Managing patients' own drugs in the hospital

empowering patients by redesigning pharmaceutical care

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Disclosure

- Nothing to disclose

Questions – True or False

- 0. I have totally no idea what this session is about
- 1. Continuation of home medication during admission is not likely to have a positive effect on medication safety and increases healthcare expenditures
- 2. Patients are not willing to participate in their treatment during admission

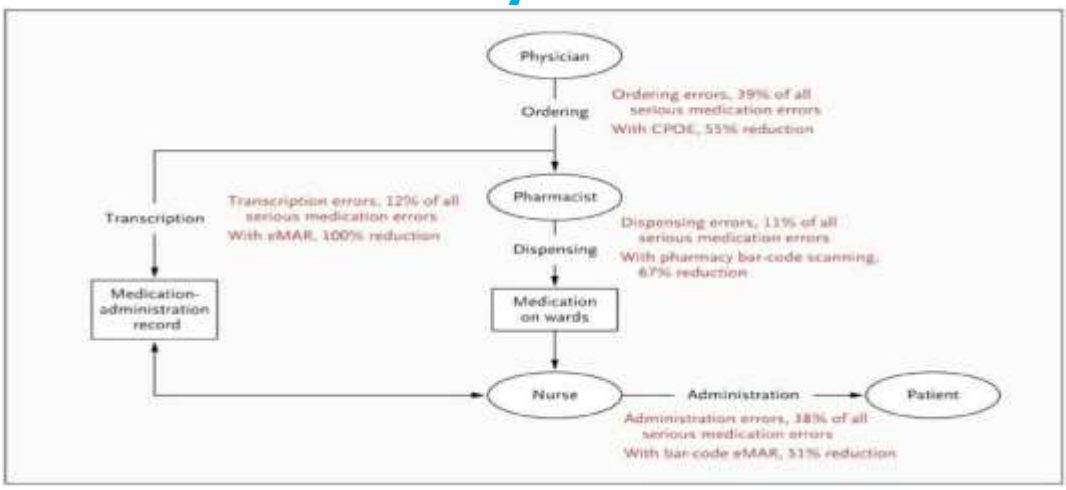
Medication errors

- Numerous reports:
  - To Err is Human (USA, 2000)
  - A Spoonful of Sugar (UK, 2001)
  - HARM (Netherlands, 2008)
    - Followed-up 2009-2013

Achievements

- Medication reconciliation at admission and discharge
- Monitoring decentralized compounding compliance
  - Introducing ready to administer and ready to use products
- Introducing Computerized Physician Order Entry systems
- Introducing ADS
- Barcode enabled point of care

Medication safety



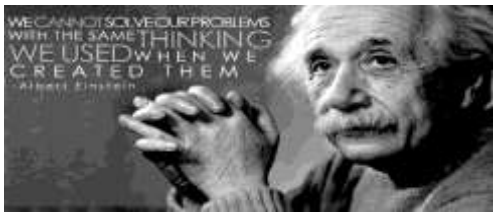
Poon EG. New Eng J Med 2010; 362:1698-1707

So, what's our status?

- Follow-up research on HARM
  - Prevalence hospital admissions related to medication
    - 10.2% for >65 years old
    - 2.6% for 18-64 years old
  - Prevalence was stable during 2009-2013
  - Absolute numbers increased due to aging population
  - Avoidable: 49.6% (2008) to 47.4% (2013)

Redesign medication process

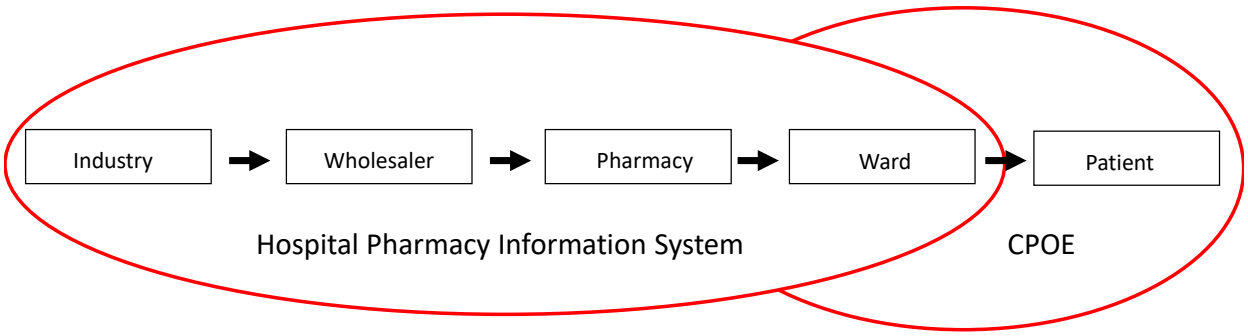
- Optimize/adopt technology & IT
- Connect in-patient with out-patient situation
- Separate logistics from pharmaceutical care
- Empower patients, make them more responsible



