Improving the Uptake of the Australian Home Medicines Review through Patient Segmentation[*]

Authors:

Lesley White, Professor, *University of Sydney, Australia*
Christiane Klinner, Research Officer, *University of Sydney, Australia*
Nicola Cobelli, Research Assistant, *University of Verona, Italy*

Corresponding Author: Professor Lesley White, Executive Dean, Faculty of Business, Charles Sturt University, Bathurst, Heffron Building, Phone 02 6338 4285, Email lwhite@csu.edu.au

Abstract

The Australian Home Medicines Review (HMR) Program, aimed at reducing the number of medication-related problems and hospital admissions, has not been used to the extent projected and is little known among eligible consumers.

PURPOSE: This paper investigates the problems patients and caregivers have with using medicines appropriately, their desire for assistance with managing medications and their self-perceived need for a Home Medicines Review.

DESIGN: A qualitative research study was conducted with 8 semi-structured focus groups including a total of 50 HMR-eligible patients and caregivers. Participants who were purposively sampled represented older males, older females, younger chronically ill patients, patients from Chinese and Arabic backgrounds and the general HMR target group.

FINDINGS: According to the types of medicine problems encountered by participants, their level of medicine understanding and their desire for assistance with using medicines, four distinct patient types are identified and explicated: the *heedless* patient, the *aware* patient, the *scrupulous* patient and the *self-sufficient* patient.

PRACTICAL IMPLICATIONS: The uptake of the HMR service can be effectively increased by direct-to-consumer HMR promotion that is tailored to the behaviors, needs and desires of eligible patients and caregivers. The proposed segmentation model of HMR-eligible consumers addresses these differences and can be used to inform health policy makers regarding a more effective promotion of the HMR service.

ORIGINALITY: This is the first study to investigate how the HMR-uptake could be increased from the perspective of eligible patients and their caregivers.

INTRODUCTION

There is increasing evidence that a significant number of patients and caregivers are using medicines inappropriately (Barber et al., 2004, Batty et al., 2003), involving the risk of hospital admission. A variety of studies have shown that up to 2.5% of emergency hospital admissions are due to potentially preventable medication-related incidents (Leendertse et al., 2008, Sikdar et al., 2010). Lack of knowledge regarding medicines has been found to cause widespread concern and anxiety among patients and caregivers, increasing the likelihood of patients and caregivers altering or ceasing the prescribed medicines therapy without discussing this with their health care providers (Pit et al., 2008).

The Australian Home Medicine Review (HMR) program was introduced in October 2001 with the aim to assist patients living at home to maximize the benefits of their medicines and prevent medication related problems[1]. An HMR is a free consumer service provided collaboratively by doctors and pharmacists specifically for patients who take multiple medicines each day, have recently spent time in hospital, see multiple general practitioners (GPs) and/or specialist doctors, or are concerned, confused or uncertain about their medicines. The service is initiated by the patient's usual GP who generates a referral to the patient's local pharmacist. The latter organizes a specially trained pharmacist to conduct an interview with the patient, preferably in the patient's home. During the approximately one-hour long visit, the patients' medicines are discussed and inspected. The pharmacist summarizes his/her findings in a report to the GP, who then discusses the pharmacist's recommendations with the patient and may make appropriate changes to their medication regime. The involvement of a caregiver in this process is optional and depends on the individual relationship between patient and caregiver.

To date, the total number of HMRs performed has remained well below the number projected by the Australian government[2]. One possible reason for this slow uptake could lie in the limited direct-to-consumer promotion of the service and, related to that, the extremely low HMR awareness levels among eligible patients and their caregivers (Authors, 2009). Whilst numerous studies have investigated the GPs' and pharmacists' attitudes towards the HMR program and identified a variety of barriers to the uptake of the HMR program from the provider's perspective (Bennett et al., 2000, Benrimoj et al., 2004, Campbell Research & Consulting, 2008, Schwartzkoff, 2005), little research has focused on examining the patient/caregiver perspective. Chen and Larkin (2002) have reported that the HMR increases the patient's understanding of their medicines and improves the relationship between patient and community pharmacist. Similarly, Schwartzkoff (2005) and Campbell Research & Consulting (2008) have concluded that patients are generally well-satisfied with the HMR service.

