Seamless care: defining clinical pharmacy interventions

Foulon Veerle
Claeys Coraline
Desplenter Franciska

on behalf of the KCE team 'Seamless Care'

Workshop organized at the 39th European Symposium on Clinical Pharmacy & 13ème Congrès de la Société de Pharmacie clinique, Lyon, France, 21-23 October 2010
Our background

Running of a project supported by the Belgian Healthcare Knowledge Centre (KCE):

« Seamless care focusing on medications »

Aim of the project:

• to propose a system to improve continuity of care with regard to medications, on admission as well as at discharge from the hospital,
• by analyzing international and Belgian data
Our background

International data

- Systematic literature review on impact and cost-effectiveness of initiatives
- Initiatives abroad: national or regional levels

Belgian data

- Belgian initiatives: summary of data on drug related problems and initiatives to improve continuity of care
- Medication changes after discharge of hospital: IMA data
- Qualitative study: perception of HCPs on approaches to improve seamless care
Workshop goals

After this workshop participants:

- Should be able to **identify medication related problems** that can occur due to transition between settings of care;
- Will have an idea of the **existing evidence on interventions** to support seamless care focusing on medication;
- Will have **designed a clinical pharmacy intervention** to support seamless care;
- Will have discussed the **barriers and facilitators** of the designed interventions.
Overview of the workshop

1. Identification of medication related problems
   - 1st group work (20 min)
   - Interventions and evidence (30 min)
   - 2nd group work (25 min)
   - Discussion of groups’ outputs (25 min)
   - General discussion and practical tips (10 min)

2. Evidence on existing interventions
3. Clinical pharmacy intervention design
4. Barriers and facilitators

Introduction to the topic (10 min)
Seamless care workshop

INTRODUCTION: SEAMLESS CARE?
Seamless care : definition

- Different definitions (Canada, Australia, US)

- Working definition:

  “The desirable **continuity of care** delivered to a patient in the health care system across the **spectrum of caregivers and environments**.”

“**Spectrum of caregivers**” refers to multidisciplinary care and how members of different health care professions interact to provide total patient care.

“**Environments**” refers to different health care settings (hospital and community care - home, rehabilitation care facilities and long term care facilities), and transition between them.
Seamless care: definition

The most important characteristics:
(1) having well-defined processes of care and responsibilities across the spectrum of caregivers,
(2) obtaining an accurate medication history,
(3) developing a treatment plan on admission as well as at discharge that is part of the overall care plan,
(4) dispensing an adequate amount of medication at discharge,
(5) ensuring the patient has been educated about the discharge treatment plan, and
(6) communicating to follow-up health care.
Seamless care workshop

A TYPICAL CASE
A typical case…

- Maria, 80 years
- Married
- Lives at home
- Husband prepares the medicines: week pill box
- Admission to geriatric ward because of pain development and memory loss
- Medication history based on information of
  - Patient
  - GP
  - Community pharmacy
A typical case...

- After hospital discharge her husband prepares medicines based on medication list of hospital

- 18 days after discharge: visit to pharmacy with prescriptions of geriatrician in training (received at hospital discharge)
### Medication history at admission

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage at Admission</th>
<th>Discharge Letter</th>
<th>Patient list 15 days after discharge</th>
<th>Community pharmacy 18 days after discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omeprazole</td>
<td>20 mg morning</td>
<td>20 mg morning</td>
<td>20 mg morning</td>
<td>-</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>2,5 mg night</td>
<td>1,25 mg night</td>
<td>2,5 mg night</td>
<td>-</td>
</tr>
<tr>
<td>Tetrazepam</td>
<td>-</td>
<td>25 mg night</td>
<td>Not taken</td>
<td>Delivered</td>
</tr>
<tr>
<td>Tranxene</td>
<td>10 mg morning + evening</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Trazodone</td>
<td>50 mg night</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paroxetine</td>
<td>30 mg morning</td>
<td>20 mg morning</td>
<td>30 mg morning</td>
<td>20 mg delivered</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>150 mg morning</td>
<td>75 mg morning</td>
<td>Using old boxes of 150 mg</td>
<td>75 mg delivered</td>
</tr>
<tr>
<td>MS Contin 10 (morphine)</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
<td>-</td>
</tr>
<tr>
<td>MS Contin 30 (morphine)</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
<td>-</td>
</tr>
<tr>
<td>MS Direct (morphine)</td>
<td>-</td>
<td>-</td>
<td>When required</td>
<td>-</td>
</tr>
<tr>
<td>Meloxciam</td>
<td>15 mg noon</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tramadol (Retard)</td>
<td>200 mg morning</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>-</td>
<td>1 g: 1 morning + 1 noon + 1 evening + 1 night</td>
<td>Not taken</td>
<td>1 g delivered</td>
</tr>
<tr>
<td>Dulcolax pcosulphate</td>
<td>1 morning + 1 noon + 1 evening</td>
<td>1 morning + 1 noon + 1 evening</td>
<td>1 morning + 1 noon</td>
<td>-</td>
</tr>
<tr>
<td>Risedronate</td>
<td>35 mg every Sunday</td>
<td>35 mg every Sunday</td>
<td>35 mg every Sunday</td>
<td>-</td>
</tr>
<tr>
<td>Calcium forte</td>
<td>-</td>
<td>500 mg afternoon + evening</td>
<td>Not taken</td>
<td>-</td>
</tr>
<tr>
<td>D-Cure (Vitamin D)</td>
<td>-</td>
<td>1 every week, after 4 weeks 1 every month</td>
<td>Not taken</td>
<td>Delivered</td>
</tr>
</tbody>
</table>
Unintentional medication discrepancies are:

