F-QUA-59

Medication Safety in Nursing Homes -

Development of a method to systematically assess and improve the medication use process

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BACKGROUND

Medication-related problems are the most common risk factors affecting patient safety in healthcare.
In current studies, medication safety in nursing homes is a especially pressing hot spot.

In nursing homes, where the elderly residents are often affected by polypharmacy and multimorbidity, the medication management is an important process during the provision of nursing care and essential for patient safety.

Consequently, pharmacist involvement in optimizing the medication use process might benefit medication safety specifically and patient safety in general.

OBJECTIVES

The aim of this study was to **develop a methodology for a systematic analysis and evaluation of a current medication use process.**

SETTING & METHOD

A model institution with 900 beds at 5 sites in the city of Lucerne was used to

- develop,
- **pilot** and
- adapt the methodology.

Pilot of the methodology

1. **To <u>analyze</u> the current medication use process on-site, direct questioning and observation were chosen.**
2. **The <u>evaluation</u> was presented in the form of a hotspot-analysis.**
3. Based on
   - **a)** the systematic literature review,
   - **b)** the current situation of the model institution,
   - **c)** the prioritization of the hotspot analysis and
   - **d)** the legal requirements,

   <u>4 possible future medication use process models</u> were formulated and subsequently
4. analyzed by a <u>SWOT-analysis</u> (exploring strengths, weaknesses, opportunities and threats).

Acknowledgements

- The employees of Viva Luzern for their contributions and openness.
- The experts providing insight into the mediation use process of their institutions.

RESULTS

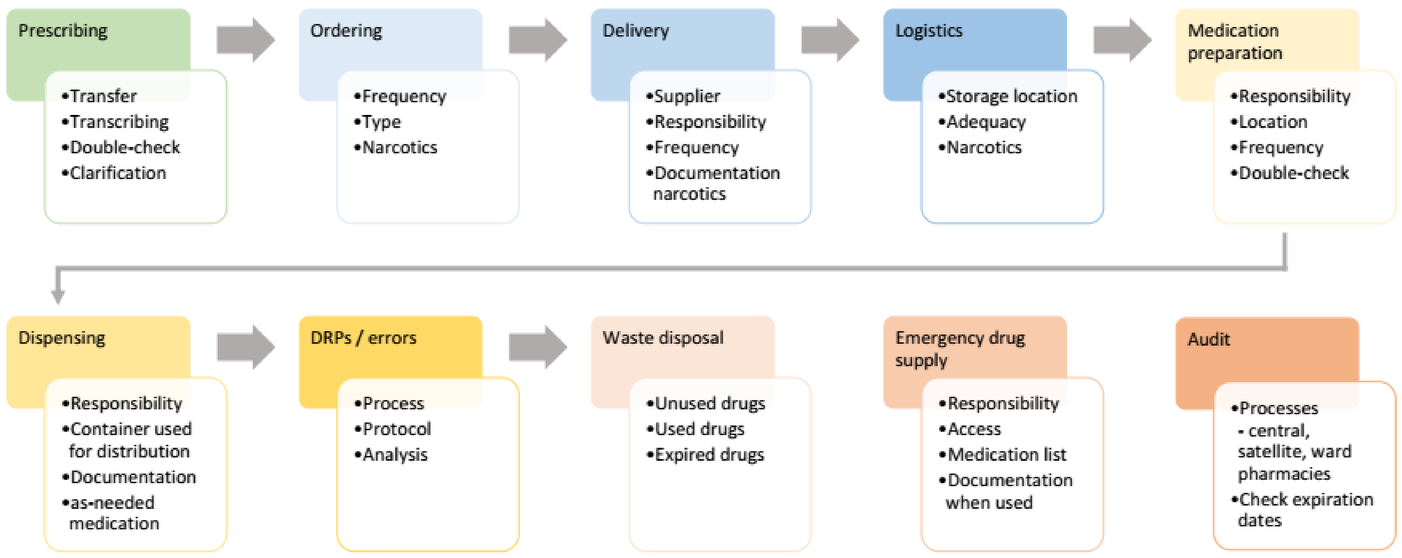
1. Medication use process analysis

1a. Literature review

A systematic literature review in Pubmed for publications pertaining to the medication use process in nursing homes yielded 670 initial hits; 111 studies were selected for full-text review.
56 studies were used to define the sub-processes and flag potential subjects for hotspots.

1b. Design of the medication use process, divided into 10 sub-processes

Figure 1: Display of the standardized medication use process



1c. Questionnaire

For every location of the nursing homes, a structured questionnaire was completed, collecting details on the medication use sub-processes displayed in 1b.
Subsequently, results were entered into an Excel®-Spreadsheet, divided by medical model (care by primary care provider vs. nursing home physician) and using a binary 1=yes/0=no-system.

Table 1: Binary assessment of the sub-process "Prescription"

Sub-process	Prescription																		
Location																			
Model of medical care	PCP	NH	PCP	NH	PCP	NH	PCP	NH	PCP	NH	PCP	NH	Sum Total			Ratio[%]			Overview NH [%]
PCP= individual primary care provider / NH= nursing home physician																			
Prescription process																			
Written	0	1	1	1	0	1	1	1	1	1	3	5	8	30%	50%	80%	100%		
Electronically	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%		
by phone	0	1	1	1	0	1	1	1	1	1	3	5	8	30%	50%	80%	100%		
by email	1	1	1	1	0	1	1	1	1	0	4	4	8	40%	40%	80%	80%		
by fax	1	0	0	0	1	0	0	0	0	0	2	0	2	20%	0%	20%	0%		
other (e.g. oral communication)	1	0	0	0	0	0	0	0	0	0	1	0	1	10%	0%	10%	0%		
phone prescripition accepted?	1	1	1	1	1	1	1	1	1	1	5	5	10	50%	50%	100%	100%		

➢ The process evaluations showed primarily a need for standardization.

2. Hotspot analysis

Table 2: Hotspot analysis of the sub-process "Prescription"

Classification	Explanation
	Beneficial or well executed sub-process
	Badly executed sub-process
	Economically relevant
▲	Legal non-compliance
●	Potential for saving time
✚	Economic potential

Abbr.	Explanation
NH	*Care model with nursing home physician*
PCP	Care *model with primary care provider*
NA	*no need for action*
NRA	*no risk adjustment*

N°	Hotspots	Uniformity Model NH (N° of locations)	Uniformity Model PCP (N° of locations)	Risk classification/ ▲ / ● / ✚	Effort for optimization	Part of the QMS
1	Prescriptions by telephone accepted	■ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	■ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	☐ NRA ☐ low ☐ medium ■ big	☐ NA ☐ low ■ medium ☐ big	■ yes ☐ no
2	Electronic prescription directly in the patient record	☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	☐ NRA ● ☐ low ☐ medium ■ big	☐ NA ☐ low ☐ medium ■ big	☐ yes ■ no

➢ In total, 85 hotspots were identified and analyzed; 41 hotspots, mostly pertaining to medication preparation, administration, storage and prescription needed optimization .

CONCLUSIONS

- The developed methodology allows an efficient assessment and evaluation of a current medication use process in any given inpatient setting.
- The hotspot-analysis helped identifying and prioritizing 41 potentially risky sub-processes, which were subsequently optizimed/restructured by Vivaluzern.
- The implementation of any future process model is associated with legal requirements pertaining to infrastructure, technical supervision and principles of medication handling.