Implementing medication reconciliation on hospital admission: a multicentre pilot study in Estonia and Finland

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Background and Importance

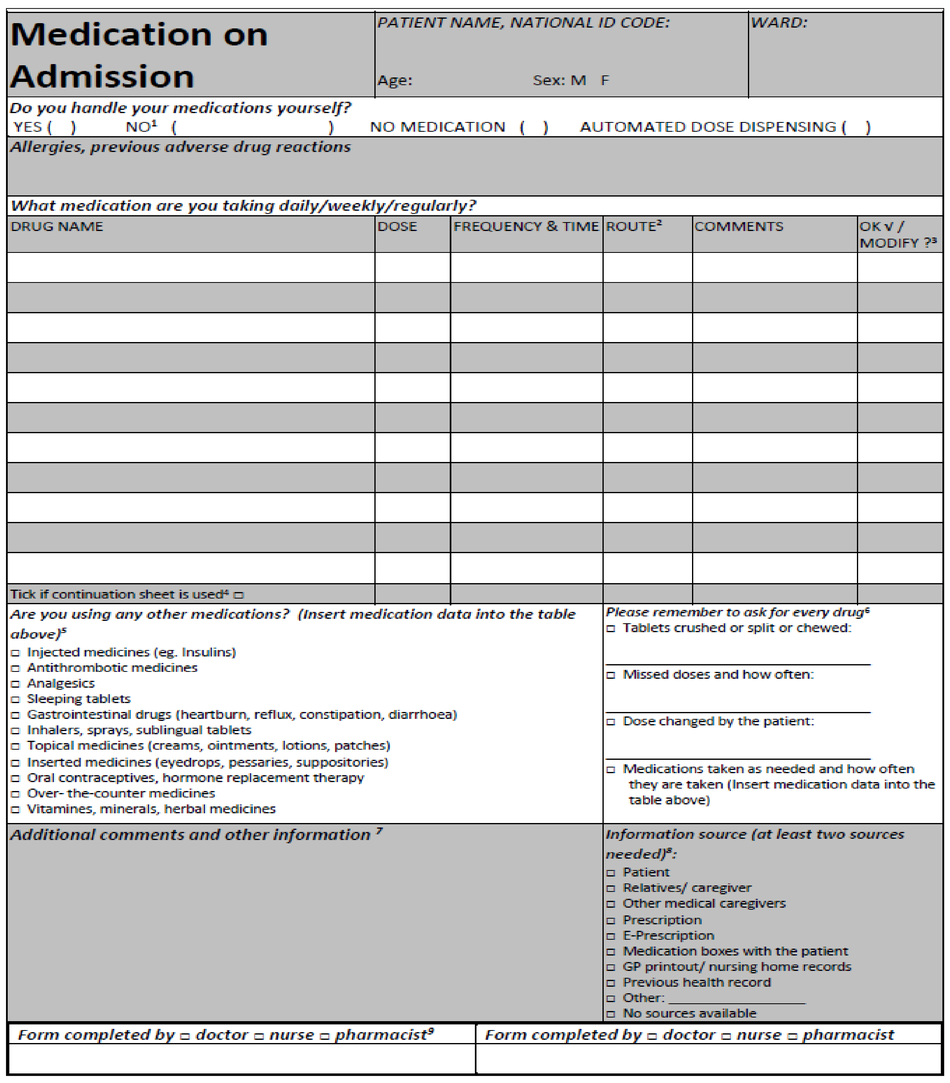
Transitions of care have been determined to be one potential source of errors, especially in relation to medications. WHO has pointed out the need to improve patient safety at transitions for many years as the probability of communication errors increases with a patient moving between facilities, sectors and staff (1). Almost two thirds of medication errors happen at transitions of care and these mistakes expose patients to medication-related problems and adverse drug events (2).

Aim and Objectives

To assess the effect of pharmacist-led medication reconciliation and to evaluate if a hospitalised patient's medication history is accurately recorded.

Methods

Medication reconciliation (MedRec) was performed by trained pharmacist within 24 hours after the patient's admission to the geriatric, internal medicine or surgical ward using the validated data collection form (Figure 1). Pre-admission list was prepared for every patient with dosage regimen for each medication, as well as any vitamins, herbal remedies or other non-prescription medicines using at least two information sources. Pilot study was conducted February-March 2019 in 4 Estonian hospitals and September-October 2019 in 1 Finnish hospital.



Medication on Admission

PATIENT NAME, NATIONAL ID CODE: *WARD:*

Age: Sex: M F

Do you handle your medications yourself?
YES ( ) NO[1] ( ) NO MEDICATION ( ) AUTOMATED DOSE DISPENSING ( )

Allergies, previous adverse drug reactions

What medication are you taking daily/weekly/regularly?

