



# Bedside scanning, the final frontier

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## Conflict of interest:

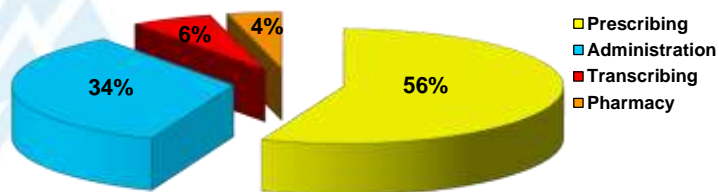
- Nothing to disclose



## Medication errors...



- Some numbers
  - 44.000 – 88.000 deaths/year by medical errors
  - Extrapolation for Belgium (11 million inhabitants):
    - 1000 deaths / year (from which 150 due to medication errors)
    - € 2.500.000 / year for 700 bed hospital
  - Avoidable ADE in 2 % of the admissions
- Origin of medication errors



**Three wishes**, to be exact. And 'ixnay' on the wishing for more wishes. That's it. Three. Uno, dos, tres. No substitutions, exchanges or refunds.

I wish for ... a fully deployed **CPOE with CDS** ... barcode **scanners** ... and **barcoded single dose** packed medication.





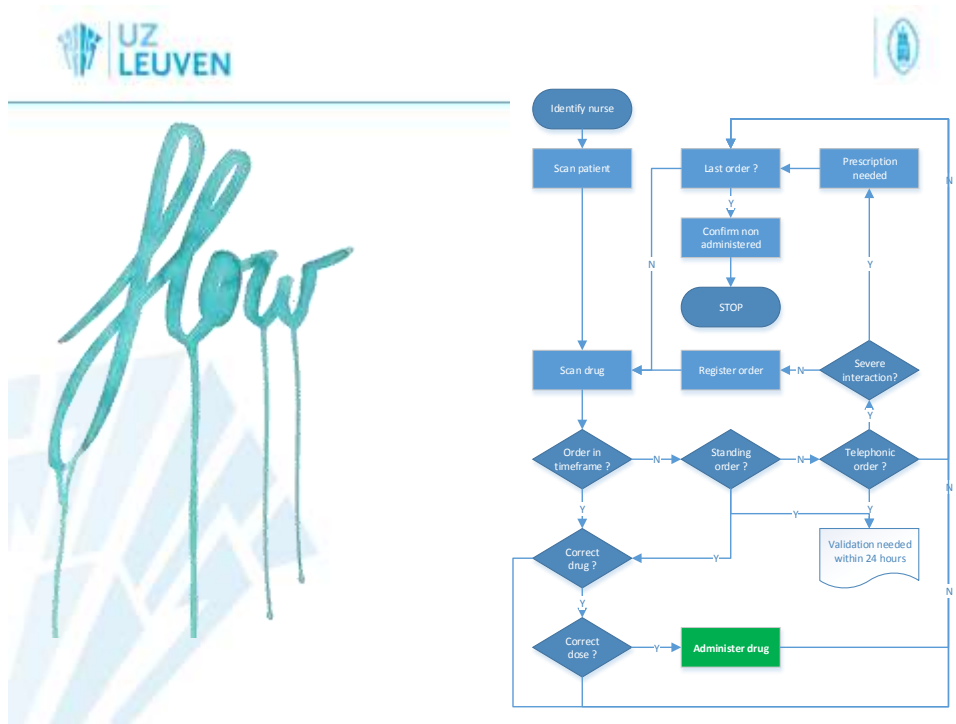
## How does BSS work ?



NAME	FAOCT	Ward	DATE	WIND	TIME	ORNS
Willems, Jeroen	W10	Leuven, Herestraat, 35	2015-04-20 14:26	27	150012 14 26	

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Willems, Jeroen	W10	Leuven, Herestraat, 35	2015-04-20 14:26	27	150012 14 26	





