Results of a randomised controlled study to reduce medication-related harm in older people post-hospital discharge

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Introduction

Medication-related harm (MRH) is a challenge for older adults in the period following hospital discharge. NHS Discharge Medicines Service (DMS), within the Community Pharmacy Contractual Framework, aims to reduce post-discharge MRH through improved communication between hospital, community pharmacists, and patients. The aim of the study was to investigate the effectiveness of an individualised medicine management plan (MMP) plus DMS in reducing medication-related harm compared to DMS only

Methods

Older adults ≥ 65 years were recruited from 8 hospitals in England and randomised to intervention (MMP of patient education about medicines and discussion around medication risk plus DMS) or control (DMS only). Baseline data included patients' clinical and social demographics and medication risk calculated using a risk-prediction tool at the point of discharge. At 8-weeks post-discharge, trained study pharmacists or doctors verified MRH via triangulation of outcome data obtained from telephone interview with study participants and / or carers, review of GP records and identifying cause of readmission if it occurred. A process evaluation assessed the acceptability of study methods by hospital pharmacists.

Results

A total of 274 patients were included (140 control, 134 intervention), mean age of 80.1 years (range 65–100), 151 (55.1%) females. In both study arms, MRH was strongly associated with hospital readmission (OR = 5.29, 95% CI: 1.57–17.77) and use of A&E services (OR = 4.21, 95% CI: 1.33–13.31). Although not statistically significant, there was a consistent trend toward reduced odds of adverse outcomes in the intervention group, OR= 0.52 (95% CI: 0.16–1.68). The process evaluation showed that the study strengths were a standardised medicine management plan, objectively assessing medications risk, and identifying opportunities for pharmacist-led interventions.

Conclusion

MRH after leaving hospital has a substantial impact on healthcare utilisation. The study intervention has the potential to deliver clinically important benefits through reducing MRH.

Introduction

Medication-related harm (MRH) remains a significant and often under-recognised challenge in older populations especially after hospital discharge. With polypharmacy prevalent among older adults and communication gaps between care settings, the transition from inpatient to community care can expose patients to adverse drug events and preventable complications such as hospital readmissions. (1) (2)

Medication related harm (MRH) includes adverse drug reactions (ADR), failure to receive medication either following non-adherence, drug error or a breakdown in the supply chain. (3) The prevalence of preventable MRH globally is 5% (1 in 20 patients), one fourth of which is severe or potentially life-threatening. Globally, the highest prevalence rates for preventable medication-related harm are for patients managed in geriatric care units (17%). Globally about half (53%) of all preventable medication-related harm occurred at the "ordering/prescribing" stage and 36% at the monitoring/reporting" stage. (4)

An observational Prospective (P) study to develop a model to stratify the risk (RI) of medication (M) related harm in hospitalised elderly (E) patients (PRIME) conducted in 5 hospitals in the Southeast of England recruiting 1280 older people (>65 years) found that one in three patients experienced MRH in the 8-weeks period after leaving hospital. Of these MRH, 81% were serious and 52% were potentially preventable. The majority of these MRH episodes occurred in the first 2 weeks after discharge. Estimated cost to the National Health Service of MRH was £396 million annually, of which £243 million is potentially preventable (3)

Identifying older adults at the highest risk of MRH after leaving hospital is crucial to target interventions and resources for those who are most likely to benefit. From the PRIME study dataset, a risk-prediction tool (RPT) was developed to identify which patients are at the highest risk of MRH. The internally validated RPT consists of eight routinely collected variables: age, gender, sodium level, number of medicines, antiplatelet drug, anti-diabetic drug, past adverse drug reaction, living alone (5). A systematic review of 18 studies assessing 7 tools concluded that there is no definitive and validated assessment tool for detecting and predicting ADR in older patients. (6)

Interventions to reduce MRH: Summary of evidence of pharmacist-led interventions in reducing MRH post-hospital discharge

A Systematic Review and Meta-analysis of 19 total studies (15,675 participants) investigated pharmacist-led and other healthcare professional-led Interventions to reduce Adverse Drug Reactions (ADR) in older adults in various clinical settings, including hospitals, outpatient clinics, rehabilitation wards, and community pharmacies, showed that interventions significantly and substantially reduced the risk of ADRs and serious ADRs in older adults. (7)

A Cochrane systematic review of 25 trials involving 15,076 hospitalised older patients with polypharmacy found that medication reviews are likely to reduce hospital readmissions and may lower emergency department contacts. However, the review concluded that these interventions have little to no effect on mortality, and the impact on health-related quality of life remains uncertain. (8)