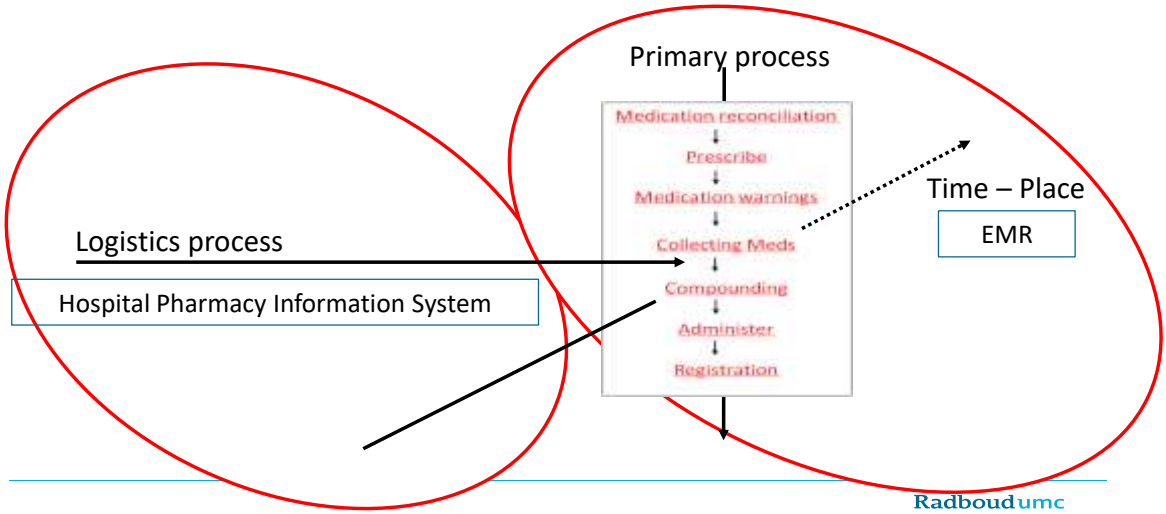
Barriers to overcome

- Barriers between out-patient and in-patient
- Safegaurds as a consequence of these barriers
- Medical paternalistic model
- Decreased length of stay
- Formulary
- Who are pulling the strings?
  - Healthcare insurance agencies
  - Goverance

Hospital drug distribution - “Traditional model”



Hospital drug distribution - “New model”



Pharmaceutical care

Medication reconciliation
↓
Prescribe
↓
Medication warnings
↓
Collecting Meds
↓
Compounding
↓
Administer
↓
Registration

→ Medication review

Admission

Discharge

→ Medication verification

→ Medication warnings

→ Clinical rules

→ Clinical consultation

→ Rounding

→ TDM / Toxicology

Logistics (dispensing)

Inpatient

Outpatient

Home

Floor stock

Patient stock

IV-additive pharmacy

Medication reconciliation
↓
Prescribe
↓
Medication warnings
↓
Collecting Meds
↓
Compounding
↓
Administer
↓
Registration

Home

Hospital

Substitution to drug formulary

- Advantages of drug substitution at admission
  - Limited stock
  - Low costs
  - Effective/efficient purchase of meds
  - Experience by physicians
- Disadvantages:
  - Substitution takes time (expensive time of health care professionals)
  - Substitution at admission and re-initiating at discharge introduces medication errors
  - From patient's perspective not desirable

Medication errors (1)

- Substitution[1]
  - 40% is substituted to hospital formulary at admission
  - 57% is re-initiated at discharge
  - Each substitution takes 15 minutes
- Medication reconciliation errors at discharge[2]
  - 69% no understanding of re-dosed medication
  - 82% no understanding of stopped medication
  - 62% no understanding of new medication