Our study aims to extend the existing knowledge regarding the consumer perspectives on the HMR program with a view to elicit the effectiveness of a potential direct-to-consumer promotion of the HMR and to provide first insights into the possible content and delivery formats of such promotional messages. Specifically, we explored the attitudinal and behavioral patterns of HMR-eligible patients[3] and their caregivers with regard to the use of medicines and investigated the perceptions of these consumer groups concerning the benefits and barriers of the HMR program as well as their level of desire to have this service.

METHODS

Participants

Eight semi-structured focus groups were conducted with a total of 50 participants, 38 of whom were HMR-eligible patients who have never received an HMR and 12 caregivers of such patients. The 8 groups consisted of two groups of consumers from the general HMR target group, one group each with older men and older women (over 74 years old), two groups with younger chronically ill patients (under 65 years old) and one group each with patients from Chinese and Arabic backgrounds. The Chinese and Arabic participants were included if they spoke their native language at home and had limited English skills. Groups were held in both city and regional areas, across a range of Australian states. An overview of the focus groups and participant types is given in table 1.

Table 1: Focus Group and Participants' Characteristics

Consumer segment	Definition of consumer segment	Number of focus groups	Number of participants per focus group	
			Patients	Caregivers
General HMR target population	Patients and carers who are not included in any of the specific segments (below)	2	Group A:10 Group B: 7	Group A: 1 Group B: 4
Older men	Male patients 75 years and older	1	5	1
Older women	Female patients 75 years and older	1	4	1
Younger chronically ill patients	Patients under the age of 65, who have a chronic illness and/or other serious health problems	2	Group A: 3 Group B: 2	Group A: 0 Group B: 1
Chinese patients	Patients from Chinese (Mandarin) ethnic and language background	1	4	2
Arabic patients	Patients from Arabic ethnic and language background	1	3	2
Total		**8**	**38**	**12**

Participants were identified by (bi-lingual) community pharmacists who provided suitable and interested candidates with a briefing of the study's aims and an information sheet, and invited them to participate in the study. The pharmacists also collected signed 'consent to be contacted' forms from potential study participants, which were passed on to the researchers. Those patients and caregivers who had agreed to participate were contacted by a research assistant and, after confirmation of their HMR eligibility, invited to a one-hour focus group session that was organized in the patients'/caregivers' local area. A signed consent form was obtained at the beginning of each focus group, which included an approval to be tape recorded and an assurance of anonymity and confidentiality of data.

Ethics approval had been obtained from the University Ethics Committee prior to the commencement of the research.

Data collection

Each focus group was facilitated by HMR-experienced pharmacist-researchers and lasted between 40 and 90 minutes. Language problems with the Chinese and Arabic participants were overcome by conducting the two ethnic focus groups in the community languages, Mandarin and Arabic. Each of these groups was moderated by a health care interpreter, a bi-lingual HMR-experienced pharmacist and one member of the research team. The interpreters and the bi-lingual pharmacists were briefed about the purpose and aims of the study and familiarized with the group discussion guide prior to the commencement of the focus group sessions.

A prepared interview discussion guide ensured consistency of the topics discussed across the focus groups while also giving individual groups the space to raise and discuss issues that were of particular importance to them. In the first part of each session, participants were invited to discuss what kind of medicine problems they tended to experience and how they managed these. The relationships of the participants with their pharmacists and GPs were then explored. Respondents were asked if they had been aware of the HMR before being invited to attend the focus group and what they thought this service would entail. In the second part of the focus group meetings, the HMR program was explained and participants were asked about their perceptions of this service and whether or under which

circumstances they would consider using it. Finally, it was investigated if participants would ask their GP for an HMR referral and whether they would recommend the HMR program to friends and family.

It has been shown that focus groups offer researchers a powerful investigative potential especially in the areas of consumer behavior, patient-provider collaboration, health literacy research, and disease and medication management (Huston and Hobson, 2008). The mostly open-ended questions and the group discussion format facilitated a detailed exploration of the patients' and caregivers' beliefs, views and behaviors, stimulated the exchange of ideas and assisted participants to refine their individual viewpoints by comparing them to other participants' ideas and perceptions. The focus groups further provided a protecting place that gave participants a sense of trust and community, which made them feel comfortable in expressing their views (Huston and Hobson, 2008, Kitzinger, 1995). Many of the participants were extremely grateful for the opportunity to talk about their medicines and be listened to by knowledgeable health professionals (i.e. the researchers) who genuinely cared.