## Bedsidescanning in practice ...

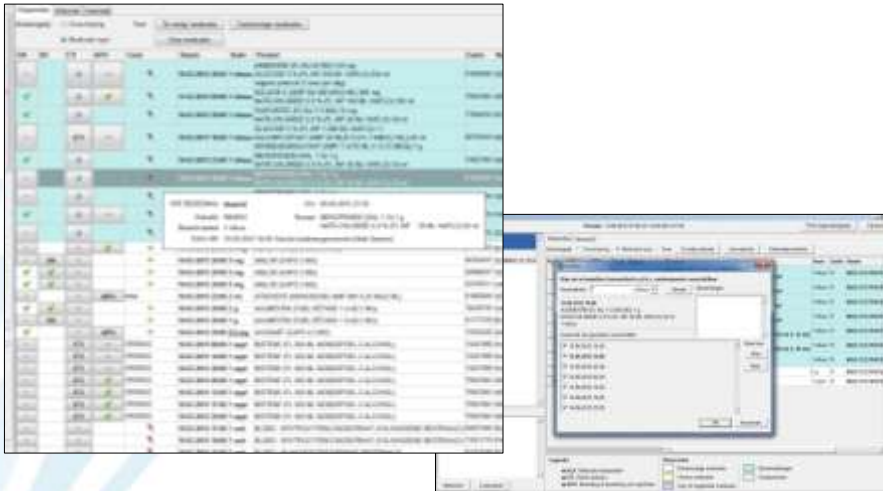
Dispensing and ordering

Reconstitution

Administration

Medication	Instructions
1. Algoritme (100 mg)	1. Algoritme (100 mg) -> Medicatie classief
2. Algoritme (100 mg)	2. Algoritme (100 mg) -> Medicatie classief
3. Algoritme (100 mg)	3. Algoritme (100 mg) -> Medicatie classief

## Dispensing and ordering (ward)



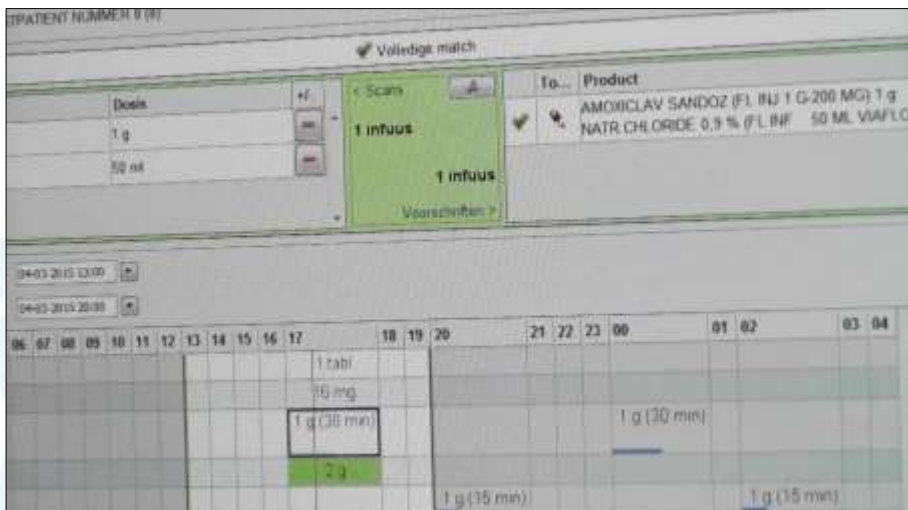
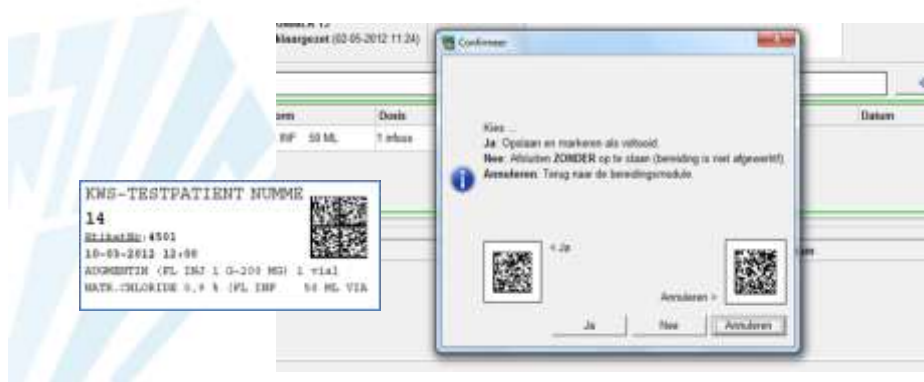
## Dispensing (pharmacy)



Check of appropriateness (risk analysis)

## Reconstitution

- Barcode verification of every ingredient
- Reconstituted medication gets barcode