[1]Pans SJA. PW Wetenschappelijk Platform 2008;2:80-5; [2]Ziaeian B. J Gen Intern Med 2012;27:1513–20; Pasina. Drugs Aging 2014;13:283-9; [3]George J. Drugs Aging 2008;25:307-24

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Medication errors (2)

- Adherence[3]
  - 2-4 weeks after discharge: 55% non-adherent
  - 3 months after discharge: 70% non-adherent
  - Approx. 25% understood reasons for medication

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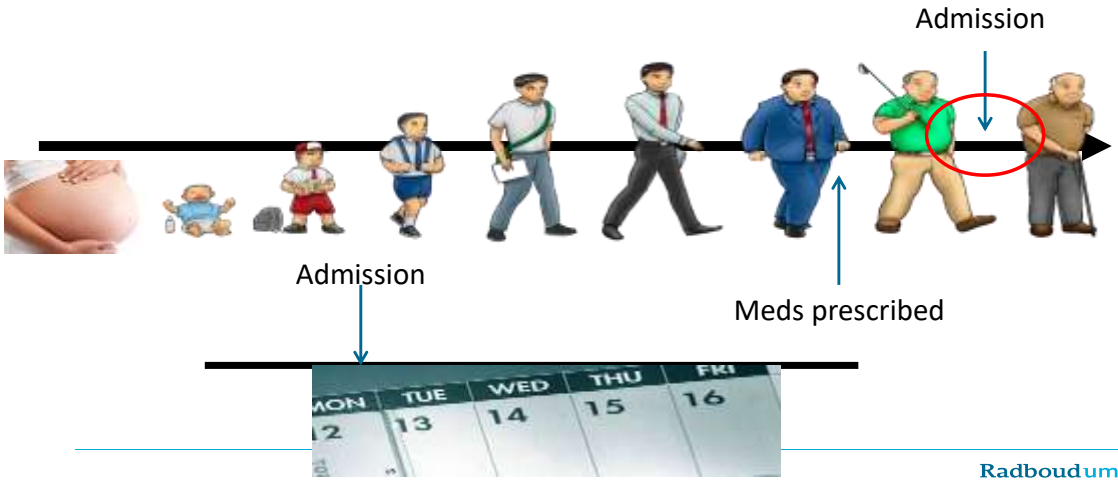
Substitution to drugs formulary

- Stop with substitution may introduce spillage
- Continuation of home meds is a precondition

What's in a name…



Home

Continuation of home meds

Hospital

Continuation of home medication

- Reduces spillage
- Reduces medication errors
- Increases pt satisfaction
- Makes different role pt possible
- Increases adherence to treatment
- Changes role of the pharmacy

Pilot study at a geriatric ward

- Reduction medication spillage of 92%
- Reduction health care professional's time of 35%

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Study on continuation of home meds

- Three goals
  - Spillage of medication and related costs
  - Develop bleuprint for implementation
  - Consequences of national implementaion on budgets

- Deliverables
  - Value stream mapping on current and future medication process
  - Data on spillage of medication
  - Effect on patient's satisfaction
  - Report on costs
  - Toolkit for national implementation

Process analysis

- Performed among 7 hospitals (academic, teaching, non-teaching)
- Great variety in
  - process,
  - responsibilities,
  - activities (who's doing what?),
  - software (IT)

Are patients waiting for this?

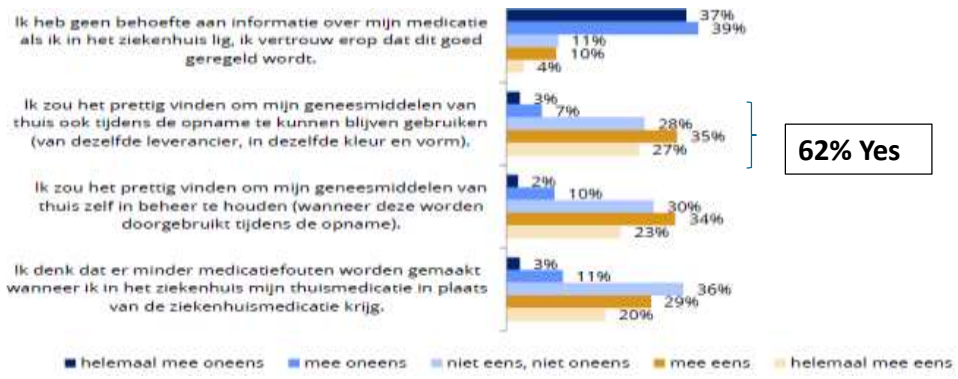
First results study Ministery of Health

- Questionnaires Radboudumc
  - 4 medical departments
  - 196 returned questionnaires before and 217 after implementation
  - 96% of pt use one or more meds
- Patient panel MUMC+
  - 540 (potential) patients
  - 67% use one or more meds

