Presentation of a specific research project

Appropriate use of medicines in care of the elderly: *Factors underlying inappropriateness, and impact of the clinical pharmacist*

Anne Spinewine
Introduction

Starting point: Pilot project combining
- clinical activities
- research activities

Target high-risk patients (1)
Rigorously evaluate impact on quality (2)

Main research hypothesis:

Pharmaceutical care provided to patients at high risk of drug-related problems improves the quality of use of medicines
(1) Target: frail elderly patients

High risk of drug-related problems

Risk factors
- Comorbidities +++
- PK/PD changes
- Physical/cognitive impairment
- …

Problems with drugs
- Polymedication
- Inappropriate prescribing
- Poor compliance
- …

Consequences
- Clinical
  ▲ ADEs, morbidity, mortality
- Economic
  ▲ costs
- Humanistic
  ▼ quality-of-life

Examples:
- 50% of admissions to hospital that are secondary to an ADE are preventable
- 50% of elderly patients do not take their drugs as intended
- 1 € spent on drugs → 1.33 € spent to treat drug-related problems (Bootman, 1997)
(2) Rigorous evaluation of impact

- Structured and logical approach

1. Assess the baseline level of appropriateness of use of medicines → needs identification
2. Design the intervention (must address the needs)
3. Implement the intervention / service
4. Evaluate impact on quality
   1. Robust study design
   2. Validated process and outcome measures
(2) Rigorous evaluation of impact

- Structured and logical approach

1. Assess the baseline level of appropriateness of use of medicines → needs identification
1. Qualitative study - objective

1a. To explore the perceptions of HCPs on the appropriateness of use of medicines for elderly inpatients

1b. To identify the processes leading to (in)appropriate use of medicines with regard to prescribing, counselling, and transfer of information to the general practitioner

Appropriateness of use of medicines in elderly inpatients: qualitative study
Spinewine A, Swine C, Dhillon S, Dean Franklin B, Tulkens PM, Wilmotte L, Lorant V.

Qualitative research in health care

**QUALITATIVE** ↔ **quantitative**

**Approach**

- often exploratory work: “how” and “why” ↔ how many?
- hypothesis generating ↔ testing

*Why does inappropriate use of medicines occur?*

*What is the % of inappropriate prescriptions?*

*What is the impact of clinical pharmacists on this %?*
Qualitative research in health care

<table>
<thead>
<tr>
<th>QUALITATIVE</th>
<th>quantitative</th>
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**Approach**
- often exploratory work: “how” and “why”
- hypothesis generating

<table>
<thead>
<tr>
<th>Methods</th>
<th>survey, RCT</th>
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<tbody>
<tr>
<td>interviews, observation, documents</td>
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**Sample**
- small and purposive
- large, random
1. Qualitative study - design

1. DATA COLLECTION
   - 5 doctors
   - 4 nurses
   - 3 pharmacists
   - 17 patients
   - 2 acute geriatric units

   Individual interviews
   Group interviews (focus groups)
   1-month observation by clinical pharmacists

2. DATA ANALYSIS
   - Read transcripts → themes → coding → ...
   - Inductive, multidisciplinary approach
   - Software support: QSR N-Vivo
I. Qualitative study - results

• **Perceived appropriateness**
  - Inappropriate prescribing does occur
  - Patient counselling is insufficient
  - Information given to the general practitioner upon discharge, and relating to medicines, is insufficient

→ Why does this occur?

<table>
<thead>
<tr>
<th>Categories underlying inappropriate use of medicines</th>
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<tbody>
<tr>
<td>Reliance on general acute care and short term treatment</td>
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</table>
  - Review of treatment driven by acute considerations; other considerations overlooked
  - Limited transfer of information on medicines from primary to secondary care
| 1. “One size fits all”; prescribing behaviour not tailored to the older patient |
| Passive attitude towards learning |
  - Anticipated inefficiency in searching for medicines information |
  - Reliance on being taught (teacher centred) rather than self directed learning |
| Paternalistic decision making |
  - Patients thought to be conservative |
  - Patients declared as unable to comprehend |
  - Ageism |
  - Difficulty in sharing decisions about treatment with other prescribers |
I. Qualitative study - results

**Why** does inappropriate prescribing occur?

1. Prescribing is not tailored to ELDERLY patients
   
   « Doctors haven’t necessarily been trained in geriatrics. They will start with 10mg of morphine every 4 hours. That’s too much. »

2. Searching for medicines information: takes too long

   « I don’t really know drug interactions very well. And to always go and look in the compendium is a bit difficult in terms of time. »

3. Paternalism – patients are thought to be conservative

   « Patients are attached to their medicines. It is difficult to go against that. »
I. Qualitative study - discussion

- Underlying factors → approaches for improvement
- Multi-faceted approaches are needed
- Support by a clinical pharmacist could tackle several of the underlying factors
Pharmaceutical care process used in the study

Step 1: Gathering relevant information on the patient on admission

Step 2 – 2a: Systematic analysis of medicines prescribed

2b: Interventions to optimise prescribing

Are DRPs identified?

Are HCPs asking questions?

