Title: Does the potentially unintended discontinuation of medication occur following hospitalisation? A retrospective cohort study.

Problem: Older people are more likely to be prescribed multiple medications, have multiple chronic conditions and experience an increasing number of transitions of care (e.g. hospitalisation). Poor coordination of transitions of care between general practices and hospitals may be associated with discrepancies in medication lists, increasing potential for medication errors of commission and omission. Our aim is to assess whether unintended discontinuation of common, evidence based, long-term medication occurs after hospitalisation and what factors are associated with unintended discontinuation.

Approach: We performed a retrospective cohort study utilising the Clinical Practice Research Datalink (CPRD) and Hospital Episodes Statistics (HES) between 1999 and 2018 examining records of 171,525 patients aged 65 years and older who were receiving a prescribed long-term medication for chronic conditions for at least one year. The primary outcome was discontinuity of medication post hospitalisation (absence of a prescription for more than six months) of four evidence-based medication drug classes (antithrombotics/antiplatelets, lipid-lowering, thyroid replacement medicines and respiratory inhalers); with the comparison being between those hospitalised and not hospitalised. The association of patient (age, gender, polypharmacy and multimorbidity) and health system factors associated with discontinuity will also be examined. A multilevel logistic regression model will be applied to allow for practice level clustering.

Findings: Preliminary analysis of a pilot sample (N=48) reveals, in those hospitalised, discontinuity of medicines six months post hospitalisation ranged from 0% (thyroid replacement medicines) to 50% (respiratory inhalers). Discontinuity of statins was significantly lower in those hospitalised compared to those not hospitalised with an odds ratio (OR) of 0.11 95% CI 0.01, 0.95, p=0.045. None of the other medicines reported a statistically significant difference. Adjustment for confounding factors and full population analysis is underway.

Implications: Previous studies have reported that poor coordination of transitions of care may lead to medication errors and potentially adverse drug events. In particular, it is known that discharge communications following hospitalisation commonly omit appropriate medications unintentionally. It is not clear how these transitions of care and potential for unintentional omissions impacts on prescribing in the GP record. This study will examine the GP and hospitalisation records of older patients prescribed specific medications long term and determine the impact of hospitalisation on their continuity in the GP record. Outcomes from this study will be relevant in determining the need for interventions to improve medicines continuity at following hospital discharge.

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