- unexplained differences among documented regimens across different sites of care
- medication errors related to the transfer of patients between different settings of care
- can lead to ADEs
<table>
<thead>
<tr>
<th>Medication at admission</th>
<th>Discharge letter</th>
<th>Patient list 15 days after discharge</th>
<th>Community pharmacy 18 days after discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omeprazole</td>
<td>20 mg morning</td>
<td>20 mg morning</td>
<td></td>
</tr>
<tr>
<td>Lorazepam</td>
<td>2,5 mg night</td>
<td>1,25 mg night</td>
<td>2,5 mg night</td>
</tr>
<tr>
<td>Tetrazepam</td>
<td>-</td>
<td>25 mg night</td>
<td>Not taken</td>
</tr>
<tr>
<td>Tranxene</td>
<td>10 mg morning + evening</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Trazodone</td>
<td>50 mg night</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paroxetine</td>
<td>30 mg morning</td>
<td>20 mg morning</td>
<td>30 mg morning</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>150 mg morning</td>
<td>75 mg morning</td>
<td>Using old boxes of 150 mg</td>
</tr>
<tr>
<td>MS Contin 10 (morphine)</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
</tr>
<tr>
<td>MS Contin 30 (morphine)</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
<td>1 morning + 1 evening</td>
</tr>
<tr>
<td>MS Direct (morphine)</td>
<td>-</td>
<td>-</td>
<td>When required</td>
</tr>
<tr>
<td>Meloxicam</td>
<td>15 mg noon</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tramadol (Retard)</td>
<td>200 mg morning</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>-</td>
<td>1 g: 1 morning + 1 noon + 1 evening + 1 night</td>
<td>Not taken</td>
</tr>
<tr>
<td>Dulcolax picosulphate</td>
<td>1 morning + 1 noon + 1 evening</td>
<td>1 morning + 1 noon + 1 evening</td>
<td>1 morning + 1 noon</td>
</tr>
<tr>
<td>Risedronate</td>
<td>35 mg every Sunday</td>
<td>35 mg every Sunday</td>
<td>35 mg every Sunday</td>
</tr>
<tr>
<td>Calcium forte</td>
<td>-</td>
<td>500 mg afternoon + evening</td>
<td>Not taken</td>
</tr>
<tr>
<td>D-Cure (Vitamin D)</td>
<td>-</td>
<td>1 every week, after 4 weeks 1 every month</td>
<td>Not taken</td>
</tr>
</tbody>
</table>
Inventory of the contributory factors …

“… any factor that affects the performance of individuals or contributed to the incident”

**Contributory factors - NPSA framework**

The key part of the analysis is to identify the **contributory factors** lying behind each problem. The NPSA’s CFF has categories and components relating to exploring incidents. Click each category to find out more.

Patient factors are grouped into five types:

- Clinical condition
- **Social factors**
- Physical factors
- Mental and psychological factors
- Interpersonal relationships

Example: The patient did not understand the risks of treatment due to his poor understanding of the English language and no interpreters were available.
Discussion in small groups

• Which contributory factors might have been present in our typical case with medication discrepancies?

• Use the fishbone diagram to inventory these contributory factors.