There is a compelling rationale for conducting comprehensive medication reviews during the post-discharge period, particularly for high-risk patients. Evidence from UK and international studies

showed that pharmacist-led transitions-of-care (TOC) services can significantly improve outcomes. (9) A systematic review and meta-analysis of twenty-four studies (total participants = 17,664) found that TOC interventions incorporating medication reconciliation, self-management education, and telephone follow-up were associated with reduced hospital readmissions in older adults. (10)

A UK-based implementation study where 100 patients of more than 65years age were recruited for follow-up after discharge, medicine review and education were provided for each patient/caregiver by a clinical pharmacist, showed that of 368 recommendations made, 95% of pharmacist recommendations were undertaken by patients, resulting in deprescribing of 19.7% of regular medicines, many of which were potentially inappropriate. (11) Another systematic review and meta-analysis study including 56 articles found that pharmacy-supported TOC programs were associated with a 32% reduction in the odds of readmission, particularly when pharmacists engaged directly with patients and primary care providers. (12)

Several other studies of pharmacist led interventions did not show improved safety of medicines, (13) did not reduce drug related hospital admissions (14) and did not decrease the incidence of unplanned hospital visits. (15)

In view of the conflicting evidence, we set out to investigate a different approach of implementing a medicine management plan for older people at the point of discharge from hospital aiming to reduce medication-related harm in the subsequent 8 weeks through patient education, risk prediction alongside a national UK initiative, namely the NHS Discharge Medicines Service (DMS).

Study Aim and Design

To address the gap in methodology, our randomized controlled trial investigated whether augmenting DMS with a structured medicines management plan—including patient-level risk assessment—could reduce the incidence of MRH within the 8 weeks following hospital discharge.

The primary objective was to determine whether patients who received the combined intervention experienced a lower proportion of definite or probable MRH compared to those who received DMS alone.

Primary Research Question

Can a new medicines management plan, when implemented alongside standard DMS, reduce the risk of post-discharge MRH?

Secondary Outcomes and Research Questions

To comprehensively evaluate the impact of the intervention, we also assessed a range of secondary outcomes related to healthcare utilization and severity of harm. Specifically, we examined:

- Readmissions: Are patients in the intervention arm at different risk of hospital readmission within 8 weeks compared to those receiving DMS alone?
- GP Visits: Are patients in the intervention group more or less likely to consult a GP during the follow-up period?
- Hospital Re-admissions: Are there differences in risk of general hospital readmissions between the two groups?

- Out-of-Hours Consultations: Are patients in the intervention arm more likely to seek out-of-hours care?
- Medicines Review: Does the intervention increase the likelihood of patients having their medicines reviewed post-discharge?
- Health Service Utilization: Is there an overall difference in healthcare utilization between groups?
- Severity of MRH: Does the intervention affect the severity of MRH incidents when they occur?

Methodology

adults ≥ 65 years were recruited from 8 hospitals in England and randomised to intervention (MMP of patient education about medicines and discussion around medication risk plus DMS) or control (DMS only). Baseline data included patients' clinical and social demographics and medication risk calculated using a risk-prediction tool at the point of discharge. At 8-weeks post-discharge, trained study pharmacists or doctors verified MRH via triangulation of outcome data obtained from telephone interview with study participants and / or carers, review of GP records and identifying cause of readmission if it occurred. A process evaluation assessed the acceptability of study methods by hospital pharmacists.

The National Health Service (NHS) in England has implemented the Discharge Medicines Service (DMS)—a structured initiative aimed at improving communication between hospital and community pharmacists to support patients with their medicines after discharge. While DMS represents an important advancement in transitional care, existing evidence suggests that no single intervention or bundle of interventions has reliably reduced post-discharge adverse outcomes such as readmissions or mortality. For example, Dhalla et al. (2014) demonstrated that even a comprehensive post-discharge “virtual ward” intervention did not significantly reduce the risk of readmission or death among high-risk patients (Dhalla et al. (2014)). These findings suggest that DMS, in isolation, may be insufficient to mitigate the full spectrum of post-discharge MRH. Building on this, our study sought to evaluate whether enhancing DMS with a structured medicines management plan—which includes a formal risk assessment at discharge—could lead to improved post-discharge outcomes. We hypothesised that a combined approach would be more effective at identifying and mitigating MRH than DMS alone.(Dhalla IA, O'Brien T, Morra D, et al. Effect of a postdischarge virtual ward on readmission or death for high-risk patients: a randomized clinical trial. JAMA. 2014;312(13):1305–1312. doi:10.1001/jama.2014.11492)

Univariate analysis was used for baseline variables comparing the intervention and control arms. A multivariate logistic regression will be done incorporating these variables. The prevalences of primary and secondary outcomes were computed by intervention group, at the level of the patient, using the numerator, denominator and percentage. These can also be interpreted as the risk of a person experiencing an event (e.g. severity of MRH)

All outcome measures were converted into binary outcomes. For example, to create binary readmissions outcome, those who had records of readmission dates were scored 1, while those who did not have, were scored 0. All outcomes were compared between intervention groups by random effects logistic regression, with patient at level one and centres at level two, to estimate adjusted odds

ratios and corresponding 95% CIs. In this multilevel model, age, gender, number of (potentially ADR causing) drugs, intervention, and MRH are fixed effects, while centre is the random effects variable.