Data analysis

All focus groups sessions were audio recorded and transcribed verbatim. The Chinese and Arabic session transcripts were translated into English using professional translators. The translations were checked for accuracy and any meaning ambiguities by the bi-lingual pharmacists who had co-facilitated the sessions.

Immediately after the conclusion of each focus group session, each session was debriefed by the research team members (for the two ethnic sessions, this included the interpreters and bi-lingual pharmacists), impressions of agreement and controversy discussed and the findings summarized in an abridged report. After reading and re-reading the transcripts, listening to the session tapes and studying the session notes, thematic analysis was used to analyse the data involving a three-step process (Liamputtong, 2009): First, codes were generated with the assistance of NVivo 8, and collated into tentative themes, which were checked back across the entire data set. Second, the codes were connected into categories and sub-categories and relationships established between categories to find themes. Third, the themes were mapped, defined and names for each theme generated. Discrepancies between researchers were resolved in team discussions involving the chief-investigator and the two co-researchers (Barbour, 2001).

The four patient segments, which are described and discussed in the following sections, emerged as an outcome of this rigorous analytic process.

RESULTS

From the participants' accounts, numerous problems with the correct use of medicines emerged. These included a lack of information, worry about side effects and interactions, cognitive and/or physical impairments, confusion about generic drugs, medication non-adherence and language problems, as detailed following.

Lack of information: Participants reported that they did not have sufficient information concerning their medications and that Consumer Medicines Information (CMI) leaflets did not mediate this lack of information but rather induced more worry and anxiety. Respondents appreciated pharmacists who took the time to explain the prescribed medicines and were available to answer questions. Conversely, disappointment was expressed with pharmacists who were seen as 'too busy' to approach for advice when the patient/caregiver needed it. Participants were also dissatisfied with the perceived low level of willingness of their GPs to explain the risks and benefits of the prescribed medications.

Side effects and interactions: Many participants reported having experienced side effects from their medicines and finding the CMIs too detailed and too complicated to read and understand. Some respondents speculated that their GPs would experiment with dosages and medicines in an attempt to determine which medication caused which side effect or interaction.

Cognitive and physical problems: Problems relating to the cognitive and physical condition of patients emerged as some participants acknowledged that they occasionally forgot to take the prescribed medication, which in turn caused them to worry about side effects when they realised that they had missed doses. This problem was reported more often by male participants and by those who are more elderly.

Deliberate non-adherence: A tendency to "self-medicate" was reported by participants who perceived the medication regimen that their GP had chosen as 'over prescribed'. This perception led some patients to stop taking or reduce their medicines for varying periods of time. The deliberately non-adherent participants saw themselves as being caught between the positive and the negative effects of medicines and between their doctor's and their own medication decisions. The reluctance to discuss non-adherence with the GP was increased by the participants' realisation that they were challenging their GPs' authority.

Generic brand confusion: Several participants reported that they relied on packaging recognition of medicines, which gave them confidence of its content. Generic brands were for that reason looked upon unfavourably and, if possible, avoided. Other respondents judged the generic brands as less effective than the original brands because of their lower price.

Language barrier: Low English language skills were raised as a barrier to the correct medication usage by both the Chinese and the Arabic speaking participants. Whilst most ethnic participants visited GPs who were from the same ethnic and language background, they reported having difficulties finding bilingual community pharmacists and, hence, understanding the medication advice given by English-only speaking pharmacists at the time of dispensing.

In summary, the focus group data showed that many participants had doubts and hesitations in relation to the appropriate use of their medicines, which triggered different reactions, ranging from a sense of powerlessness to anxiety or deliberate non-adherence. Two variables were identified as being fundamental to the participants' perceptions: the level of understanding that participants had regarding medicines and their desire for assistance with the use of medicines. Using these variables, patients[4] can be grouped into four distinct segments; the heedless, the aware, the scrupulous and the self-sufficient patient (refer to table 2).

- The **heedless patient** displays a poor understanding of the risks concerning the mismanagement of medicines, but does not want to be helped in managing their medications.

- The **aware patient** is conscious of their poor understanding and would appreciate and actively seeks assistance when managing their medications.

- The **scrupulous patient** understands the detail and the importance of their medicine regimen and is aware of the risks related to medication mismanagement. For this reason, this patient pays special attention to how they use their medicines and regularly asks for assistance and advice.