• How should we overcome these contributory factors?
Report on group discussions

• Clinical condition
• Social factors
• Physical factors
• Mental/psychological factors
• Interpersonal relationship
Report on group discussions

Memory loss

- Clinical condition
- Social factors
- Physical factors
- Mental/psychological factors
- Interpersonal relationship

Depression

Decision to increase dose herself

Late visit to pharmacy
Use of old medicine boxes
Incomplete prescription?

Advice by geriatrician and hospital pharmacy on use of medicines

Education & Training
Equipment & Resources
Working Conditions
Organisational & Strategic

Geriatrician in training
GP on holiday

Medication discrepancies
Seamless care workshop

AT ADMISSION – AT DISCHARGE
Evidence from literature (literature research from 1995→July 2009)
Evidence from the analysis of regional or national initiatives in a selection of countries (grey literature)
Interventions – classification overview

COMMUNICATION OF ADMISSION INFORMATION TO HOSPITAL
MEDICATION HISTORY OTHER

PATIENT EDUCATION AND COUNSELING

COMMUNICATION OF DISCHARGE INFORMATION TO PRIMARY CARE PROVIDERS

COMPLEX INTERVENTIONS

PATIENT EDUCATION AND COUNSELING OTHER

OTHER INTERVENTIONS

COMPUTER-BASED INTERVENTIONS

Home → Admission → Hospital stay → Discharge → Home

Timescale
At admission

**Structured pharmacist medication history**

**Generation of a postoperative medication order form**

**Process**
- ↑ clinical interventions by pharmacist
- ↑ patients identified as taking herbal preparations, non prescription
- ↓ patients with at least 1 postoperative medication discrepancy related to home medications

**Medication reconciliation**

**Medication bag brought by patients on hospital admission**

**Use of patients’ own medicines during hospital stay**

**Yellow folder scheme** to guide HCPs in case of emergency for patients with long-term conditions (i.e.: anticoagulant).

References: Nester 2002, Kwan 2007
PATIENT EDUCATION AND COUNSELING DURING HOSPITAL STAY

Hospital self medication program in which patients are educated about their medicines and given increasing responsibility for taking them in hospital.

Process:
- ↑ medication knowledge
- ↑ adherence

Home → Admission → Hospital stay → Discharge → Home

Self-management plan developed for and agreed by patient or carer

Timescale

References: Lowe 1995, Pereles 1996
At discharge - communication

**Communications**
- One sentence evidence summaries appended to discharge letters for GPs
- Medication discharge plan sent by fax to community pharmacist and GP
- Copy of the discharge drug information given to the patient for the community pharmacist

**Process**
- ↓ non adherence to discharge medication
- ↓ rate of unintentional drug discrepancies

**Humanistic**
most GPs enthusiastic but few felt the summary provided new information

At discharge – before Patient education & other

**Process**
- ↑ medication knowledge
- ↑ adherence
- ↑ caregivers’ probability to obtain prescribed medications within 24h

**Clinical**
- ↓ unplanned visits to GP - ↓ hospital readmissions

**PATIENT EDUCATION AND COUNSELING BEFORE DISCHARGE**

- Proactive program of discharge planning by the pharmacy team
- 3D: durable display at discharge
- Individualized computer generated discharge instructions designed within a geragogy framework
- Predischarge pharmaceutical counseling

**Original pack dispensing** by hospital pharmacy during hospital stay and/or at hospital discharge

**OTHER INTERVENTIONS**

At discharge – after
Patient education & other

PATIENT EDUCATION AND COUNSELING AFTER DISCHARGE

Community liaison service:
- home visit from a community liaison pharmacist within 5 days after discharge (+ report to GP and com.pharm.)
- Home visit by a health visitor 72 hours after discharge to evaluate and improve medication management
- Follow-up phone call by a pharmacist 2 days after discharge

Multidisciplinary case conferences
- (transition pharmacist coordinator & primary care providers)*

Accessibility for patients and other HCPs of the hospital in the event of a medication problem (helpline)

PICTURE

Process
- ↓ tendency to start drugs
- resolution of DRP
- ↑ patient self-perceived medication understanding

Humanistic
- more patients satisfied with medication discharge instructions 15d. after discharge

Clinical
- ↓ rate of visits to ED
- ↓ hospital readmission 30 d. after discharge

At discharge – before and after - patient education

Process
- ↑ patient compliance
- ↓ rate of preventable ADEs
- ↓ rate of preventable, medication-related ED visits or
- ↓ hospital readmission
- ↓ days in hospital
- ↓ fewer deaths (p<0.05)

