Bedside Assortment Picking
Decreasing the number of dispensing errors by implementing CPOE and barcode assisted dispensing

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gelre ziekenhuizen

Gelre hospitals 1875 - 1925
Apeldoorn   Zutphen

Het Ziekenhuis

Algemeen ziekenhuis

St. Liduina

St. Walburgis

Artist impression
# Gelre Hospitals, Apeldoorn

Pharmacy

Some facts of Gelre Hospitals (2006)

Number of beds	985
Number of daycare treatments	21.712
Number of clinical admissions	29.359
Adherence	281.261
Number of physicians	190
Number of employees	circa 3300

Agenda: focus on BAP

- Defining the problem of dispensing errors
- The survey
- Results
- Conclusion
- Need for barcodes

Defining the problem
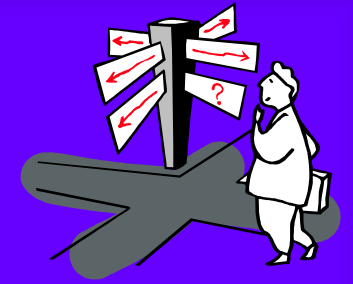
- Poor quality of handwritten prescriptions
- High medication turnaround time: logistics follow prescriptions
- Dispensing secured insufficiently: need for a second nurse to bring into action?

The survey

A survey is like a sports team..

- With physicians, nurses on the ward, pharmacy personnel

Goals of the survey

To improve medication safety in two steps:

Step 1:
- Implement a CPOE-system
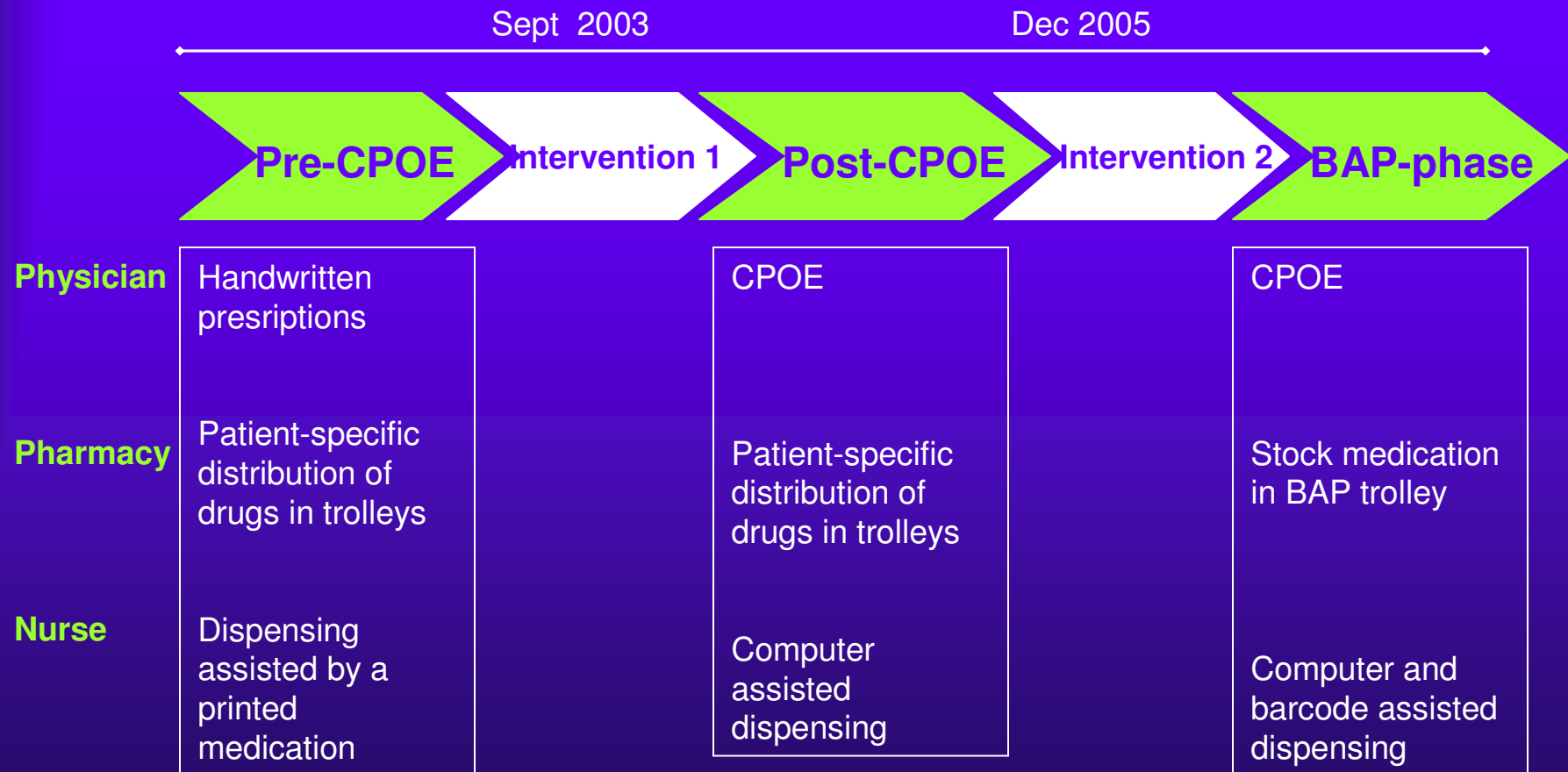- Introduce computer assisted dispensing