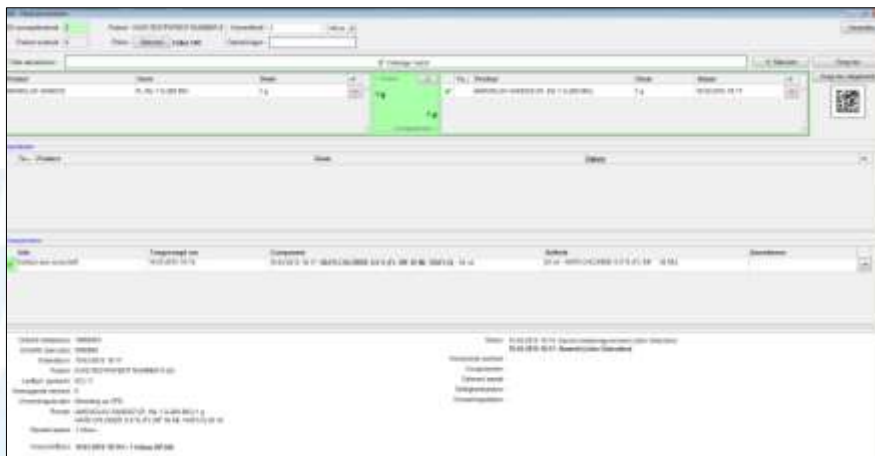


## Administration

- “Intelligence”, not just administration



## Exact match ... the easy part





## Amoxiclavulanic acid 1000 mg ...

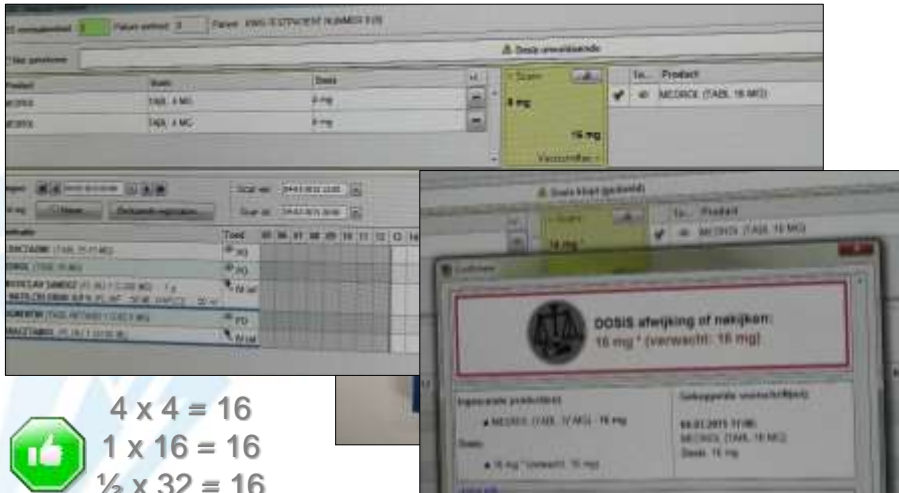


## Urgent ? Reconstitution bedside






## Methylprednisolone 16 mg ?



4 x 4 = 16  
1 x 16 = 16  
 $\frac{1}{2}$  x 32 = 16



## Paracetamol 1000 mg oral



## Carbamazepine 200 mg oral



## Amlodipine 5 mg oral



## What-irizine ?



- Cetirizine 10 mg  
(racemic)

- Levo-cetirizine 5 mg  
(l-enantiomer)



## Multidose products ?



Every scan = a bottle or a tube ?  
Every scan = nurse overrule volume ?

“Reconstitution” → linked to a patient & prescribed dose

## Simple mathematics ?

- Tacrolimus 9 mg
  - Prescription versus administration
    - Different # lines ( $9 = 5 + 3 + 1 \text{ mg}$ )
    - Show one line to enhance readability and overview of therapy



- Dafalgan 480 mg
  - Suggestion dose rounding
  - % mismatch
    - Relevant decimals
    - Compounding possible



Naam	QTY	QTY	QTY	QTY	% afwijking
TABL 100MG 100	8.0 stuks	8.0 stuks	8.0 stuks	8.0 stuks	0
TABL 100MG 100 MG	8.0 stuks	8.0 stuks	8.0 stuks	8.0 stuks	0
TABL 100MG 100 MG	8.0 stuks	8.0 stuks	8.0 stuks	8.0 stuks	0
TABL 100MG 100 MG	8.0 stuks	8.0 stuks	8.0 stuks	8.0 stuks	0

## Nothing forgotten ?



Volgende voorschriften zijn nog niet toegeëind.  
Gelieve deze te annuleren wanneer ze niet meer van toepassing zijn.

G Geen actie    OK Toelijken (enkel voor medicatie in zelfbeheer)

A Annuleren    € Aanrekenen (roepet bij multidos: volledig artikel wordt aangerekend, dus afvrijen als je geen nieuw artikel gebruikt hebt)

Voorschrift	Datum	G	A	OK	€	Reden
1 amp ASPEGIC (AMP INJ 500 MG (ASA))	10-03-2015 16:00	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	
16 mg MEDROL (TABL 16 MG)	10-03-2015 17:00	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	
1 tabl ALDACTAZINE (TABL 25-15 MG)	10-03-2015 17:00	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	
2 g AUGMENTIN (TABL RETARD 1 G-6)	10-03-2015 17:00	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	
1 amp ASPEGIC (AMP INJ 500 MG (ASA))	10-03-2015 20:00	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	

Globale reden:

< Ga verder (OK)

Annuleren >

## Does it work ?

- **YES it works !**

- Wrong patient
- Wrong product
- Wrong dose
- Wrong time of administration
- Wrong timeline cytotoxics
- Double medication or dose
- Contraindications and allergies for (standing) orders
- Different patient incident reports (FONA)
- Follow up use of decision support CPOE