1. Discuss the DRP
2. Propose a solution
3. Seek acceptance
4. Ensure the follow-up

1. Answer the question
2. If relevant:
   - Propose a solution
   - Ensure the follow-up

Step 3: Information at discharge

Counselling

- Patient / caregiver - General practitioner
Pharmaceutical care process used in the study

Step 1: Gathering relevant information on the patient on admission

Medication history

- Patient / caregiver
- General practitioner
- Community pharmacist

Step 2 – 2a: Systematic analysis of medicines prescribed
2b: Interventions to optimise prescribing
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Step 3: Information at discharge

Counselling
- Patient / caregiver
- General practitioner

Plan
Design

Discharge
III. Implementation and evaluation

Objectives

3a. To evaluate the feasibility to provide pharmaceutical care
3b. To evaluate the impact on the quality of use of medicines

Acute geriatric unit, Mont-Godinne teaching hospital, 7 months

Implementation of ward-based clinical pharmacy services in Belgium – Description of the impact on a geriatric unit
Spinewine A, Dhillon S, Mallet L, Tulkens PM, Wilmotte L, Swine C.

Medication Appropriateness Index: reliability and recommendations for future use
Spinewine A, Dumont C, Mallet L, Swine C.
How to evaluate the impact of pharmaceutical care?

- **Descriptive** approach
  - Description of interventions made by the clinical pharmacist to optimise the use of medicines

- **Comparative** approach
  - Comparison with a control group
  - Measures of impact
How to evaluate the impact of pharmaceutical care?

• **Descriptive** approach
  - Description of interventions made by the clinical pharmacist to optimise the use of medicines

• **Comparative** approach
  - Comparison with a control group
  - Measures of impact
    - « Process » measures : quality measures
      - Appropriateness of prescribing
    - « Outcome » measures
      - Clinical: ADE, length of stay, mortality, readmission
      - Economic: cost of drugs, cost of hospital stay,…
      - Humanistic: quality-of-life, satisfaction
III. Evaluation – RCT – design

• **Descriptive** approach
  – Description of interventions made by the clinical pharmacist to optimise the use of medicines

• **Comparative** approach
  – **Comparison with a control group**
  – Measures of impact
    • « Process » measures: quality measures
      – Appropriateness of prescribing
    • « Outcome » measures
      – Clinical: ADE, length of stay, mortality, readmission
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### III. Evaluation – RCT – design

#### Patients admitted between October 2002 and May 2003

**Random sample**

- 300 patients admitted between November 2003 and May 2004

*Stratified randomisation*

- **Control group:** standard care (n=100)
  - Patients « lost » (n=5)
  - Patients deceased (n=5)
  - Completed in-hospital phase (n=90)

- **Intervention group:** standard care + pharmaceutical care (n=103)
  - Patients « lost » (n=2)
  - Patients deceased (n=5)
  - Completed in-hospital phase (n=96)

Follow-up: 1-3-12 months (<15% loss)

#### Patients excluded (n=97)

- Historical control (n=90)

Follow-up: 1-3-12 months (<15% loss)
III. Evaluation – RCT – design

- **Descriptive** approach
  - Description of interventions made by the clinical pharmacist to optimise the use of medicines

- **Comparative** approach
  - Comparison with a control group
  - Measures of impact
    - « Process » measures: quality measures
      - Appropriateness of prescribing (on admission and at discharge)
    - « Outcome » measures
      - Clinical: ADE, length of stay, mortality, readmission
      - Economic: cost of drugs, cost of hospital stay,…
      - Humanistic: quality-of-life, satisfaction
How to measure appropriateness of prescribing in older patients?

1. Medication Appropriateness Index (MAI)
   \[ \% \text{ of patients with } \geq 1 \text{ inappropriate rating?} \]

2. Drug-to-avoid criteria (Beers)
   \[ \% \text{ of patients taking } \geq 1 \text{ Beers' drug?} \]
   \[ \% \text{ of patients with previous fall and taking a BZD?} \]

3. Underuse ACOVE criteria
   \[ \% \text{ of patients with } \geq 1 \text{ underuse event?} \]
III. Evaluation – RCT – results

ON ADMISSION

1. Medication Appropriateness Index (MAI)
   % of patients with ≥1 inappropriate rating?
   20% --- 84%
   - Dupli ---- Dose

2. Drug-to-avoid criteria (Beers)
   % of patients taking ≥1 Beers’ drug?
   30%
   % of patients with previous fall and taking a BZD?
   62%

3. Underuse ACOVE criteria
   % of patients with ≥1 underuse event?
   55%
III. Evaluation – RCT – results

IMPROVEMENTS FROM ADMISSION TO DISCHARGE

Relative improvement from admission to discharge

- MAI
- Beers
- Beers-BZD
- ACOVE

Control
III. Evaluation – RCT – results

IMPROVEMENTS FROM ADMISSION TO DISCHARGE

Relative improvement from admission to discharge

- MAI
- Beers
- Beers-BZD
- ACOVE

Control
Intervention
III. Evaluation – RCT – results

- **Descriptive study**
  - Description of interventions made by the clinical pharmacist to optimise the use of medicines

- **Comparative study**
  - Comparison with a control group
  - Measures of impact
    - « Process » measures
      - Appropriateness of prescribing – **maintenance of improvements after discharge**
    - « Outcome » measures
      - Clinical: ADE, length of stay, mortality, readmission
      - Economic: cost of drugs, cost of hospital stay,…
      - Humanistic: quality-of-life, satisfaction
Implement
Identify the need
Plan
Design
Evaluate
Implement
Discussion – What have we learned?

- Need to optimise use of medicines in the elderly
- Several categories of causal factors need to be addressed

- Providing pharmaceutical care
  - is feasible and well accepted
  - improves the quality of use of medicines
  - cannot be replaced by a computerised prescr. system

- New European data on inappropriate prescribing
- 1st time qualitative approach taken

- New and robust data on impact in acute geriatrics
- Of interest for implementation in other European countries