Preliminary analyses were conducted using unadjusted methods to compare risks (proportions) of individuals experiencing specific outcomes between study groups. Chi-squared and Fisher's exact tests were applied, as appropriate, to calculate p-values and assess statistical significance of observed differences.

As the hypothesis of no difference between Intervention and Control arms is performed on several outcomes, p-values needs to be adjusted for multiple testing using Bonferroni method or the Benjamini-Hochberg False Discovery (FDR) method.

Economic evaluation will compare the cost-of-service use among the study arms and modelled to provide national estimates. Qualitative data from focus-group interviews will explore practitioners' understanding, and acceptance of the MMP, DMS and the RPT.

Results

Between 1st April 2024 to 31st August 2024, a total of 274 patients were randomly assigned to DMS or DMS with a structured medicines management plan (140 control, 134 intervention), mean age of 80.1 years (range 65–100), 151 (55.1%) females.

Baseline Characteristics

Table 1 presents the baseline characteristics of the 274 participants, stratified by study allocation group. The control group comprised 140 individuals (51.1%), and the intervention group included 134 (48.9%). The mean age was similar between groups (control: 79.6 ± 8.0 years; intervention: 80.7 ± 8.2 years), and just over half of the participants in each group were female (control: 55.0%; intervention: 55.2%).

Other characteristics, including the proportion living alone, renal function (eGFR <60), sodium levels, platelet counts, and length of hospital stay, were also comparable between groups. The median length of stay was 10 days in both groups, with interquartile ranges of 5–20 days and 5–23 days in the control and intervention groups, respectively. The proportions of participants with a history of adverse drug reactions or diabetes were similar across groups.

Statistical comparisons between groups were conducted to assess any baseline imbalances. Chi-squared tests were used for categorical variables such as gender and past medical history. Continuous variables were evaluated using independent samples t-tests. Because the number of potentially ADR-causing drugs are counts, the difference in the number of ADR-causing medicines between groups was assessed using Poisson regression, which identified a statistically significant difference between groups ($p = 0.036$). No other differences between groups were statistically significant ($p > 0.05$).

In both study arms, MRH was strongly associated with hospital readmission (OR = 5.29, 95% CI: 1.57–17.77) and use of A&E services (OR = 4.21, 95% CI: 1.33–13.31). Although not statistically significant, there was a consistent trend toward reduced odds of adverse outcomes in the intervention group, OR= 0.52 (95% CI: 0.16–1.68). The process evaluation showed that the study strengths were a

standardised medicine management plan, objectively assessing medications risk, and identifying opportunities for pharmacist-led interventions.

Table 1: Characteristics of patients at baseline by allocation group according to outcome measure

Key patient characteristics, n (%) unless otherwise stated	Control	Intervention
Number of participants	140 (51.1%)	134 (48.9%)
Age; mean±sd	79.6 ± 8	80.7 ± 8.2
Gender: Female	77 (55%)	74 (55.2%)
Lives alone¶	66 (48.9%)	55 (41.7%)
Renal impairment§ (eGFR <60); mean±sd	40.7 ± 15.1	43.9 ± 10.1
Sodium level‡ (mmol/L); mean±sd	138.9 ± 2.6	139 ± 2.4
Number of potentially ADR-causing drug*; mean±sd	0.9 ± 1.5	1.1 ± 1.6
Platelets†; mean±sd	257.9 ± 66.4	258.7 ± 64.2
Length of hospital stay, median (IQR), days	10 [5-20]	10 [5-23]
Past adverse drug reaction§§	60 (45.5%)	68 (51.9%)
Past diabetes	34 (24.3%)	38 (28.4%)

NOTE: Data is available for all 274 patients, unless otherwise stated

There were no statistically significant difference between Control and Intervention arms (p>0.05) except for the number of potentially ADR-causing drug* with p= 0.036 (Poisson regression)

¶ data available for 267 participants

§ eGFR, estimated glomerular filtration rate mL/min; Analysis based on 105 participants who had eGFR<60

