Implementing and evaluating a parallel post-discharge Home Medicines Review (HMR) model

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The risk of medication misadventure is high between episodes of care, especially within the 7 to 10 day post-discharge period. Our research team has previously developed a post-discharge Home Medicines Review (HMR) model which uses existing community processes. However, this model does not result in timely conduction of reviews.

An enhanced post-discharge medication management model for patients at ‘high’ risk of medication misadventure was trialled by the Sansom Institute from June 2008 to May 2009 at 3 South Australian metropolitan hospitals; the Royal Adelaide Hospital, Flinders Medical Centre and The Queen Elizabeth Hospital. The trialed model included 2 pathways to a post-discharge medication review. One pathway involved organisation of a HMR for patients at ‘high’ risk of medication misadventure using existing community processes with the patient’s general practitioner (GP) making the referral. The alternative pathway involved a Hospital Initiated Medication Review (HIMR). The HIMR pathway was employed when the GP was not confident the HMR would occur within 7 days post-discharge. It involved hospital doctors, with the help of a liaison pharmacist, directly referring ‘high’ risk patients to their community pharmacy or an accredited pharmacist.

The primary aim of the current study was to investigate whether the parallel HIMR pathway resulted in more timely conduction of post-discharge medication reviews than the HMR pathway. The second aim was to evaluate the impact of timely post-discharge medication reviews. The third aim was to determine whether health professionals involved were in support of the trialed model, to explore potential model alterations, and to investigate their perceptions of barriers and facilitators to the model's implementation.

A ‘rapid response team’ of accredited pharmacists was purposefully assembled for the project. A part-time project liaison pharmacist supported the process in each of the project hospitals. A stratification instrument was used to determine whether patients were at ‘high’ or ‘lower’ risk of medication misadventure. Issues that arose in the 70 medication review reports that resulted from the trial were categorised and assigned a potential clinical significance ranking. The frequency and nature of medication related problems identified in the medication review reports were collated and categorised. The costs associated with facilitation of post-discharge medication reviews via the HMR and HIMR pathways were compared. The frequency of development of medication management plans was also determined. The impact of timely medication reviews on survival, all-cause and medication related readmissions was also examined. Upon completion of the implementation trial, the experiences of 23 stakeholders including GPs, hospital doctors, accredited pharmacists, community pharmacists and hospital pharmacists were explored via semi-structured interviews. The data was analysed thematically by devising a conceptual framework.

Of the 97 consenting patients, 92 patients were deemed to be at ‘high’ risk. HIMRs were organised for 59 patients; with 52 patients completing the HIMR process. Of the 22 HMRs organised via the patient’s GP, 18 patients completed the process. The times to conduction of HIMRs and HMRs was statistically significantly different, with HIMRs and HMRs taking an average of 6.54 ± 4.73 and 11.11 ± 7.44 days respectively (p=0.0235). The 70 reports that resulted were collectively analysed, wherein 1679 medication related issues (average 24 issues/report) were identified by accredited pharmacists. The 1679 issues in the 70 reports were categorised as: pharmacists’ ‘information’, ‘recommendations’ and ‘actions’ on 977, 292 and 410 occasions respectively. Of the medication related issues identified by accredited pharmacists, 96.2% and 38.8% were classified as having at least a potentially minor clinical impact and a potentially significant impact respectively. An average of 2.7 medication related problems/report were identified and 156 and 30 were considered ‘definite’ and ‘probable’ respectively. The most frequent medication related problems overall were ‘compliance’ (44.0%) followed by ‘need for additional therapy’ (16%) and ‘adverse drug reaction’ (13%).

When the costs associated with implementation of a post-discharge HMR and post-discharge HIMR process were compared they were demonstrated to be cost comparable. Only 2 written medication management plans were generated although there were 5 instances of informal communication regarding medication management plans between GPs and accredited pharmacists. There was no significant effect on survival, all-cause and medication related readmissions in the 4 months pre- and post-index hospitalisation.

Responses from the 23 health professionals interviewed indicated there was strong agreement that post-discharge medication reviews were valuable and serve to enhance communication between the hospital and community sectors, clarify medication related changes that occurred during admission and reduce patient confusion in the immediate post-discharge period. The main positive aspects of having the HIMR pathway included a more timely post-discharge medication review and GP barriers such as lack of availability and unfamiliarity with the HMR process were overcome. Interviewees highlighted it was crucial that GPs be kept informed if the HIMR pathway was used in order to promote a collaborative approach to patient care. It is also crucial that the community pharmacy is informed if their patient is involved in the process. A key barrier identified was the time commitment required for all health professionals to organise and conduct the review within 7 days. A positive working relationship and a more streamlined process were reported by the health professionals as facilitators to implementation of the trialed model. The need for a more flexible referral model for post-discharge medication reviews was also examined.
reviews and incorporating the liaison pharmacist’s role into the usual responsibilities of hospital pharmacists were key areas for consideration raised by the health professionals interviewed.

This study has shown proven the feasibility of alternate pathways to timely post-discharge medication review. It has also shown that HIMRs can be facilitated in a timelier manner than post-discharge HMRs organised using existing community processes. It was unexpected that conduction of reasonably timely post-discharge HMRs occurred in the current study i.e. in an average of 11.11 ± 7.44 days. This was attributed to the fact that in the current study GPs were made aware that the hospital home team deemed their patient to be at ‘high’ risk of medication misadventure and would benefit from a post-discharge medication review within 7 days post-discharge. GPs were also made aware that if they weren’t confident they could arrange a post-discharge medication review within 7 days then the HIMR pathway was available for their patient. However, the trialled parallel HIMR pathway enabled reviews to be conducted within 7 days (i.e. an average of 6.54 ± 4.73 days), targeting a clear service gap. This study has also shown that the costs associated with post-discharge reviews conducted via the HMR and HIMR pathways are cost comparable. Furthermore, timely conduction of post-discharge medication reviews results in identification of high numbers of medication related issues and medication related problems that can potentially improve health outcomes for patients at ‘high’ risk of medication misadventure.

The project’s findings regarding the impact of timely reviews on survival and readmissions are limited by the relatively low number of study participants and the short study period.

There is a clear need for the trialled post-discharge medication review model to be implemented to address the service gap that currently exists. While the GP to community pharmacy pathway should remain the primary referral pathway for HIMRs, there is a need for hospital doctors to be able to make a direct referral to the patient’s community pharmacy or accredited pharmacist in the post-discharge scenario for ‘high’ risk patients via a HIMR pathway. Based on this project’s findings, the Project Team make the following recommendations:

- **This study has proven the feasibility of alternate pathways to timely post-discharge medication reviews. However further research is recommended in the form of a multi-centred, randomised control trial.**
- **Alterations should be made to the existing HMR Business Rules to allow hospital doctors to authorise referrals patients for post-discharge medication reviews directly to a community pharmacy or accredited pharmacist via the HIMR pathway trialed in the current study. The GP (and community pharmacy if referral is direct to an accredited pharmacist) must be ‘kept in the loop’ if the HIMR pathway is used.**
- **Clinical pharmacists should be responsible for facilitating post-discharge medication reviews. Additional liaison personnel are needed to provide the liaison activities required to facilitate timely post-discharge medication reviews and should be resourced appropriately.**
EXECUTIVE SUMMARY

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