Results questionnaires

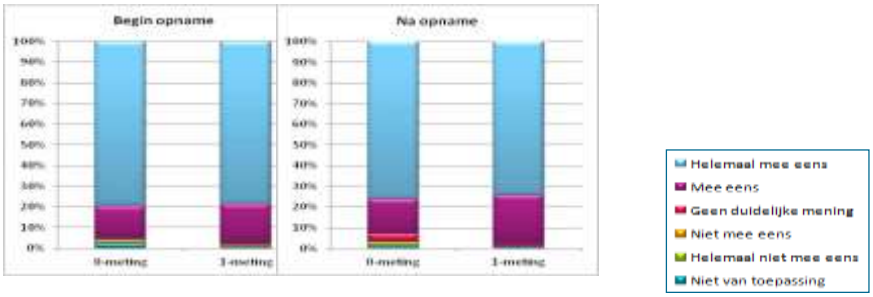
- Would you encourage continuation of home medication during admission
  - Before implementation: 74% Yes
  - After implementation: 85% Yes
- Do you think that continuation of home medication reduces medication errors?
  - Before implementation: 57% Yes
  - After implementation: 76% Yes

Results patient panel



Knowledge about medication (1)

- In the post implementation patients knew better for what indications the medication was prescribed



Knowledge about medication (2)

- When continuation of home medication,
  - pt knew better which medications to use (89% vs 94%)
  - pt had less questions about their home medication

Empowering patient

Self-administration of medication (1)

- Knowledge on drug name, purpose, appearance, dosage, frequency, and side-effects
  - Limited effect of SAM on patient knowledge
  - Knowledge on side effects was least known
- Adherence (pill count and questionnaire)
  - Limited effect of SAM on adherence

Richardson SJ, PLos One 2014

Self-administration of medication (2)

- Patient satisfaction (questionnaire or interview)
  - Positive responses
  - SAM should be continued following its evaluation
- Success
  - Pt who were successful shorter length of stay and fewer re-admissions
- In our population:
  - Approximately 55% was positive about self administration of medication

So, how to proceed?

- Ultimate aim: continuation of home medication and self administration
- Patients
  - Bring home meds → inform them
    - How to consider acute admissions?
  - Be willing to be empowered
- Health care professional
  - Check if patients are knowledgeable about their medications at admission, during admission and at discharge
    - If not, it's a chance of reinistiating and educate patients
  - Involve patients in their treatment
  - Enable access for patients to the EMR
  - At discharge, do not discard the home meds!

How to proceed?

- Organization
  - Keep home medication as close as possible to a patient (e.g. bedside)
    - Invest in bedside lockers
  - Discard your formulary only for out-patient situations, i.e. chronic medication
  - Keep your formulary for in-patient meds only (e.g. iv cytostatics, certain antibiotics, etc)
  - Design a process for re-dispensing home meds when not available at admission, or when out of pt's stock
    - Consider the effects on pharmacy stock
    - Consider how to label the re-dispensed packages
    - Can an outpatient pharmacy dispense those meds?
  - Determine patient's and organizational's responsibilities

How to proceed?

- IT/technology
  - Consider the effects on ordering for physicians
    - Do physicians order brands or generic substances?
  - Consider the effect on barcode eMAR
    - If barcode eMAR is in place, can home meds be scanned?
  - Do we need barcodes on each individual unit?

- Other aspects?
  - Probably…

Answers to the questions

- 0. I have totally no idea what this session is about
  - You should have now!
- 1. Continuation of home medication during admission is not likely to have a positive effect on medication safety and increases healthcare expenditures
  - Wrong, though more data are necessary
- 2. Patients are not willing to participate in their treatment during admission
  - Wrong

Contemplation

- The majority of the admitted patients is positive about continuation of home medication
- Greater involvement is a prerequisite
- We have a safe process in place
  - Patient transitions make this process less safe
  - Less changes in home meds may strengthen this process
- Implementation is difficult in a tight and strict environment (but not impossible)

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