‡ Information available for 186 participants

† Numbers are x 10^9/L; data available for 226 participants

§§ data available for 263 participants

Table 2: Outcomes of the follow-up data for all patients included in the study

Outcome	Control	Intervention	Odds-Ratio (95% CI)
Sample size n = 274	nc=140	ni=134	
Have you had GP practice visit?: n.c=93; & n.i=90; n (%)	58 (62.4%)	54 (60%)	0.87 (0.48-1.59)
admitted to hospital: n.c=99; & n.i=93; n (%)	18 (18.2%)	19 (20.4%)	1.1 (0.53-2.28)
Have you required the out of hrs.doctors in the last 8 weeks?: n.c=90; & n.i=87; n (%)	5 (5.6%)	5 (5.7%)	1.19 (0.32-4.46)
Since leaving hospital have your medicines been reviewed?: n.c=90; & n.i=81; n (%)	47 (52.2%)	38 (46.9%)	0.83 (0.45-1.52)
Patient has suffered medication related harm due to ADR: n.c=92; & n.i=90; n (%)	7 (7.6%)	5 (5.6%)	0.85 (0.22-3.23)
Suspected non-adherence: n.c=60; & n.i=50; n (%)	7 (11.7%)	8 (16.0%)	1.52 (0.49-4.74)
Suffered medication related harm: n.c=95; & n.i=90; n (%)	10 (10.5%)	5 (5.6%)	0.52 (0.16-1.68)
Severity of medication-related harm: n.c=19; & n.i=12; n (%)	15 (78.9%)	6 (50%)	0.25 (0.02-2.94)
Utilized any health service?: n.c=97; & n.i=92; n (%)	83 (85.6%)	77 (83.7%)	0.81 (0.36-1.81)
Utilized A&E services?: n.c=127; & n.i=119; n (%)	17 (13.4%)	19 (16%)	1.3 (0.64-2.67)

n.i=No. of participants in intervention arm with complete data; n.c=No. of participants in the control arm with complete data.
Odds-Ratios and corresponding CI are estimated from logistic regression and were adjusted for Age, gender, and no. of potentially ADR-causing drugs
%'s are the risks of events (or prevalence) for patient groups

Study Population and Data Completeness

A total of 274 patients were randomized and followed for 8 weeks after hospital discharge. Due to incomplete data for some outcomes, the number of participants included in each analysis varied; details are provided in Table 2.

Primary and Secondary Outcomes

To account for clustering by site in this multicentre randomized controlled trial, all outcomes were analyzed using multilevel logistic regression models. These models included fixed effects for age, gender, number of potentially ADR-causing medications, and treatment group (intervention vs. usual care), with recruitment centre modeled as a random effect. All statistical analyses were conducted using R version 4.2.3.

The **primary outcome**, medication-related harm (MRH), was less frequent in the intervention group. Patients receiving usual care (DMS only) had nearly twice the odds of experiencing MRH compared to those in the intervention group, although this difference did not reach statistical significance (OR: 0.52; 95% CI: 0.16–1.68).

Despite the lack of statistical significance for the primary outcome, consistent trends were observed across **secondary outcomes**, all favouring the intervention group. These included lower odds of GP consultations, out-of-hours doctor use, and severe MRH events (Table 2, Figure 1).

Within 8 weeks of discharge, **Severe MRH** was reported in 15 (78.9%) patients in the control group, compared to 6 (50%) in the intervention arm (OR: 0.25; 95% CI: 0.02–2.94), suggesting a potential protective effect of DMS and the structured medicines management intervention. Similarly, **GP consultations** were reported by 58 (62.4%) patients in the control group and a lower number, 54 (60%) in the intervention group (OR: 0.87; 95% CI: 0.48–1.59). Furthermore, since leaving hospital, fewer people in the intervention group, 38 (46.9%), had their medicines reviewed, compared to 47 (52.2%) in the control group, OR: 0.83; 95% CI, 0.45-1.52. The consistent direction of effect across these secondary outcomes—characterized by odds ratios below 1 for the majority of the endpoints (Figure 2) —suggests a potential clinically meaningful benefit of the intervention. Although the primary outcome (severe MRH within 8 weeks of discharge) did not demonstrate a statistically significant difference between groups, we observed a consistent trend toward lower event rates across multiple secondary outcomes in the intervention arm compared to the control. This composite pattern — including fewer severe MRH cases, GP consultations, and post-discharge medication reviews — suggests that the structured medicines management intervention, including DMS, may have clinical relevance. These findings support the hypothesis that the intervention could contribute to improved post-discharge medication safety, warranting further investigation in larger or more targeted studies.

Even in the situations where the NHS-approved care method of utilising DMS alone seemed to have potentially lower risks of events compared to our intervention, these reductions were not statistically significantly lower. For example, hospital **readmissions** occurred in 18 (18.2%) patients in the control group and 19 (20.4%) in the intervention group (OR: 1.10; 95% CI: 0.53–2.28). Therefore, there seems to positive gains, rather than negatives in adapting the new intervention.

