

2 Med eSupport Abstract

Background:

A major contributor to inadvertent polypharmacy and drug-related problems, particularly in the elderly, appears to be hospitalisation and the consequent changes in medication during the transitions between the community and hospital settings. It has been noted previously that the management of prescribed medications among chronically ill patients recently discharged from acute hospital care is often sub-optimal. It has also been noted that assessment of medication management in the home following discharge provides an invaluable opportunity to detect and address problems likely to result in poorer health outcomes.

While being a very valuable drug, warfarin is also a recognised high-risk drug for adverse events (bleeds). Adverse events from warfarin use in Australia were estimated to cost over \$100 million per annum in direct hospital costs alone, in 1992. The major complication of anticoagulant therapy is bleeding and a number of studies have reported that the risk of bleeding associated with warfarin is highest early in the course of therapy; in fact the risk for major bleeding during the first month of therapy is approximately 10 times the risk after the first year of therapy.

Methods:

Med eSupport, an innovative medication support program, tackled this major issue of sub optimal medication management at the community-hospital interface. The program utilised information and communications technology solutions and included (i) provision of a secure bi-directional electronic pathway for medication profiles between community and hospital pharmacies to facilitate medication reconciliation, (ii) supplying a comprehensive medication information sheet to the patient/carer, general practitioner and community pharmacist at the time of discharge from hospital, (iii) uploading of the discharge medication information to a secure website for viewing and printing by the patient/carer, general practitioner or community pharmacist, (iv) providing a model whereby suitable patients were automatically referred for a home medicines review after discharge from hospital, and (v) providing home follow-up education, medication review and monitoring of the International Normalised Ratio for patients initiated on warfarin during hospitalisation. The program was assessed in a

randomised, controlled evaluation involving 487 medical patients and five hospitals (2 in Western Australia, 2 in Tasmania and 1 in Victoria). The range of outcome measures assessed included medication history discrepancies on admission and discharge, compliance, medication knowledge, drug-related problems, unplanned readmissions to hospital, quality of life, and patient and health care professional satisfaction. The program of home follow-up for patients initiated on warfarin during hospitalisation was separately evaluated in a randomised, controlled study involving 161 patients. An economic analysis was applied to the studies' data to determine whether the overall program and its components were cost-effective, and the implications for a national rollout.

Results:

There was clear evidence of problems relating to sub-optimal use of prescribed medications, particularly with regard to discrepancies in medication histories at the community-hospital interface. For instance, 66% of initial hospital drug charts had at least one error. A significantly greater number of discrepancies per patient were resolved within the first 48 hours of hospital admission for the intervention group than for the control. There appeared to be a weak relationship between increased length of stay and the number of discrepancies not resolved at 48 hours. Significantly more discrepancies were also resolved prior to discharge for intervention patients than for control patients. The intervention group displayed a significant improvement in their compliance and drug knowledge over the 30-day post-discharge period, along with a significant decrease in the total number of major and moderate drug-related problems per patient. Although the numbers were small, 3% of control group patients vs. 0.6% of intervention group patients were readmitted to hospital within 5 days of initial discharge (“rebound readmissions”). Also, 44% of the patients who had such a rebound admission had left hospital with apparent medication discrepancies at discharge, compared with an overall figure of 24% of all the study patients. Patients who had a medication review were more likely to feel confident about their medications after discharge. They also displayed improved compliance and drug knowledge. The Med eSupport program was welcomed by the patients and their general practitioners and community pharmacists. Our economic analysis, based on conservative assumptions, indicated that Med eSupport could save the Australian health sector about \$60M annually on a national

level (50 sites initially). With the current rate of pharmacists' recommendation uptake being only partial, the sector can save \$25M (additional) and \$34M (total) annually at a national level. Med eSupport also clearly established the benefits of patients initiated on warfarin in hospital subsequently receiving home visits by a pharmacist after discharge from hospital. Control of anticoagulation was significantly improved, and there was a significantly lower incidence of total, major and minor bleeding complications within 90 days in the intervention patients. The program was highly cost-effective, and could save over \$10M in reduced bleeding costs per year if implemented across the country. The program was well received by patients and doctors.

Conclusion:

Based on the conduct and results of Med eSupport, the Project Team makes the following recommendations.

1. A strategy for the national roll-out of a medication information sharing process between hospitals and community pharmacies should be developed and consequently implemented. Ideally, this would incorporate an automated ICT system to transfer medication information efficiently. With some modifications, the approach utilised in Med eSupport and successfully trialled with the principal Australian pharmacy software vendor, could be expanded. Transfer of information to GPs and community pharmacists regarding initiation of warfarin in hospitals is one priority.
2. A strategy for the national implementation of automatic post-discharge home medication reviews in high-risk patients, identified during hospitalisation, should be developed and implemented. There was very strong support for this amongst patients and other stakeholders exposed to the Med eSupport program. This would include patients commenced on warfarin in hospitals as a priority group.
3. In the event of national implementation of automatic post-discharge medication reviews, existing MMR Facilitators should be trained to act as liaison officers, working to co-ordinate accredited pharmacists for the post-discharge medication reviews.

4. There should be further examination of factors influencing the uptake of recommendations from home medication reviews. One strategy could be development and implementation of educative and monitoring procedures to continually improve the quality and presentation of home medication reviews by accredited pharmacists.
5. When considering the implementation of new services, (such as transferring of community pharmacy dispensing histories to hospitals, creation of a community liaison role, or PDMR), whether within a trial framework, or on a larger national scale, all sites should be considered individually to ensure the roll out is successful, and ongoing quality assurance measures must be put in place to ensure the ongoing integrity of the new service.
6. Training and accreditation programs should be developed for accredited pharmacists to undertake, for the purposes of developing a system for pharmacists to monitor the INR of patients after discharge from hospital.
7. All patients who are initiated on warfarin in the hospital setting should receive a PDINR after discharge, as outlined in this study. This service should be funded similarly to the existing HMR program, although funding would need to be significantly increased. The PDINR program should comprise point of care INR monitoring, patient-focussed anticoagulant education and medication review.