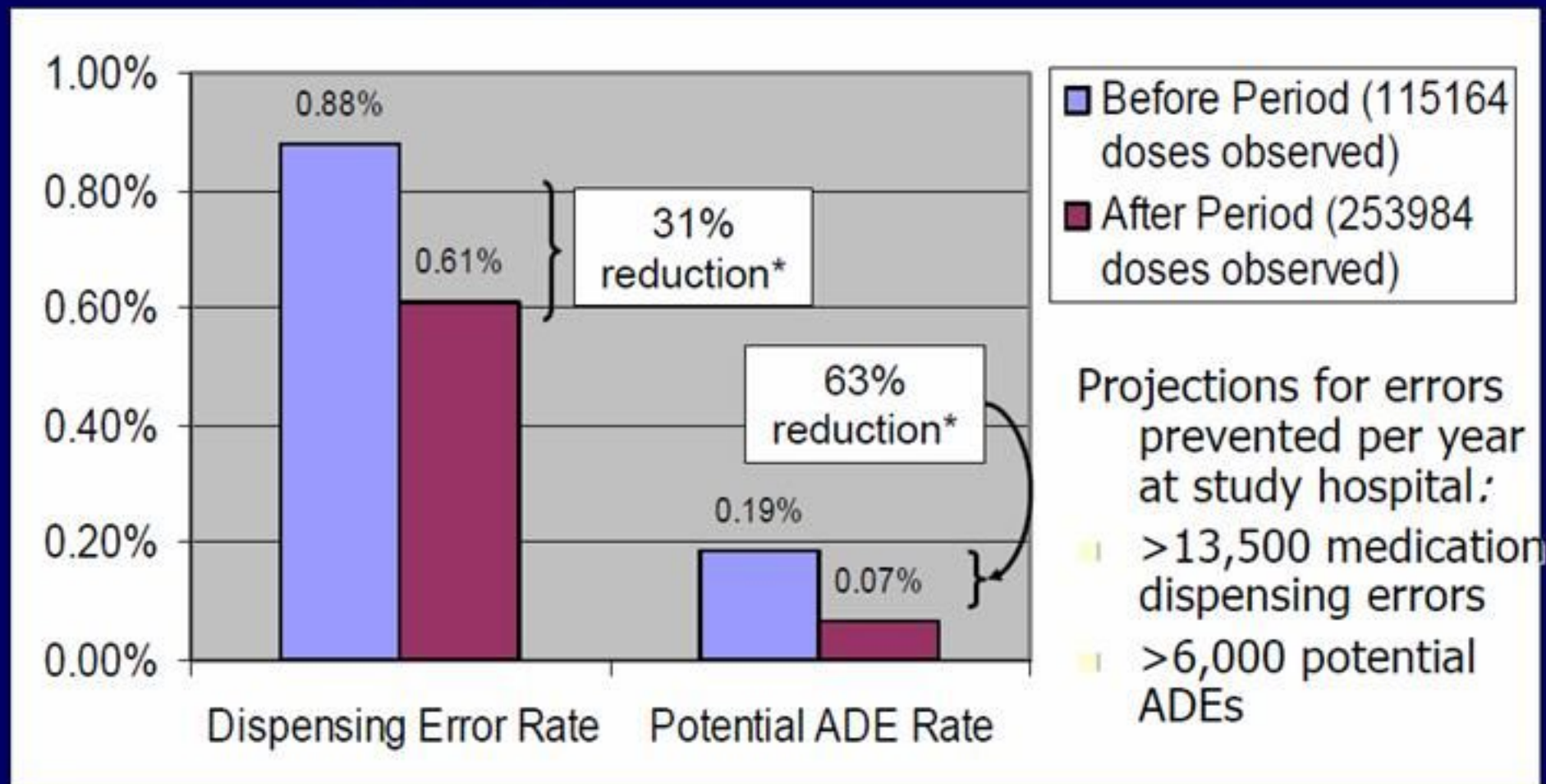
Healthcare Identification of items



- Source marked by supplier
- Cost effective
- Standardized
- Access to information (what? expired?)
- Access to medication process (OK?)



Dispensing Errors and Potential ADEs: Before and After Barcode Technology Implementation



* $p < 0.0001$ (Chi-squared test)

QUESTIONS ?

Chaos

Chaos

Chaos

Order

Contact



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