Mortality

Nine deaths occurred during the 8-week follow-up period, with only one (11.1%) classified as medication-related due to a probable adverse drug reaction. Deaths were evenly distributed across the six study centres and were not associated with specific study arm.

Medication-related harm

Although MRH was the primary outcome of this trial, our finding that the observed reduction in MRH in the intervention compared to control groups was not statistically significant raises important questions about how statistical non-significance should be interpreted in a clinical context. Specifically, it prompts us to consider whether this result reflects a true lack of effect, or rather limitations related to sample size, variability, or measurement sensitivity.

We found that the odds of MRH in the intervention group were approximately half those in the control group, suggesting a potential protective effect of the intervention. To further understand the implications of the observed levels of MRH, we examined its association with key clinical outcomes, including hospital readmissions and healthcare service utilisation, during the 8-week follow-up period. After adjusting for age, gender, number of medicines that (potentially) caused ADR and intervention (group allocation), MRH remained associated with increased likelihood of these adverse outcomes, indicating that its presence may contribute significantly to post-discharge burden, particularly among patients receiving usual care.

Table 3 presents the risk of given events for those with MRH versus those with no MRH during the 8-week follow-up period, and Odds-ratios adjusted for Age, Gender, number of medicines that (potentially) caused HDR and intervention. Of the total of 185 participants who had MRH data, with only 15 (8.1%) cases of “Definite” or “Probable” MRH (collectively referred to here as MRH group),

while majority (or 91.9%) were classed as either “Possible” MRH or “no MRH”. There were 18 (9.7% or 18/185) cases of “Possible” MRH. Due to their lower diagnostic certainty, those classed as “Possible” MRH were grouped with cases of “No MRH” in our analysis, the latter two groups are merged to form the “no MRH” group (Tables 2 & 3). Of the 15 cases MRH, 5 (5.7%) occurred in the intervention group and 10 (10.5%) in the control group.

Among the 15 confirmed MRH cases, 5 (33.3%) were deemed definitely preventable. The majority of these—4 cases—were in the control group, accounting for 40% (4/10) of MRH events in that arm. In contrast, the intervention group had only 1 preventable MRH event (20%; 1/5), suggesting a potential benefit of the intervention in reducing preventable harm.

The risk of secondary events occurring are consistently higher in the MRH group compared to the “no MRH” group (Figure 3). Although majority of these differences are not statistically significantly different between the two MRH groups, we found strong associations between important outcomes of readmissions and utilization of A&E services. Our analysis showed that MRH was statistically strongly associated with hospital readmissions (OR = 5.29, 95% CI: 1.57–17.77) and use of A&E services (OR = 4.21, 95% CI: 1.33–13.31), highlighting its substantial impact on healthcare utilisation. The forestplots (Figure 2) of the odds-ratios depicts significance of association between MRH and secondary outcomes.

Figure 1: Barplots of adjusted ratios showing that majority of outcomes have adjusted odds-ratios substantially less than 1 pinpointing possible clinical significance