Clinical
- ↓ rate of preventable, medication-related ED visits or
- ↓ hospital readmission
- ↓ days in hospital
- ↓ fewer deaths (p<0.05)

Pharmaceutical care program:
discharge counseling + post-discharge telephone calls (monthly for 6 months, then ev 2 months for 6 additional months)

Pharmacist:
- medication review + patient counseling at discharge + and follow-up telephone call 3 to 5 days later (+ communication to GP)

Literature review

Timescale

References: Cabezas 2006, Schnipper 2006
At discharge - Complex interventions

At admission and discharge - Computer-based interventions

- **Computer-generated drug list** to cancel or renew previous outpatients prescriptions, or to prescribe new medications

  **Process**
  - ↓ prescriptions on admission and at discharge

- **Electronic communication** between GP and local pharmacy to transfer data about prescriptions

  **Process**
  - Better agreement between the GP and community pharmacist on current medication of the patient – but insufficient

- **Computerized medication reconciliation tool and process redesign** involving physicians, nurses, and pharmacists and supported by information technology

  **Process**
  - ↓ rate of unintentional discrepancies between preadmission medications and admission or discharge medications that had potential for harm

At admission and discharge – other interventions

Medication Liaison Service: drug history by a clinical pharmacist on admission (+ confirmation by GP and community pharmacist) + discharge plan communicated to GP and community pharmacist upon discharge.

Community liaison pharmacist: comprehensive drug history on admission, discharge counseling, and information to GP and community pharmacist.

Process:
- ↑ clinical pharmacy interventions and changes in drug therapy
- ↓ medication discrepancies between discharge prescription and home medication
- ↑ drug therapy knowledge

Timescale

References: Stowasser 2002, Bolas 2004
Seamless care workshop

DEFINING CLINICAL PHARMACY INTERVENTIONS
Small group work

Work out one intervention:

- Medication history taking at admission (using different strategies)
- Medication reconciliation (in hospital)
- Patient education and counseling at discharge
- Medication reconciliation (after discharge)
- Patient education and counseling after discharge
- Information transfer from hospital to primary care
- Information transfer from primary care to hospital
- Discharge file / transfer form
- IT technology
Small group work

Patient education and counseling

Medication history taking
Medication reconciliation

Information transfer between settings

Discharge file
IT technology
Think about different aspects of the intervention (form):

- At which moment in the process will the intervention take place?
- What is the goal of the intervention? How will this intervention improve seamless care?
- What is the content of the intervention? What will be done? What kind of information do you need and from whom?
- Who is involved in the intervention? Who will do what?
- Which tools can be used?
- Which barriers can be expected and what actions could be taken to overcome them?
- What kind of outcomes would you measure? Why would you measure these specific outcomes? How would you measure it?
Report on small group work

- Goals / How / Who / Tools
- Applicability?
- Experiences?
# Report on small group work

## Medication history taking at admission

| Goals                      | Complete overview of medication  
<table>
<thead>
<tr>
<th></th>
<th>Changes in last week</th>
</tr>
</thead>
<tbody>
<tr>
<td>How</td>
<td>Information GP, family caregivers, residential home</td>
</tr>
<tr>
<td>Who</td>
<td>Team: pharmacy: pharmacy technician first interview</td>
</tr>
<tr>
<td>Tools</td>
<td>Standardised procedures, checklist, protocols</td>
</tr>
</tbody>
</table>
# Medication reconciliation in hospital

| **Goals** | Target population: 65+ polypharmacy  
Define list of drugs – being detective  
Advice physicians on problems  
Check treatment: dosage, administration time, interactions, ... |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How</strong></td>
<td>Get information from patient, physician, drug bag, community pharmacy, medication plan of hospital</td>
</tr>
</tbody>
</table>
| **Who**   | Multidisciplinary team: pharmacist as leader but needs helpers  
Systematic approach  
Responsibility versus accountability |
| **Tools** | Computer  
Pharmaceutical file  
Document reasons for change |
## Patient education and counseling at discharge

| Goals                          | Improve patient knowledge  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Better therapy management</td>
</tr>
<tr>
<td>How</td>
<td>2 days before discharge in an ideal situation</td>
</tr>
</tbody>
</table>
| Who                           | Clinical pharmacist  
|                               | Nurse                      |
| Tools                         | Request for education/counseling in patient file  
|                               | Pill box                   |
|                               | Standardised teaching brochures |
|                               | Feedback                   |
|                               | Calendar – medication scheme |
## Medication reconciliation after discharge

| Goals                  | Total reconciliation  
|                       | Remove all old medication  
|                       | Avoid medical expenses  
| How                   | Discard old medication  
|                       | Refer to community pharmacy to collect new medicines  
|                       | 1-3 days after discharge  
| Who                   | Community pharmacist  
|                       | GP  
| Tools                 | Medical overview of hospital and pre-admission  
|                       | Discharge letter: fax or e-mail or portal  