DRUG NAME	DOSE	FREQUENCY & TIME	ROUTE[2]	COMMENTS	OK V / MODIFY ?[3]
Tick if continuation sheet is used[4] ☐					

Are you using any other medications? (Insert medication data into the table above)[5]
- ☐ Injected medicines (eg. Insulins)
- ☐ Antithrombotic medicines
- ☐ Analgesics
- ☐ Sleeping tablets
- ☐ Gastrointestinal drugs (heartburn, reflux, constipation, diarrhoea)
- ☐ Inhalers, sprays, sublingual tablets
- ☐ Topical medicines (creams, ointments, lotions, patches)
- ☐ Inserted medicines (eyedrops, pessaries, suppositories)
- ☐ Oral contraceptives, hormone replacement therapy
- ☐ Over- the-counter medicines
- ☐ Vitamines, minerals, herbal medicines

Please remember to ask for every drug[6]
- ☐ Tablets crushed or split or chewed: _____
- ☐ Missed doses and how often: _____
- ☐ Dose changed by the patient: _____
- ☐ Medications taken as needed and how often they are taken (Insert medication data into the table above)

Additional comments and other information [7]

Information source (at least two sources needed)[8]:
- ☐ Patient
- ☐ Relatives/ caregiver
- ☐ Other medical caregivers
- ☐ Prescription
- ☐ E-Prescription
- ☐ Medication boxes with the patient
- ☐ GP printout/ nursing home records
- ☐ Previous health record
- ☐ Other: _____
- ☐ No sources available

Form completed by ☐ doctor ☐ nurse ☐ pharmacist[9] *Form completed by ☐ doctor ☐ nurse ☐ pharmacist*

Figure 1. First part of validated data collection form with reminders and guiding questions to gather medication information at admission.

Table 1. Demographic and Clinical Characteristics (N=101)

Characteristic	No	%
Age, median	74.2 (19 – 95)	
Sex		
Male	35	35
Female	66	65
Ward		
Internal medicine	43	43
Surgery	14	13
Geriatric	44	44
MedRec time (min), median	27.83 (5-90)	
No. of medications, median	10.98 (0-26)	
No. of information sources, median	2.64 (1-4)	

Table 2. Types of discrepancies revealed by MedRec (n=298).

Type of discrepancy	No	%
Drug omission	131	44
Food supplement	47	16
Incorrect dosage	38	13
Drug addition	24	8
Incorrect frequency	19	6
Incorrect time of administration	9	3
Electronic and paper chart discrepancy	6	2
Other	23	8

Results

A total of 101 patients were included in the pilot study with a mean age 74 years (Table 1).
Of the 1106 reconciled medicines at admission, a total of 298 medication discrepancies (MD) were revealed and 84% patients had at least one MD, a mean of 3.51 MDs per patient among those having MDs (Figure 2). Unintentional MDs were defined as dissimilarities between patient records with no identifiable rationale and/or as lacking documentation in the clinical records. 70% MDs were identified as unintentional MDs and they affected 63% patients with a maximum number of 10 discrepancies per patient case (Figure 3).
42% of MDs were considered clinically relevant by the joint decision of the pharmacist and the prescriber and the patient's medication list was modified.
All discrepancies were categorised as follows: wrong drug, drug omission, changed dose, frequency of administration route, wrong duration, therapeutic duplication, etc. The most common discrepancies were drug omission (44%), relating food supplements (16%), incorrect dose (13%), drug addition (8%) and incorrect medication frequency (6%) (Table 2).

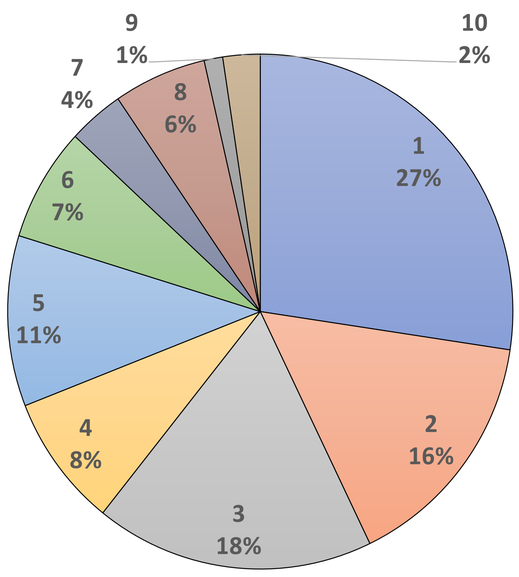


Figure 2. The frequency of all discrepancies (n=298) per patient.

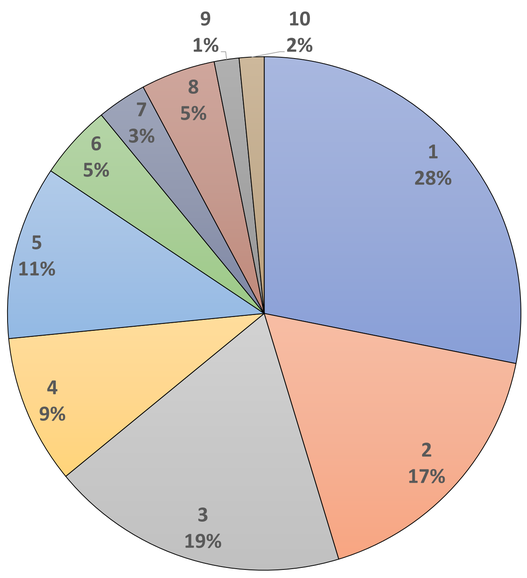


Figure 3. The frequency of unintentional discrepancies (n=210) per patient.

Conclusion

The results indicate that the process of collecting medication history needs improvement by implementing medication reconciliation as in 84% of cases patients' medication list obtained by the pharmacist and nurse were not a complete match and two-thirds of the patients had at least one unintentional medication discrepancy. This finding is similar to other studies regarding medication reconciliation.

https://www.eahp.eu/25-NP-005

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References
1. World Health Organization (2017). *Medication Without Harm - WHO Global Patient Safety Challenge*.
2. American Pharmacists Association and American Society of Health-System Pharmacists (2012). *Improving care transitions: optimizing medication reconciliation.*