Enhancing medication safety in geriatric care: improving medication appropriateness and reducing drug-related revisits through a clinical pharmacist intervention

Hellemans Laura[1,2,3], Blocquiaux Lotte[4], Hias Julie[1,2], Walgraeve Karolien[1], Liesenborghs Astrid[1], Lammens Astrid[1], Deschodt Mieke[4,5], Tournoy Jos[4,6*] and Van der Linden Lorenz[1,2*]

1 University Hospitals Leuven, Hospital Pharmacy, Leuven, Belgium. 2 KU Leuven, Department Of Pharmaceutical And Pharmacological Sciences, Leuven, Belgium. 3 Research Foundation Flanders (FWO), Brussels, Belgium. 4 KU Leuven, Department of Public Health and Primary Care, Leuven, Belgium, 5 KU Leuven, Competence Center of Nursing, Leuven, Belgium. 6 University Hospitals Leuven, Department of Geriatric Medicine, Leuven, Belgium.
* shared last authorship

Contact: Laura Hellemans; laura.hellemans@uzleuven.be; Herestraat 49 3000 Leuven, Belgium

INTRODUCTION

Older adults face a disproportionate burden of **medication-related harm**.

The **ASPIRE RCT** evaluated a multifaceted clinical pharmacy intervention targeting hospital utilization and patient-centered outcomes.

Core **intervention elements**:
- Medication reconciliation
- Clinical medication review
- Patient education and empowerment
- Transitional care coordination

AIMS

To evaluate **impact of ASPIRE intervention** on:

Medication appropriateness
- Medication Appropriateness Score (MAS)
- Potentially Inappropriate Medications (PIMs)
- Potentially Prescribing Omissions (PPOs)

Drug-related revisits

METHODS

More details on intervention components

MAS: STOPP + START
PIMs: STOPP
PPOs: START

→ **Multivariable Linear Mixed Models**

Piecewise Cox regression:
- 0-30-, 30-90- and 90–180-day intervals
- Hazard ratio (HR) & 95% Confidence Interval (CI)

Kaplan Meier curve & Log-rank test

RESULTS

Patient characteristics

N=825 patients admitted to an acute geriatric ward
410 control (C) and 415 intervention (I) patients
Mean age of 86.3 (+/-5.9) years

19.8% admitted after fall upon index admission
50.1% medication without indication upon admission
Median number of preadmission medications: 10 [7-12]

Mortality

Similar overall mortality rate six months post-dischare: 21.5% vs. 21% (C vs I)

Of which more **control** patients **(73.9%)** died within the first 90 days post-discharge compared to **intervention** patients **(65.5%)**

Medication appropriateness

Improvement (all p <0.0001) at **discharge** & **1 month post-discharge** for intervention patients with
-0.97 & -0.93 (**MAS** score)
-0.85 & -0.85 (number of **PIMs**)
-0.25 & -0.24 (number of **PPOs**)
compared to control patients

