The future of clinical pharmacy in Belgium

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1. Transition and current situation in Belgium

Evolution of hospital pharmacy in Belgium

traditional pharmacy

distribution: stock management

preparation: centralisation

administrative tasks

"central" clinical pharmacy

P & T Committee, other committees

drug information to the caregivers

DUR & DUE

active role in clinical trials, pharmacovigilance, medication errors

"decentral" clinical pharmacy

pharmacotherapy analysis, suggestions to clinicians

dose calculations

drug history

drug information to the patient

Clinical pharmacy in Belgium

- Central clinical activities are well established
- Decentral activities
  - about 10 pharmacist (not full-time)
  - mostly university hospitals
  - fellow-ship, sponsoring, PhD thesis
  - tasks: ward rounds, medication history, analysis of pharmacotherapy + interventions, information at discharge
- Education:
  - training clinical pharmacy UCL - Brussels
  - PhD thesis UCL - Brussels
  - fellowship UZ Leuven
  - training session KU Leuven

Are we clinical pharmacists?

- No official formation
- Just started a few years ago
- Limited experience
- We have to prove ourselves

But: first positive reactions from physicians and nurses

2. SWOT analysis

- Strenghts
- Weaknesses
- Opportunities
- Threats

Strenghts

- Highly motivated Belgian hospital pharmacists
- Source knowledge
- Network - national / regional associations - SIG

Weaknesses

- Education (university):
  - emphasis on analytical pharmacy
  - emphasis on theory, “ex cathetra”
  - mono-disciplinary
- Number of pharmacist: 1 per 100 beds
- High administrative load

Opportunities

- Increased knowledge about DRPs & DRHA
- High working pressure of physicians
  - limited time for follow-up of pharmacotherapy
- Closed drug budget
- Aging population: polypathology & polypharmacy
- Possible collaboration with clinical pharmacologists
- Vision of the government
  - pilot projects 2004 & 2006: “Clinical Risk Management“

Threaths

- Resistance from physicians
- Decreased attention for traditional tasks
- Other important projects to be done: CPOE, automatisation, CIVA,...

3. Impact of clinical pharmacy

→ Assessment of impact: important at this stage

Methodology

- Observational studies
  - with control group:
    - cohort studies
    - case-control studies
    - cross-sectional studies
  - case series of case reports
- Quasi experimental studies
  - Uncontroled before-after
  - Controled before-after
  - Interrupted Time Series (ITS)
- Randomized studies
  - Patient randomized
  - Cluster randomized

→ No at random assignment of interventions

→ No at random assignment of interventions, measurement before and after interventions

→ Golden standard for measuring effects

Endpoints

- Clinical:
  - morbidity and mortality
  - effectivity of therapy
  - adverse drug reactions
  - medication errors
  - patient compliance

Auteur, jaar	Type studie	Setting	Type van farmaceutische zorg	Klinisch eindpunt	Resultaat
Bond, 1999	Observationeel	1029 Amerikaanse ziekenhuizen	Diverse centrale en decentrale activiteiten	Mortaliteit in het ziekenhuis	↓ mortaliteit bij aanwezigheid van - klinisch geneesmiddelen-onderzoek - geneesmiddeleninformatie - medicatie anamnese
Bond, 2002	Observationeel	1081 Amerikaanse ziekenhuizen	Diverse centrale en decentrale activiteiten	Medicatiefouten (ME)	↓ ME bij aanwezigheid van - geneesmiddeleninformatie - deelname aan in zaalronde - ADR management - Medicatie anamnese
Leape, 1999	Gerandomiseerd, gecontroleerd	Afdeling IZ 275 patiënten	Pro-actieve deelname aan zaalronde	Voorschrijffouten	66% ↓ voorschrijffouten
Canales, 2001	Ongecontroleerd voor- en na onderzoek	Afdeling psychiatrie 93 patiënten	Medicatie anamnese Deelname zaalronde Patiënttraining Ontslagbegeleiding	Klinische respons Adverse Reactions Therapietrouw	↑ klinische respons ↓ ADR (extrapyramidale symptomen)
Dager, 2000	Ongecontroleerd voor- en na onderzoek	1 universitair ziekenhuis 120 patiënten	Begeleiding bij aanvang van warfarine-therapie	Dagen met hoge INR Adverse Events INR bij ontslag Interacties (sign.) Heropnames	↓ dagen met verhoogde INR ↓ bloedingscomplicaties ↓ INR bij ontslag ↓ significante interacties ↓ heropnames (bloeding of thrombose)
Gattis, 1999	Gerandomiseerd gecontroleerd	1 ziekenhuis 181 patiënten	Analyse van de farmacotherapie bij patiënten met hartfalen Patiënttraining Follow-up	Mortaliteit Hartfalen “events” Therapietrouw	↓ mortaliteit ↓ hartfalen events na 6 maand ↑ therapietrouw

