

HRB Centre for Primary Care Research  
Research Briefs

## The Medication Reconciliation Study

### *Hospitalisation events influence prescribing among older adults*



Over half of older adults take four or more medications regularly. Transitions between primary and secondary care, including hospitalisation and discharge, can result in medication changes. To avoid this causing a risk to health, it is important to ensure that appropriate medication is maintained, that no new medication that is inappropriate is started and that a review of medications is carried out if warranted.

The Medication Reconciliation cohort study collected data from anonymised general practice electronic health records in Ireland between 2011 and 2017. The 44 participating practices were based in Dublin, Galway and Cork. Data included demographic, clinical, prescribing and hospitalisation records of almost 40,000 patients aged 65 years and older.

Three recent papers from the Health Research Board (HRB) Centre for Primary Care Research ([www.hrbcentreprimarycare.ie](http://www.hrbcentreprimarycare.ie)) have analysed this dataset to examine how hospitalisation events among older adults and transitions back to primary care can influence prescribing practices.



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The first of these three papers, published in BMJ and led by Dr Teresa Perez (Complutense University of Madrid), explored the presence and rate of potentially inappropriate prescribing (based on distinct Screening Tool for Older Persons' Prescription criteria). Each year, 10-15% of patients had a hospital admission and potentially inappropriate prescribing was present in 45%-51% of patients overall. Independently of age, sex, number of prescription items, comorbidity, and health cover, hospital admission was associated with a higher rate of potentially inappropriate prescribing criteria; aHR 1.24 (95% CI 1.20 to 1.28). Among participants who were admitted to hospital, the likelihood of potentially inappropriate prescribing after admission was higher than before admission aOR 1.72 (95% CI 1.63 to 1.84).

The second paper, published in BMJ Open and led by Dr Patrick Redmond (Royal College of Surgeons in Ireland), explored discontinuity of four evidence-based medication drug classes: antithrombotic, lipid-lowering, thyroid replacement drugs and respiratory inhalers in hospitalised versus non-hospitalised patients. In patients admitted to hospital, medication discontinuity ranged from 6%-11% in the six months post-hospitalisation, compared to 9-17% discontinuity in those not hospitalised. Discontinuity was significantly lower for hospitalised patients taking respiratory inhalers (aOR 0.63, 95% CI (0.49 to 0.80),  $p < 0.01$ ) and thyroid medications (aOR 0.62, 95% CI (0.40 to 0.96),  $p = 0.03$ ). Older patients and those who paid to see their GP were more likely to experience increased odds of discontinuity in all four medicine groups.

The third paper, led by Dr Mary Walsh (Royal College of Surgeons in Ireland) and published in *Drugs & Aging*, used a before and after design to look specifically at prescribing around hospitalisations related to fall events in  $n = 927$  eligible patients. After adjustment for patient and practice factors, vitamin D, which is recommended in fall-prone individuals, had higher odds of prescription post-hospitalisation (aOR 4.47, 95% CI 2.09-9.54). Unfortunately, sedatives, which can cause falls, also had higher odds of prescription post-hospitalisation (aOR 1.75, 95% CI 1.29-2.39). Having a fracture was independently associated with new initiation of vitamin D but no patient factors were found to be associated with new sedative initiation.

Hospitalisation was not found to result in discontinuation of evidence-based long-term medication in older adults but it does place patients at risk of increased prescribing of potentially inappropriate medications.

Improved communication is required between hospitals and primary care to ensure that GPs can review the indications and long-term instructions for hospital-initiated medications in their older patients. The Irish Health Service Executive is currently piloting projects around electronic prescribing which has the potential to improve the transfer of medication information.

#### The articles can be viewed at:

- [1] Pérez T, Moriarty F, Wallace E et al. Prevalence of potentially inappropriate prescribing in older people in primary care and its association with hospital admission: longitudinal study. *BMJ* 2018; 363 :k4524 (<https://www.ncbi.nlm.nih.gov/pubmed/30429122>)
- [2] Redmond P, McDowell R, Grimes TC, et al. Unintended discontinuation of medication following hospitalisation: a retrospective cohort study. *BMJ Open* 2019;9:e024747. (<https://www.ncbi.nlm.nih.gov/pubmed/31167862>)
- [3] Walsh M, Boland F, Moriarty F, Fahey T. Modification of potentially inappropriate prescribing following fall-related hospitalizations in older adults. *Drugs & Aging*. 2019. (<https://www.ncbi.nlm.nih.gov/pubmed/30834489>)