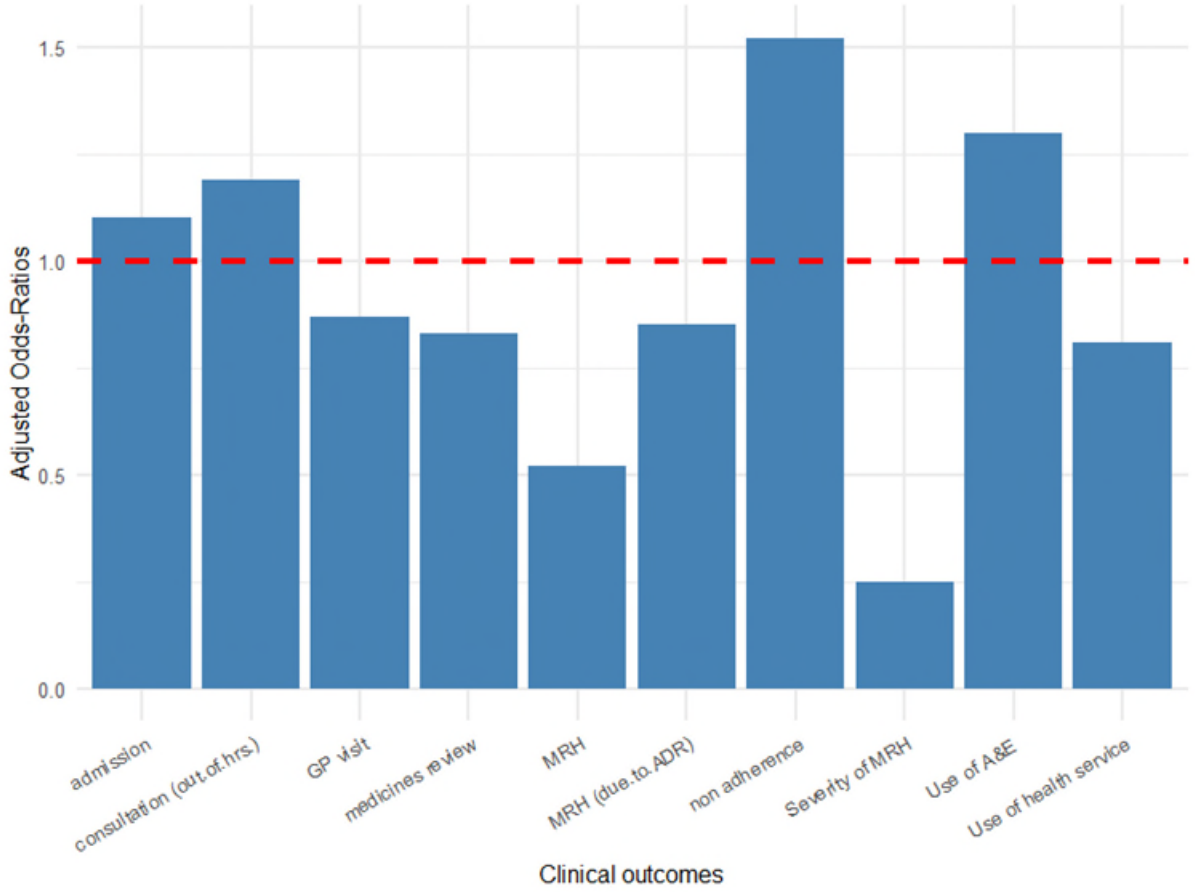


Table 3: Risk of defined events for those with MRH versus those with no MRH, and Odds-ratios adjusted for Age, Gender, no. medicines that caused HDR and intervention

Outcomes	no MRH	MRH (definite & probable)	Adjusted OR
Number of participants with MRH data; n=185*	170 (91.9%)	15 (8.1%)	
Have you had GP practice visit?: n.no.mrh=164; & n.mrh=14; n (%)	100 (61%)	8 (57.1%)	0.78 (0.25-2.41)
Have you had re-admission?: n.no.mrh=158; & n.mrh=14; n (%)	23 (14.6%)	6 (42.9%)	5.29 (1.57-17.77)
Have you required the out of hrs.doctors in the last 8 weeks?: n.no.mrh=159; & n.mrh=14; n (%)	8 (5%)	2 (14.3%)	5.76 (0.89-37.39)
Since leaving hospital have your medicines been reviewed?: n.no.mrh=153; & n.mrh=14; n (%)	72 (47.1%)	10 (71.4%)	2.93 (0.85-10.16)
Suspected non-adherence: n.no.mrh=96; & n.mrh=12; n (%)	13 (13.5%)	2 (16.7%)	1.31 (0.25-6.95)
Severity of medication-related harm: n.no.mrh=16; & n.mrh=15; n (%)	9 (56.2%)	12 (80%)	0.72 (0.06-8.8)
Utilized any health service?: n.no.mrh=169; & n.mrh=15; n (%)	142 (84%)	13 (86.7%)	1.18 (0.25-5.64)
Utilized any health service?: n.no.mrh=170; & n.mrh=15; n (%)	26 (15.3%)	6 (40%)	4.21 (1.33-13.31)

*Only 185 participants had reported MRH status

Figure 2: Forest plot for adjusted Odds-Ratios for association between outcomes with MRH