- Mostly surrogate endpoints
- Pre-defined scoring system; opinion of clinician

- Economic:
  - drug costs (acquisition costs)
  - total costs (labs, material,…)
  - accomodation costs (LOS)
  - indirect costs (e.g absence from work)

Auteur, jaar	Setting	Type van farmaceutische zorg	Economisch eindpunt	Resultaat
Canales, 2001	Afdeling psychiatrie 93 patiënten	Medicatie anamnese Deelname zaalronde Patiënttraining Ontslagbegeleiding	Verblijfsduur Totale geneesmiddelkost	Geen vermindering van de verblijfsduur en van de totale geneesmiddelenkost
Bond, 2000	1016 Amerikaanse ziekenhuizen	Diverse centrale en decentrale activiteiten	Totale kost ("total cost of care")	↓ totale kost bij aanwezigheid van - opstellen richtlijnen en DUE - medicatie anamnese - geneesmiddeleninformatie - ADR monitoring - Meevolgen zaalronde
Baldinger, 1997	1 academisch ziekenhuis, MICU, 193 interventies	Proactieve deelname aan de zaalronde Geneesmiddeleninformatie	Geneesmiddelkost	↓ 101$ / dag
Suseno, 1998	1 academisch ziekenhuis,	Analyse van de medicatie-schema's, interventie via een nota in het dossier	Vermeden kosten	103 $ / dag
Chuang, 1994	1 academisch ziekenhuis, ICU, 310 interventies	Meevolgen zaalronde Geneesmiddeleninformatie Drug Use Evaluation ADR monitoring	Kosten besparingen ("cost savings") Vermeden kosten ("cost avoided")	1.229 $ / dag (vermeden + bespaard)
Boyko, 1997	3e lijnsziekenhuis, afdeling interne geneeskunde	Analyse van de medicatie-schema's Proactieve deelname aan de zaalronde	Per patiënt: Verblijfsduur Geneesmiddelenkost Totale kost	↓ verblijfsduur 1,3 dagen ↓ geneesmiddelenkost $ 301 ↓ totale kost $ 1.654

⇒ Costs saved (e.g. drug stopped, IV/PO switch)

⇒ Costs avoided (e.g. Calcium + vit D to avoid fracture)

Documentation of interventions

- Process indicators: number of interventions, time investment
- Details of interventions:
  - type of drug related problem
  - type of intervention
  - with whom communicated
  - clinical importance
  - economic importance
  - intervention accepted?

Drug information
Clarification / correction of order
Switch to other drug
Change of dose
Drug stop
...

4. Future evolution

Priority assessment

- Ensure current activities
  - extra pharmacists?
  - ↓ time consuming, less important activities
  - ↑ cooperation, more follow-up
- Priority against other projects
  - CPOE / electronic registration of drug administration
  - further development of P&T Committee, formulary
  - unit dose distribution
  - automatisation of distribution
  - individual distribution?
  - education and information for pharmacy technicians