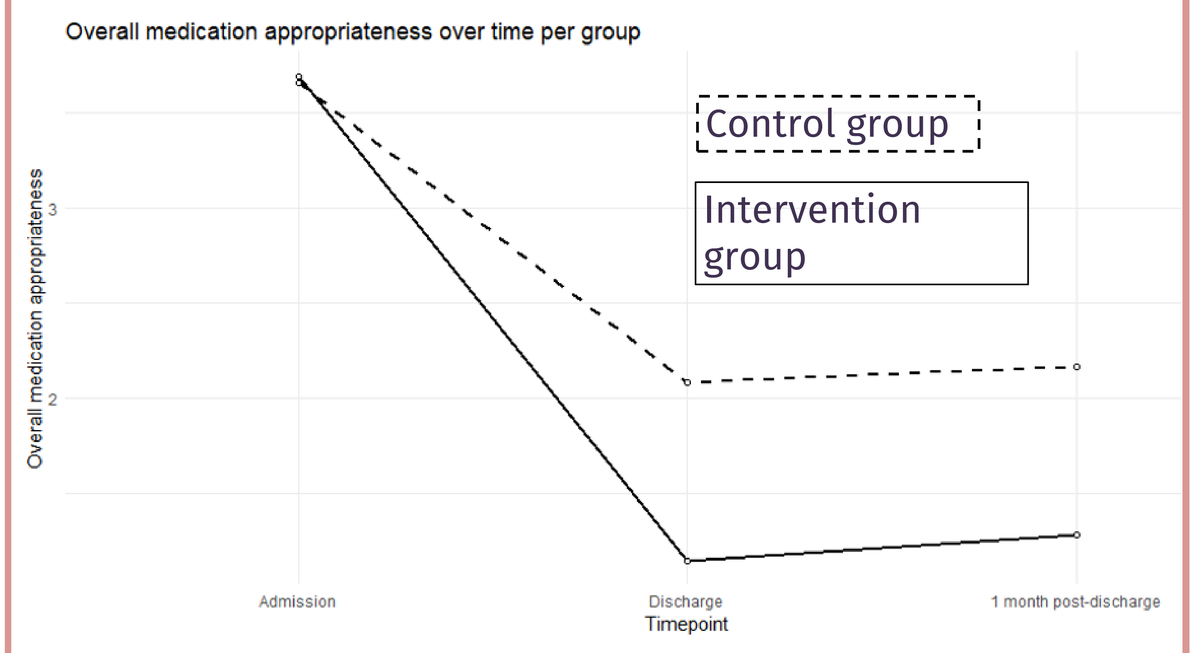
Drug-related revisits

Prevalence of 8.3% vs 7.0% (C vs. I) 6 months post-discharge
Lower hazard 90-180 days post-discharge:
- HR 0.24; 95% CI [0.07 – 0.88]; p = 0.03

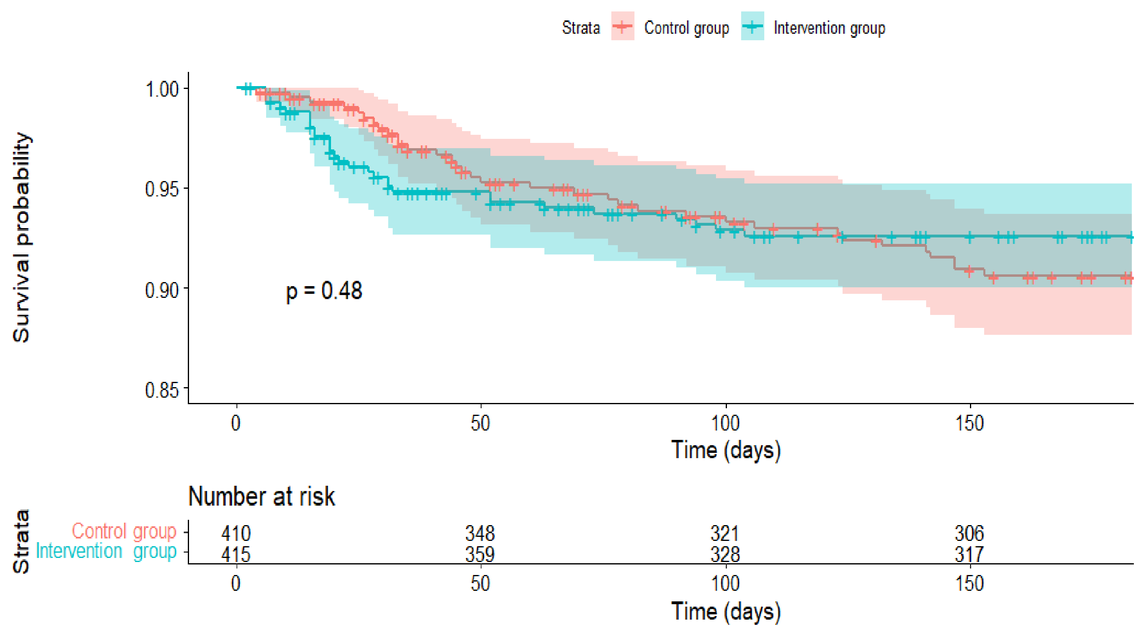
No overall difference in time-to-event across the full follow-up
- p = 0.5 for log-rank test

Fall-related drug revisits reduced by 19.4 percentage points:
- 47% vs 27.6% (C vs. I)

Medication Appropriateness Score



Kaplan Meier curve for drug-related revisits



The ASPIRE intervention resulted in a...

Significant **improvement** of **appropriate pharmacotherapy**

76% hazard reduction for a drug-related revisit 90-180 days post-discharge

19.4% absolute risk reduction for a fall-by-drug hospital revisit

Discussion

The **higher 90-day mortality rate** in control patients, acting as a **competing event** for drug-related revisits, likely accounts for the **lack of a detectable intervention effect** on drug-related revisits **within the first 90 days after discharge.**

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