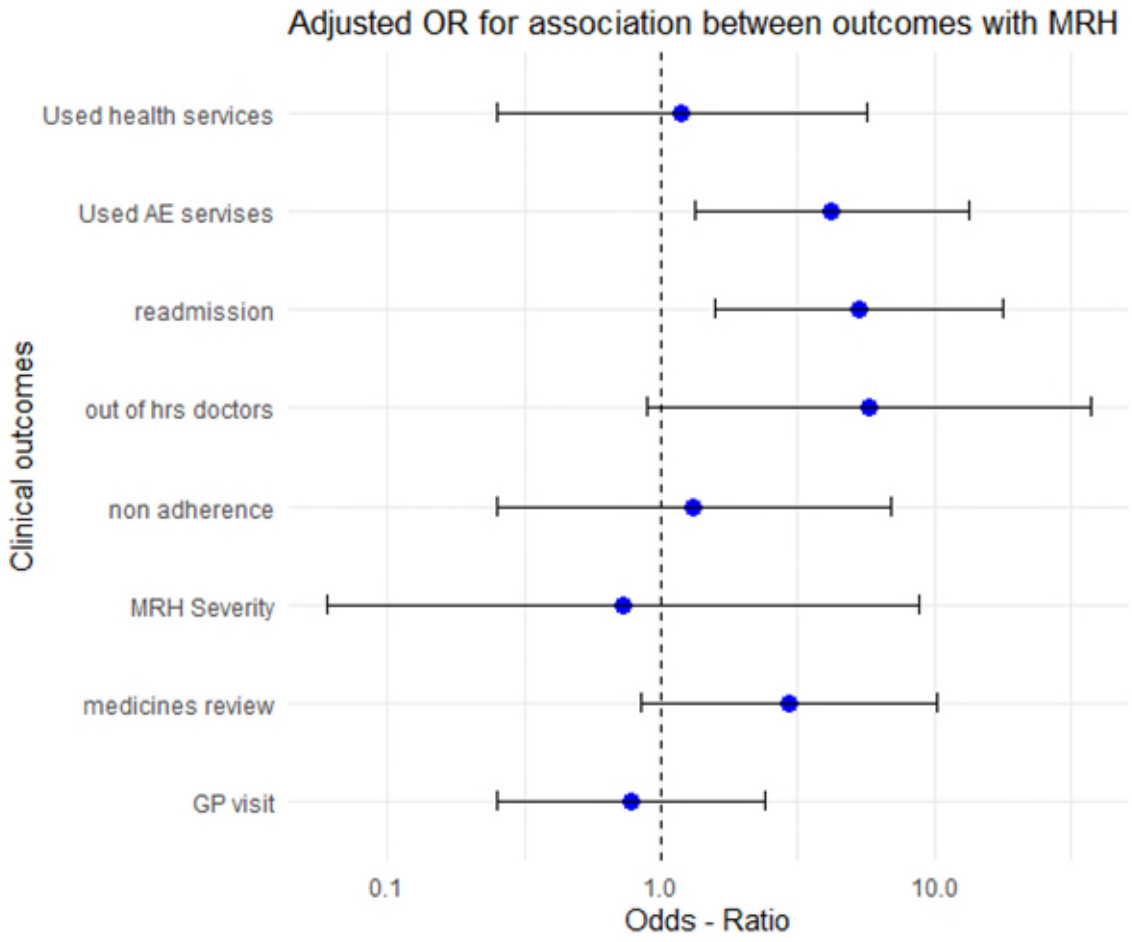
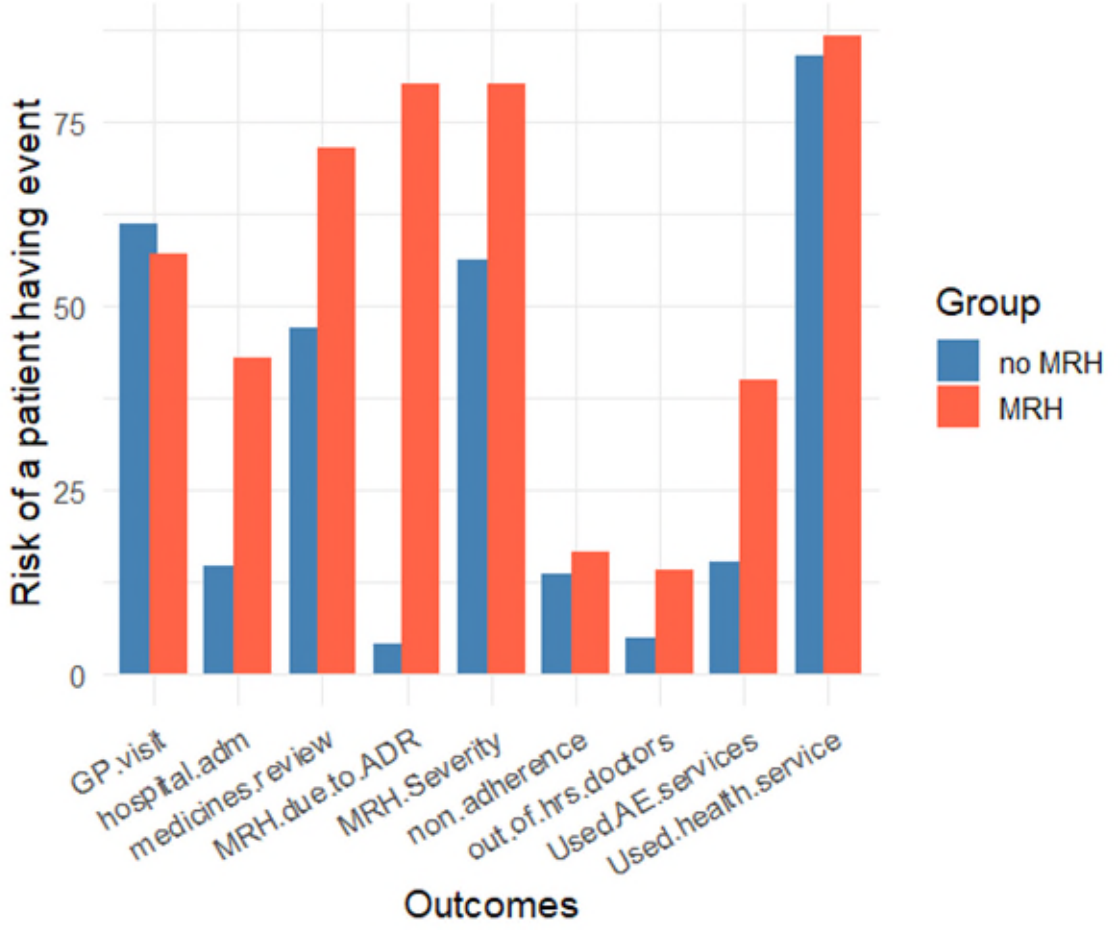


