LETTER TO THE EDITOR

Comment on: pharmacy-led medication reconciliation programmes at hospital transitions: a systematic review and meta-analysis

To the editor:

Medication reconciliation is a resource-intensive process, and it is important to discern the most effective and efficient interventions to optimize patient safety at care transitions. Dr. Mekonnen and colleagues recently undertook a systematic review investigating the impact of pharmacy-led medication reconciliation programmes at care transitions on the prevalence of medication discrepancy.¹ They sought to categorize interventions by the transition(s) they focussed on, to learn whether pharmacist-led medication reconciliation interventions delivered at a single transition (admission or discharge) were more effective than those delivered across multiple (two or more) transitions.

Our recent study published in BMJ Quality and Safety was included in the meta-analysis.² The intervention was complex, involving collaborative pharmaceutical care between doctors and

pharmacists throughout the inpatient hospital episode. The target of the intervention was multiple transitions: admission and discharge. Our primary outcome measured discharge medication error, although we also reported admission medication error to illustrate the intervention's impact at iterative stages of care. We consider it a single complex intervention delivered across the full inpatient journey, rather than discrete interventions at admission and discharge. Patients were followed longitudinally from admission to discharge, and therefore, it is the same cohort of patients, and not independent groups of patients, included at both care transitions. As with many complex interventions, it is difficult to identify whether the observed effect is attributable to any single intervention component, as distinct from the composite.³ Our belief is that admission medication reconciliation could not but have impacted on the likelihood of medication being

Fig. 1. Alternative meta-analysis of the effectiveness of pharmacy-led medication reconciliation programmes on proportion of patients with medication discrepancies at multiple transitions.

Fig. 2. Alternative meta-analysis of the effectiveness of pharmacy-led medication reconciliation programmes on proportion of patients with medication discrepancies at single transitions.

reconciled at discharge and therefore on the incidence of discharge medication error, consistent with published evidence.^{2,4-6}

Mekonnen and colleagues categorized our complex intervention as two discrete 'single-transition' interventions delivered at admission and then at discharge. We offer an alternative analysis where we categorize and include our data in the 'multiple-transitions' meta-analysis. We adhered to Mekonnen *et al.*'s methods that is conducted with Review Manager (RevMan) version 5.3. (Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2014); random-effects model to pool data; described Mantel-Haenszel (M-H) risk ratio (RR) with the associated 95% confidence intervals (CI); and explored statistical heterogeneity among the studies by observing the I^2 and P values. We found that 'single-transitions' medication reconciliation remains effective (RR 0.37, 95% CI: 0.24–0.56, $P < 0.001$, I^2 96%), but 'multiple-transitions' medication reconciliation is also effective (RR 0.65, 95% CI: 0.44–0.98, $P < 0.001$, I^2 86%) (Figs 1 and 2).

Based on our analyses, we urge caution in the interpretation of Mekonnen's finding that there was no difference between groups for interventions targeting multiple transitions. We agree that further investigation of multiple -transition medication reconciliation interventions is merited. Meanwhile, the findings from our meta-analysis suggest that multiple-transition pharmacist-led medication reconciliation interventions carry modest, but statistically significant, benefit in preventing medication discrepancy.

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