IIG-021 - VALMER (the Economic Value of Home Medicines Reviews)

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EXECUTIVE SUMMARY

Introduction

In October 2001, the Australian Government commenced funding for an innovative program aimed at improving the medication management of patients living at home. Entitled Home Medicines Review (HMR), this program aimed to improve patient health and wellbeing, and reduce the increasing burden of medication-related illness in the community. A HMR is a collaborative process between a patient’s general practitioner (GP), their community pharmacy, and other relevant members of the patient’s healthcare team. The HMR process involves a specifically-accredited pharmacist reviewing a patient’s medications and their management, leading to the development of a medication management plan in collaboration with the patient and GP. During the HMR process, patients also receive medication compliance counselling and education regarding their medications and disease states.

In broad terms, the limited studies into the benefits of HMRs have identified that they are appreciated and valued by most participating patients, pharmacists and GPs. Additionally, HMRs have been found to result in the identification and resolution of drug-related problems (DRPs) that may interfere with desirable health outcomes. Most studies have also suggested that HMRs would be likely to reduce health-resource utilisation and drug usage. However, since the introduction of the HMR program, there has been limited research into the cost-effectiveness of HMRs.

Between March 2008 and September 2009, the Unit for Medication Outcomes Research and Education, School of Pharmacy, University of Tasmania, conducted a study that investigated the outcomes of HMRs. Entitled VALMER (the Economic Value of Home Medicines Reviews), the study’s primary aim was to assess the economic benefits of HMRs. To achieve this aim, two broad objectives were formulated. These were to:

1. describe the most common DRPs identified in HMRs, and how pharmacists addressed these DRPs, and
2. evaluate the potential economic outcomes of addressing these DRPs.

The study was conducted in conjunction with collaborators from the Australian Association of Consultant Pharmacy (AACP) and the University of New South Wales.

Methods

The study was of an observational cohort design, and was conducted across all states in Australia. Pharmacists accredited to perform HMRs were invited to submit referrals, reports and follow-up information relating to a random sample of the HMRs that they had performed in 2008. Six hundred and sixty-one HMRs performed by 149 pharmacists were submitted for the study. A sample of 180 HMRs was assessed by a panel of 15 medication therapy experts (8 specialists, 4 GPs, and 4 clinical pharmacists). These experts estimated the probability of the most likely outcomes for each of the first three DRPs identified if the HMR had or had not occurred. Each DRP was assessed in terms of effects on quality of life and health resource utilisation in the next 12 months to provide an estimate of the cost-effectiveness of HMRs. The parameters included in the analysis were disability prevented or incurred (i.e. quality of life), GP and specialist visits (and their costs), cost of medical investigations and days in hospital (and their costs). Changes in medication costs were also included. By utilising disability weights for the predicted outcomes of each HMR, a cost per quality adjusted life year saved (also known as the Incremental Cost Effectiveness Ratio or ICER) was calculated. For the economic analysis, the study adopted a health sector perspective, with the major focus on the impact for government as a third-party funder.

Two alternative scenarios were also investigated to explore the potential benefits of HMRs. These were the effect of increasing the rate of implementation of the pharmacist’s recommendations (termed the attributed potential value) and reducing an “attribution” discount rate, which assumed that any benefits resulting from the HMR would only occur as a result of the HMR (as opposed to other health professionals involved in each patient’s care, termed the absolute potential value). These scenarios are more consistent with the methodology used to value HMRs in previous research.

Results

- The HMR reports documented 2323 DRPs. The majority of the problems were of a clinical nature (relating to the optimisation of prescribing), and comparatively few recommendations relating to education or compliance were documented (6% patient/carer education and ~4% compliance assistance).

- The most common types of DRPs involved medical conditions that were either not adequately treated (16.5% of DRPs), or not treated at all (11.3%). The most common problem was inadequate pain management which was identified in 118 (17.9%) patients. Potential or actual adverse drug reactions were also a frequently identified issue (10.6%). The drug groups most commonly involved in DRPs were antithrombotics, peptic ulcer and oesophageal reflux therapies, and lipid modifying agents.

- The pharmacists made 2727 recommendations to resolve the DRPs. The most frequently made recommendations included performing laboratory monitoring (18% of recommendations), commencing new medications (particularly analgesics and cardiovascular drugs) (17.5%), or ceasing others (commonly acid-suppressing drugs) (11.4%).
The economic evaluation indicated that the HMRs would result in a significant decrease in healthcare utilisation costs, and an improvement in QOL (Table 1). The savings generated between individual HMRs varied substantially, ranging from $1425 increased costs to $2635 in savings.

Based on the analysis, in the conservative baseline scenario the cost per QALY gained (ICER) was $64,939. Despite the value before and after the HMR being statistically significant, in many HMRs the estimated annual economic value of these savings was insufficient to offset the total cost of the HMR ($323.80). However, 29 of 180 HMRs (16%) had an estimated value over the total offset value of $323.80. Interestingly, 46 of 180 HMRs (26%) had an estimated value over $183.60, the cost of the pharmacist component of the HMR at the time the information was collected (2008).

The total estimated health resource savings across the entire sample analysed (n=180) was $23,085, indicating that an “average” HMR would be responsible for saving $128.25. On average, in the 12 months following each HMR, the saving per HMR resulted from:

- 0.63 fewer GP visits, saving $20.99;
- 0.16 fewer specialist visits, saving $10.51;
- $11.45 in reduced medical investigations;
- 0.065 fewer days in hospital, saving $65.26; and
- $20.04 reduced drug costs.

