

# The medical perspective in prescribing: measurements and educational strategies

Akademisk avhandling

Som för avläggande av medicine doktorexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligens försvaras i hörsal Arvid Carlsson, Medicinargatan 3, fredagen den 17 september 2021, klockan 13.00.

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## Avhandlingen baseras på följande delarbeten

- I. Lönnbro, J., Wallerstedt, S.M. Clinical relevance of the STOPP/START criteria in hip fracture patients. *European Journal of Clinical Pharmacology*. 2017;73:499-505
- II. Lönnbro, J., Holmqvist, L., Persson, E., Thysell, P., Åberg, N.D., Wallerstedt, S.M. Inter-rater reliability of assessments regarding the quality of drug treatment, and drug-related hospital admissions. *British Journal of Clinical Pharmacology*. 2021. PMID: 33609324
- III. Lönnbro, J., Nylén, K., Wallerstedt, S.M. Developing professional confidence in the art of prescribing – a randomized controlled study on structured collegial discussions during internship. *European Journal of Clinical Pharmacology*. 2019;75(5):687-696
- IV. Lönnbro, J., Wallerstedt, S.M. “It’s helpful to get the time and opportunity to discuss drug treatment; that’s what I think is the most important thing.” - A qualitative study on prescribing education in junior physicians. *European Journal of Clinical Pharmacology*. 2020;76(2):249-255

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## Abstract

*Background and aims:* Drug treatment is a keystone in modern healthcare and for safe prescribing of drugs, an overall medical perspective has to be applied, taking patient characteristics into account. For each medication, and all medications combined, expected benefits must be weighed against the risks of harms; adverse drug reactions, sometimes leading to hospitalization, is a matter of concern. In striving for rational use of medicines, evidence regarding measures of prescribing quality is needed, as well as knowledge regarding how to facilitate the acquisition of prescribing skills in junior physicians. The aims of this thesis were (i) to investigate the clinical relevance of a set of prescribing indicators often used in research to reflect quality of drug treatment, and (ii) to evaluate inter-rater agreement in assessments of drug treatment quality, as well as (iii) to appraise the effects of an educational intervention on pharmacotherapy towards interns, and (iv) to explore what aspects junior physicians find important when being taught the art of prescribing.

*Methods and results:* (i) Assessing the drug treatment of 200 hip fracture patients from a medical perspective, we show that half of the STOPP/START criteria (Screening Tool of Older Persons' Prescriptions/Screening Tool to Alert to Right Treatment) are clinically relevant when individual characteristics of the patient are considered, and that suboptimal prescribing occur more often in those with a large number of drugs in the medication list and those who have their drugs provided by the multi-dose drug dispensing system. (ii) Investigating the inter-rater agreement regarding pharmacotherapeutic assessments, based on five physicians specialized/specializing in internal medicine assessing the drug treatment of 30 randomly selected inpatients, the reliability using such assessors seems to be very good for quality-related aspects, whereas the relationship between the drug treatment and the admission appears to be more challenging to determine, especially among residents. In one randomized controlled study (iii) and one qualitative study (iv), including 57 and 34 interns, respectively, at Sahlgrenska University Hospital, we show that a short, structured and discussion-based education based on clinical cases increases the confidence in performing basic medication reviews, and that discussion-based, small-group teaching on authentic patient cases with an atmosphere allowing questions, together with assignments and feedback, are important educational aspects for the interns.

*Conclusion:* This thesis illustrates the value of including an overall medical perspective in measures of prescribing quality and that reliability may be an important issue to consider in pharmacotherapeutic assessments. Further, this work provides evidence on how to educate junior physicians in order to make them more confident in the art of prescribing i.e., facilitating their acquisition of skills to apply an overall medical perspective in pharmacotherapy.

**Keywords:** Prescribing quality, adverse drug reactions, clinical relevance, inter-rater reliability, education