PATIENT SAFETY IN MEDICATION DISPENSING PERFORMED BY PHARMACONOMISTS: A BEFORE AND AFTER STUDY

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1. Aim

- To evaluate the patient safety of ward-level medication dispensing performed by pharmaconomists (pharmacy technician with a 3-year degree) compared to nurse-led medication dispensing.

2. Background and importance

What we know:

- High patient safety have top priority in healthcare systems worldwide.
- To secure high patient safety previous research have focused on different medication concepts e.g. automatic medication dispensing, nurse-led medication dispensing or self-administration by patients.

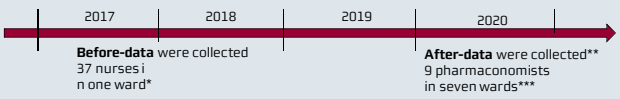
What we don't know:

- The risk of dispensing errors, when medication is dispensed by pharmaconomists as compared to nurses, is unclear.

3. Materials and methods

- Medication dispensing by pharmaconomists was implemented at Randers Regional Hospital, Denmark in January 2020.
- The proportion of ward-level dispensing errors was collected through disguised observation of nurses and pharmaconomists in the medicine room before and after the implementation.

Data collection



Outcome

$$\textbf{Error proportion} = \frac{Dispensing\ errors}{OEs} * 100\%$$

Dispensing errors were defined as deviations between the prescription and the dispensed medication.

Opportunies for error (OEs) were defined as any dose dispensed plus any dose prescribed but omitted.

* Before-data stem from a Ph.D. study at the same hospital (1).
** Data collected over two periods due to Covid-19 hospital restrictions.
*** After data were collected in seven wards to increase the number of pharmaconomists observed and thereby increase generalisability.

4. Results

Significantly fewer dispensing errors were observed in pharmaconomist-led medication dispensing as compared to nurse-led medication dispensing.

	After (122 patients)	**Before** (120 patients)	**P-value**
Error proportion	**2.2**	**12.8**	0.00[1]
(95% CI)	**(1.4 - 3.3)**	**(10.9 – 15.0)**	
(total errors)	(23 errors)	(132 errors)	

[1] Chi2 test

Error examples

- Venlafaxine HCl 75 mg prescribed, Acetylsalicylic acid 75 mg dispensed.
- Isosorbide mononitrate 30 mg prescribed, 60 mg dispensed.
- Methylphenidate prescribed, but omitted.

5. Conclusion and relevance

- Pharmaconomists made fewer dispensing errors during medication dispensing compared to nurse-led medication dispensing.
- **Hospital managers can consider medication dispensing by pharmaconomists as a patient safe medication concept.**

6. Reference

1) Sørensen CA, Lisby M, Olesen C, *et al.* Self-administration of medication: a pragmatic randomized controlled trial of the impact on dispensing errors, perceptions, and satisfaction. *Ther Adv Drug Saf* 2020; 11: 1–16.

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