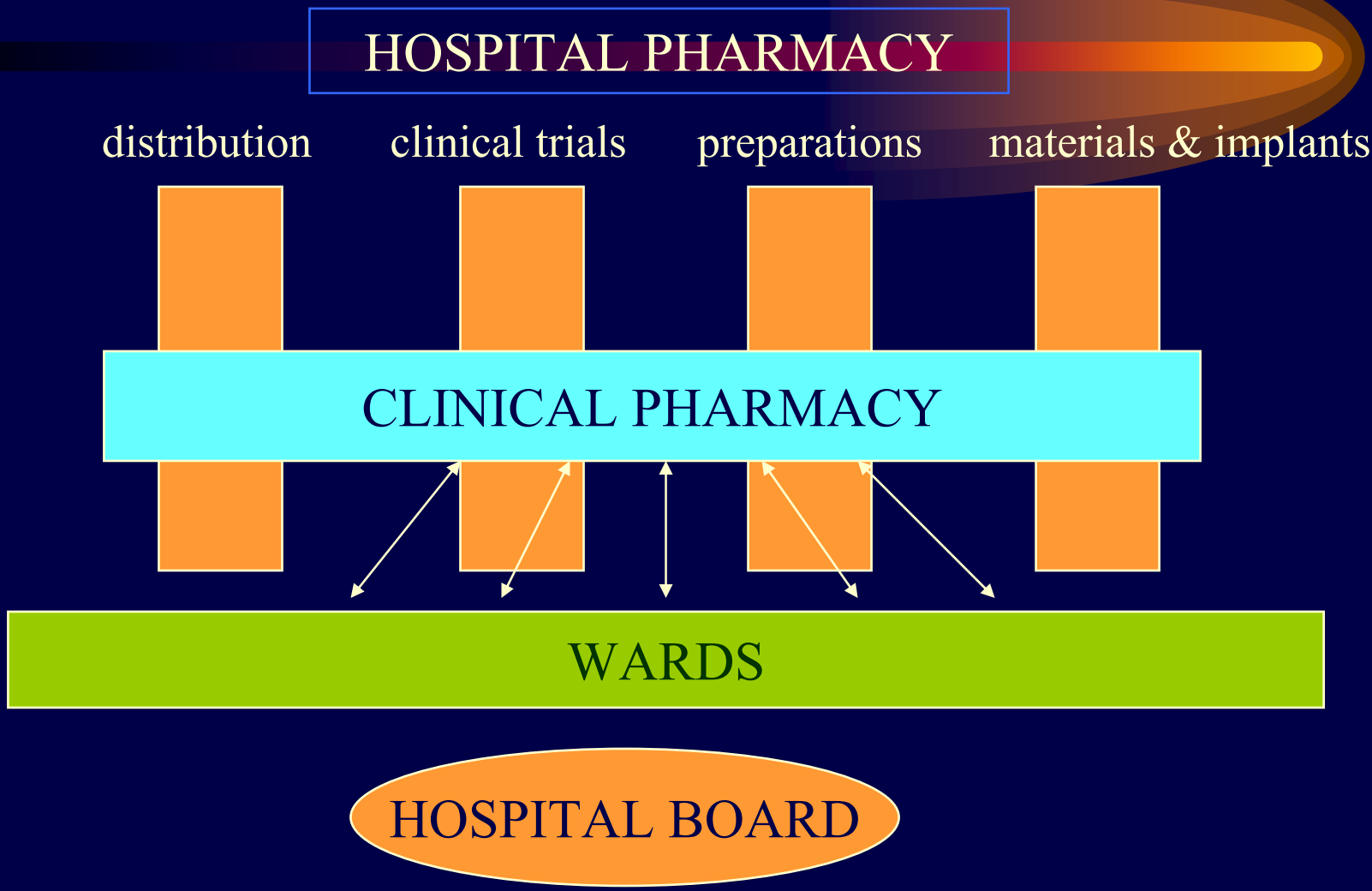
How to start

- Starting points:
  - patient populations (ICU, children, elderly)
  - drug classes (antibiotics, analgetics, chemotherapy)
  - problems (admission - discharge, drug information)
- Starting points:
  - joining patient discussions
  - answering questions about drugs
  - joining ward rounds
  - drug use evaluation
  - analysis of drug schemes during/after implementation of CPOE

Steps

- training (other collegues - abroad)
- approvement of hospital board, physician(s), head nurse
- communication of goals
- discussion of tasks
- agreements about presence at the ward / contacts
- obtaining sources for information / documentation
- method for registration of interventions
- pilot project
- feedback about interventions

Place within the organisation



CONCLUSIONS

- Clinical pharmacy has proven to optimise the quality of pharmacotherapy ~ in Belgium *(thesis A Spinewine)*
- Further development is a challenge in this period of transition; “now or never”
- Attention for a safe drug process *(CPOE, unit dose, CIVA, automatisation, drug information,...)*
- Documentation of interventions: clinical and economic impact


Thank you for your attention!