

Drug Classes commonly related to Medication Errors at Transition of Care

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BACKGROUND & OBJECTIVES

- Transitions of care, such as from hospital to community settings, are often associated with changes in medication regimens, and patients are therefore at risk of drug-related problems (DRPs) [1]. DRPs refer to situations regarding drug therapy that adversely affect the intended health outcomes, arising from issues such as incorrect medical records, inadequate or ineffective drug treatment [2].
- Medication reconciliation aims to reduce DRPs and thereby improve patient safety. As clinical pharmacy resources are often limited, knowing the drug classes most susceptible to DRPs and the proportion of them arising from transition of care could support clinical pharmacists in more targeted medication reconciliation.
- We aimed to characterize DRPs according to their drug class and to quantify the proportion of DRPs that originate from transition of care (admission or discharge).

METHODS

- Medication reconciliation was systematically performed by clinical pharmacists on discharge prescriptions of patients from internal medicine, surgical, orthopaedic, and gynaecological wards in a Swiss regional hospital.
- For each identified DRP, the involved drug class (ATC code) and its origin were systematically documented distinguishing whether the DRP occurred during a transition of care or before/during hospitalisation.
- For this descriptive observational study, we analysed data from January 2019 to June 2023 to calculate the frequency of DRPs of specific drug classes and their origin in the medication process.

RESULTS

- 13.4 % of all prescriptions showed at least one DRP and 84 % of pharmaceutical interventions were accepted by the prescribers.
- The 5 drug classes most frequently associated with DRPs were cardiovascular drugs (18.2 %), gastrointestinal medication (16.3 %), analgesics (13.4 %), antithrombotic drugs (10.2 %) and anti-infectives (8.5 %).
- 78.8 % of DRPs involving cardiovascular agents resulted from a transition of care, along with 56.7 % for anti-infectives, 52.3 % for antithrombotic agents, 51.9 % for gastrointestinal medication and 49.3 % for analgesics.
- DRPs for anti-infectives, antithrombotic agents, and analgesics were more likely to occur at discharge than at admission.

DISCUSSION AND CONCLUSIONS

- Compared to other drug classes, we observed that DRPs for cardiovascular drugs most frequently occurred during transition of care. This is probably due to their common use as maintenance medication. Changes in medication regimens during hospitalisation and the process of substitution with equivalent drugs from the hospital formulary are susceptible to medication errors and DRPs. Anti-infectives, analgesics and antithrombotic agents cause more DRPs in particular at the time of discharge, probably due to their frequent initiation during hospitalisation.
- We identified a set of frequently prescribed drug classes that were commonly associated with DRPs. Furthermore, we observed that almost two out of three DRPs occurred during a transition of care.
- This study highlights the importance of medication reconciliation during transitions of care and suggests some crucial drug classes to focus on.

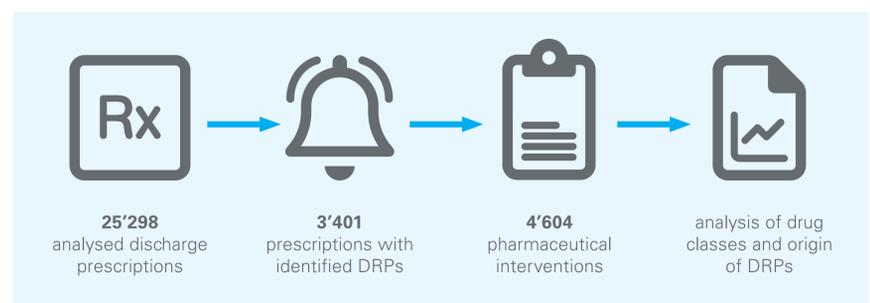


Fig. 1: Flowchart of the study.

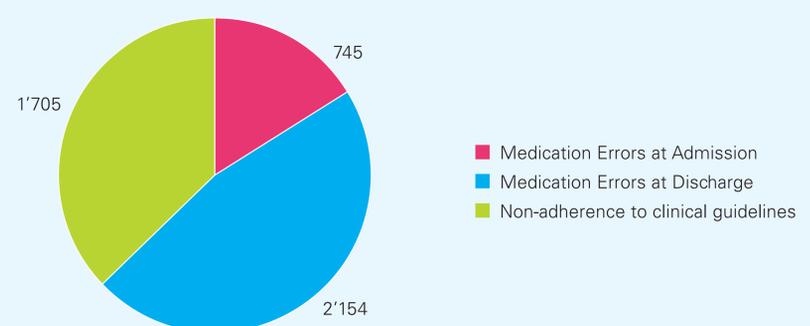


Fig. 2: Distribution of the origin of DRPs. 63 % of all pharmaceutical interventions (745 at admission and 2'154 at discharge) were due to medication errors during transition of care.

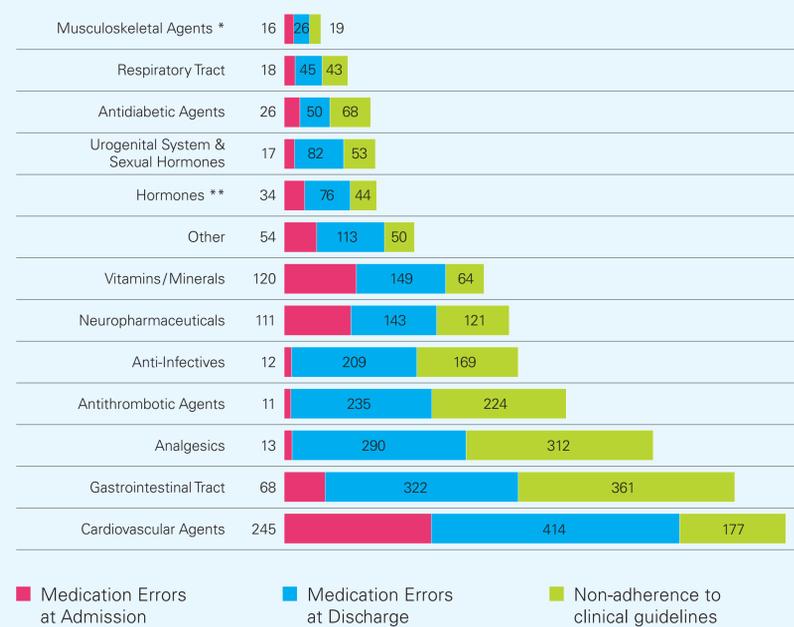


Fig. 3: Origin of DRPs in different drug classes.

* excluding analgesics ** excluding sexual hormones and insulins

References

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- [2] Pharmaceutical Care Network Europe Association (2020). Pharmaceutical Care Network Europe Classification for Drug Related Problem V9.1. Available at: https://www.pcne.org/upload/files/417_PCNE_classification_V9-1_final.pdf. (accessed February 07, 2024).

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