Step 2:
- Introduce barcode-assisted dispensing
- Introduce the BAP-trolley

CPOE = Computerized Prescriber Order Entry
BAP = Bedside Assortment Picking

Timeframe: 3 measurements were carried out using the disguised observation method

Sept 2003 | Dec 2005

	Pre-CPOE	Intervention 1	Post-CPOE	Intervention 2	BAP-phase
Physician	Handwritten presriptions		CPOE		CPOE
Pharmacy	Patient-specific distribution of drugs in trolleys		Patient-specific distribution of drugs in trolleys		Stock medication in BAP trolley
Nurse	Dispensing assisted by a printed medication		Computer assisted dispensing		Computer and barcode assisted dispensing

Primary endpoint

- The number of dispensing errors

Definition of a dispensing error

Every diffence between what was precribed by the physician and what is actually administered to the patient

Classification of dispensing errors

- Category I   No presription from a physician
- Category II   Extra dose
- Category III   Wrong dose
- Category IV   Dose not administered
- Category V   Time error
- Category VI   Wrong route of administration
- Category VII   Wrong formulation
- Category VIII   Wrong technique of administration

Bron: Bemt vd, Pharmaceutisch Weekblad 2002

RESULTS

Intervention 1 (CPOE)

Step 1:

- Implement a CPOE-system
- Introduce computer assisted dispensing

Advantages

– No handwriting, no transcription

– Complete and legible prescriptions

– A real-time and on-line overview of the current medication is always available

Results step 1:

47% decline in dispensing errors

	Pre-CPOE (n=4457)		Post-CPOE (n=3814)		p
	Number of errors	%*	Number of errors	%*	
II Extra dose	9	0.20	1	0.03	<0.05
IV Dose not administred	57	1.28	23	0.60	0.001<p<0.01
VI Wrong route of administration	11	0.25	1	0.03	<0.05
VIII Wrong technique	27	0.61	9	0.24	<0.05
Total	319	7.16	222	5.79	0.01<p<0.02
Total (excl. Category V)	**138**	**3.10**	**63**	**1.65**	**<0.001**

Intervention 2 (BAP)

Step 2:

- Introduce barcode-assisted dispensing
- Introduce the BAP-trolley

Advantages

– Dispensing to the right patient secured by the use of barcodes

– Dispensing of the right drugs secured by the use of barcodes

Process

1. **Physician**: CPOE
   Pharmacy: Check on interactions / overdoses, etc. and distribute the drugs

4. Scanning the barcode of the patient

2. **Nurse**: Scanning the barcode of the patient

3. Scanning the medication

Prototype of the BAP-trolley

- Content trolley is determined by the specific turnover of the ward

- Wireless laptop + scanner

- Stock medication

- Patient-specific medication

Stock control

- By double bin principle
- Yellow drawer: high throughput
- Red drawer: fast runners with a lower throughput
- Distribution: twice a week

```
ERROR: undefined
OFFENDING COMMAND: f'~

STACK:
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