Additionally, the average gain in QOL was 0.003 QALYs.

In the upper quartile of the HMRs (based on savings), the average saving per HMR was considerable, and completely offset the cost of the HMR. In the 12 months following these HMRs (n=45), the average estimated saving was $632.15, resulting from the following reductions:

- 1.78 GP visits, saving $59.58;
- 0.53 specialist visits, saving $32.82;
- $35.39 in reduced medical investigations;
- 0.27 days in hospital, saving $262.97; and
- $241.38 in drug costs.

Additionally, the average gain in QOL was 0.011 QALYs. In these HMRs, for every QALY gained, there was an additional $22,811 of savings to the health system.

The results of the sensitivity analysis (Table 2) illustrated substantial value in resolving the DRPs identified in the HMRs.

Owing to several attributes of this methodology, the estimate of the economic benefits of HMRs generated in the VALMER study is likely to be highly conservative. A time horizon for both costs and cost savings of only 12 months was assumed to reflect the intention that the patient management plan is to be reviewed by the GP and pharmacist at 12 monthly intervals. The benefits of many of the drug therapy changes resulting from the HMRs would not have been fully realised in the projected follow up period of 12 months. Additionally, only three DRPs were valued for each HMR, and furthermore, the assessment of value was based only on the problems identified in the written report to the GP. Issues that were resolved at the patient interview (e.g. compliance and education) were rarely documented in these reports.
In summary, the pharmacists who performed the HMRs in our study documented a large number of predominantly clinical issues involving the patients’ medication management.

- Some patients benefitted substantially from the resolution of these issues, resulting in considerable savings to the healthcare system. However, for many patients, the changes in drug therapy resulting from HMRs did not result in appreciable short-term savings to the Australian Government in medication costs or other healthcare resources. A longer duration of follow-up would potentially have demonstrated a substantially lower cost per QALY gained.
- Several of the medical and pharmacy experts suggested that a greater focus on individualising patient therapy may have improved the relevance of many of the HMRs to the patients reviewed, and subsequently their outcomes.

Limitations
There are several limitations to this study, and its findings should therefore be interpreted with caution:

- Most of the data used was from information provided in HMR referrals and reports. Advice or counselling provided by the pharmacist in the HMR interview was documented minimally if at all. Consequently, the main focus of the economic analysis related only to clinical aspects of patient therapy rather than the HMR process as a whole.
- Importantly, the assessors were asked to assign probabilities based on potential outcomes over a 12 month period. For many drugs (e.g. statins or anti-platelets), the benefits would accrue over much longer time periods.
- The pharmacists who performed the HMRs were responsible for collecting all the data and submitting them for the study. The level of documentation in the reports was variable and outcomes information was not available for all HMRs. It is likely that some aspects of the HMR process were not documented to allow assessment of their potential value.
- Further limitations involve aspects of the economic modelling technique used for the study. In this study, expert opinion was used to predict the potential outcomes of HMRs. Implicit in this process is that each assessor was able to accurately predict the potential outcomes of the interventions made in the HMRs given the information made available to them. A more appropriate methodology may be to follow each patient and prospectively collate health resource utilisation data over a 12-month period.
- Another limitation resulting from the type of analysis used is that no follow-up, other than the data collected by the reviewing pharmacist, was performed. It was assumed that any changes to a patient’s drug therapy resulting from the HMR would be sustained for the subsequent 12 months, which may not be the case.

Recommendations

The Department of Health and Ageing and the Pharmacy Guild of Australia should commission a large study that investigates the outcomes of patients who receive HMRs.

The HMR program has involved a considerable financial investment by the Australian Government since its implementation in 2001. Most evaluations of HMRs, including this study, have been of short duration and limited in the outcomes assessed. A large, controlled investigation into the long-term outcomes (i.e. at least three years) of patients who receive HMRs on an annual basis is warranted to conclusively identify the benefits and cost-effectiveness of HMRs. Such a study should also assess improvements in less tangible benefits such as patient concordance and their medication and disease-state management. Potential avenues of investigation for improving the cost-effectiveness of HMRs include assessment of factors that predict cost-effective HMRs. These may relate to characteristics of patients, pharmacists, or GPs, or the information contained in HMR referrals. Once identified, these factors should be used to develop strategies that improve the targeting of patients for cost-effective HMRs. Initial investigations into these factors may involve assessment of the sensitivity of the current guidelines for identifying patients at risk of medication misadventure.

The AACP, the Society of Hospital Pharmacists of Australia, the Pharmacy Guild of Australia and the Pharmaceutical Society of Australia should develop resources for accredited pharmacists to ensure that HMRs meet the expectations of GPs and patients (i.e. with an increased focus on individualising patient therapy).

This may involve producing educational materials for accredited pharmacists and pharmacists undergoing accreditation that develops skills in applying treatment guidelines to individual patients. The mentoring program recently introduced by the Australian Association of Consultant Pharmacy may be a useful medium to deliver these materials. Alternatively, strategies that improve communication and collaboration between accredited pharmacists and GPs during the HMR process may also assist accredited pharmacists to focus on patient goals in HMRs.

Funding for the HMR program should be continued into the 5th Community Pharmacy Agreement.

The results of this study provide evidence that HMRs result in substantial cost savings in a considerable number of patients. Measures to improve the targeting of HMRs to patients most likely to result in economic benefits should
ensure the sustainability of the program.