Figure 3: Barplots comparing the risk of events between outcomes MRH and "no MRH" groups



Process Evaluation

The objective of this process evaluation is to investigate how the organising structures and the procedures in particular contexts lead to the outcomes for older people and the extent to which the study intervention might be sustained after the process of initial adoption during the study. In depth qualitative interviews were carried out with all sites to evaluate the consistency of the protocol delivery and any critical barriers to implementation. The work, guided by Normalisation Process Theory, was designed to identify different aspects of the implementation and report on qualitative aspects of the study.

Findings of the process evaluation included insights into the differences between sites. That with the complex intervention being delivered, adoption was more consistent and more likely to sustain at sites which had an existing infrastructure for monitoring medicines including an electronic recording system or a defined procedure or profession assigned to checking the medicines and discharge letter at the point of discharge. There was not an agreed designated person to do this at all sites routinely, prior to the delivery of the intervention.

Participants coherently understand the purpose of reducing medicine related harm and identify purpose of evaluating risk, using the Risk Prediction Tool (RPT). There are mixed views

on using the RPT and discussing risk with the service users. Participants delivered the RPT in accordance with the protocols consistently, with variability in the reported discussions about risk, depending on the group allocation. Conversations about risk were easier if there was intervention to be offered to offset the risk.

Most participants found the RPT helpful in quantifying risk and identifying people who may have not been picked up through usual practice. One participant felt they would already identify people who are at risk from MRH because of their experience and expertise. Reflexive monitoring around best practice was evident. Participants reported a desire to mitigate identified risk but lacked the conceptual framework around risk to have a meaningful discussion.

For the control group, one participant referred to intermediate care support post discharge, another felt that 'ethically something should be actioned' to mitigate identified risk. Reflexive monitoring was strong in relation to considering best practices. One participant was both research and pharmacy trained, which meant they had sound knowledge of the study purpose, protocols and understanding of medicine related harms, reported positive conversations about risk.

Coherence was weak because most participants lacked a conceptual framework understanding to underpin clinical reasoning associated with risk management with older people.

Discussion

We used a MMP including 1- patients education and involvement, 2- risk-stratification using a RPT, 3- robust transfer of care between secondary and primary care using an existing platform (DMS), and 4. Timely follow up delivered by a trained pharmacist or doctor.

Any intervention should be informed by PCIE- Reaching out to older adults and carers in their own homes and in community centres in Brighton and Hove, we identified key themes in conversations around medications risk-benefit balance and interventions to reduce harm- PRIME-2 study (Nikesh Parekh, Beatrice Gahagan, Lizzie Ward, Khalid Ali. 'They must help if the doctor gives them to you': a qualitative study of the older person's lived experience of medication-related problems, Age and Ageing, Volume 48, Issue 1, January 2019, Pages 147–151, https://doi.org/10.1093/ageing/afy142).

We used an internally validated RPT. Validated, robust and reliable Risk prediction models of ADR and ADE in older adults are required (Cosgrave et al 2025), reference: Cosgrave N, Saleh S, Ong WS, Frydenlund J, Williams DJ, Cahir C. Risk prediction models for adverse drug reactions and adverse drug events in older adults-a systematic review and meta-analysis. Eur J Clin Pharmacol. 2025 Jan;81(1):93-110. doi: 10.1007/s00228-024-03774-7. Epub 2024 Nov 18. PMID: 39557638.

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Conclusion

MRH after leaving hospital has a substantial impact on healthcare utilisation. The study intervention has the potential to deliver clinically important benefits through reducing MRH.

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