<table>
<thead>
<tr>
<th>Patient education and counselling after discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
</tr>
<tr>
<td>Appropriate treatment</td>
</tr>
<tr>
<td>Observe patient needs</td>
</tr>
<tr>
<td><strong>How</strong></td>
</tr>
<tr>
<td>Min 2 moments: 2 days after discharge</td>
</tr>
<tr>
<td>and 1 month after discharge</td>
</tr>
<tr>
<td>Along with medication reconciliation</td>
</tr>
<tr>
<td><strong>Who</strong></td>
</tr>
<tr>
<td>Hospital pharmacist to provide discharge letter</td>
</tr>
<tr>
<td>Home care nurse</td>
</tr>
<tr>
<td>Community pharmacist</td>
</tr>
<tr>
<td><strong>Tools</strong></td>
</tr>
<tr>
<td>Discharge letter: complete and accessible</td>
</tr>
</tbody>
</table>
# Information transfer from hospital to primary care

<table>
<thead>
<tr>
<th>Goals</th>
<th>Explain GP/community pharmacist differences in medication profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>How</td>
<td>Letter: fax or e-mail</td>
</tr>
<tr>
<td></td>
<td>Letter to be added to general discharge letter</td>
</tr>
<tr>
<td></td>
<td>Explain patients about the differences: patient education</td>
</tr>
<tr>
<td></td>
<td>Add reasons for change</td>
</tr>
<tr>
<td>Who</td>
<td>Clinical pharmacist</td>
</tr>
<tr>
<td>Tools</td>
<td>Letter</td>
</tr>
<tr>
<td></td>
<td>Patient file, patient history</td>
</tr>
<tr>
<td></td>
<td>Need for a system to write medication once to avoid copy errors</td>
</tr>
</tbody>
</table>
Information transfer from primary care to hospital

<table>
<thead>
<tr>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>How</td>
</tr>
<tr>
<td>Who</td>
</tr>
<tr>
<td>Tools</td>
</tr>
</tbody>
</table>

Report on small group work
## Report on small group work

<table>
<thead>
<tr>
<th>Discharge file / transfer form</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
</tr>
<tr>
<td><strong>How</strong></td>
</tr>
<tr>
<td><strong>Who</strong></td>
</tr>
<tr>
<td><strong>Tools</strong></td>
</tr>
</tbody>
</table>
**IT technology**

| Goals | Accurate medication history including herbal medicines and OTC Monitor concordance, compliance  
     | Allergy status  
     | Care status  
     | Indications ... |
|-------|--------------------------------------------------|
| How   | E-prescribing available to all HCPs |
| Who   | All HCPs who need it  
     | Patient involvement? |
| Tools | Computer servers  
     | Software  
     | Programming  
     | ... |
Sharing of expertise …

- Existing projects?

- Keep in touch with each other … pass by before you leave the workshop – we will take note of your contact details.
Seamless care workshop

FURTHER READING
Further reading

• Summary of KCE report
• List of references used in literature review
• List of websites consulted for comparison of initiatives in 7 selected countries

• Full KCE report, and interesting links within
  www.kce.fgov.be

• Workshop material: websites of institutions
  www.kuleuven.be/pharm_care
  www.pharmacie-clinique.be
  or by e-mail: veerle.foulon@pharm.kuleuven.be
Other sessions related to this topic

- WS 10: Medication reconciliation, a priority for the European community and WHO: the experience in Europe (EUNetPaS) and an update on the High 5s project looking at impact over 5 years

- WS 15: Therapeutic Education: what is the story? what is the issue? How can the pharmacist get involved?

- Oral communication on the results of the qualitative study

- Posters with data of Belgian and international projects
Seamless care

GOOD LUCK WITH ALL ‘TRANSITIONS’ YOU MAY MAKE IN THE NEAR FUTURE... MAKE THEM SEAMLESS!