- The **self-sufficient patient** understands the details and importance of their medicine regimen but does not desire assistance with it.

Table 2: Patient Segmentation Matrix

		Desire for assistance	
		No	Yes
Understanding of medicines	Confused	The *heedless* patient	The *aware* patient
	Clear	The *self-sufficient* patient	The *scrupulous* patient

The relationship between the medicine problems reported above and these four patient categories can be explained as follows. The *heedless patient* mistrusts medicines. S/he worries about side effects and medicine interactions and believes that it is possible to reduce these risks through reducing the dose or ceasing to take the prescribed medicines. This patient is at risk of medication misadventure caused by non-compliance and often the fact that the non-compliance is hidden from the GP. The heedless patient is suitable for HMRs as an HMR-pharmacist would be able to help the patient to rebuild trust in, and a better understanding of their medicines.

Whilst the *aware patient* has good intentions regarding adhering to the prescribed medication regimen, s/he finds it difficult to remember medicine names and doses and is worried about problems with medicine recognition. S/he is easily confused by changes in product packaging or by generic brand substitution. His/her confusion may be linked to the difficulty of speaking and/or understanding English. The anxiety felt by the aware patient is not so much related to side effects or medicine interactions as to remembering and understanding to take the medications in the correct dose. This would represent a key target group for HMR marketing.

The *scrupulous patient* is worried about medicine interactions and side effects and confused about medicine information. S/he proactively seeks information from a variety of sources and is desirous of in-depth advice from a health care professional who can satisfy their information need and sort out his/her confusion caused by accessing a multitude of information sources. This patient is aware of new products and generics. Patients with language difficulties can fall into this category. Such patients require only awareness of the HMR service to be eager to participate.

The *self-sufficient patient* is independently managing his/her medication. In general, s/he is fluent in English, feels well-informed about his/her medicines, and does not present any cognitive or physical impairment regarding medication recognition and use. This patient is of significant lower risk of medication misadventure than patients belonging to the other three categories and would not be a primary target for HMR marketing strategies.

For an overview of the patient categories and their characteristics refer to table 3.

Table 3: Patient Segments, Medication Management Problems and Self-Perceived HMR Need

Patient category	Problems with appropriate use of medicines	Self-perceived HMR need
The heedless patient	• Fear of side effects and medicine interactions • Deliberate non-adherence	Yes
The aware patient	• Cognitive and/or physical impairments • Medicine recognition problems • Language barriers	Yes
The scrupulous patient	• Information seeking • Information confusion • Worry of medicine interactions and side effects	Yes
The self-sufficient patient	None perceived	No

DISCUSSION

Inappropriate use of medicines is a common cause of hospitalisation, particularly among elderly multiple medicine users (Leendertse et al., 2008, Sikdar et al., 2010). To reduce medicine-related problems and the number of preventable hospital admissions, the Australian Government introduced the HMR program, which has – in its first decade of existence - not been used to the projected extent[5]. This study has explored the medicine-related beliefs, behaviors and coping strategies of HMR-eligible patients and their caregivers, and on this basis, a patient segmentation model has been developed that can be used to inform health policy makers regarding a more effective direct-to-consumer promotion of the HMR service by targeting different patient types with different promotional strategies. Any initiative that aims to encourage a patient's appropriate use of medicines and full cooperation with health care providers will only be successful to the degree that the patient's needs, beliefs, behaviors and motivations as well as their physical and cognitive limitations are taken into account. This study has identified major medicine problems encountered by patients and categorized patients accordingly.

Segmentation is a valuable marketing tool which allows a large heterogeneous group of consumers to be broken down into smaller homogenous groups. Within each group, or segment, every individual can be expected to react to a particular marketing offer in a similar manner. Thus, marketing strategies can be designed to address the needs of each segment which are more likely to meet the needs of that particular group of individuals. Although the actual HMR service will remain unchanged across all segments and the HMR is provided at no charge to all consumers, the promotional strategy can, and indeed should, vary between the different segments. In addition, a segmentation strategy is also valuable in that it allows prioritisation of the different segments to be conducted, when there are insufficient resources available to provide the service simultaneously to all segments.

Three of the four patient categories could be targeted in a promotional campaign for HMRs, each with a different promotional strategy to increase the uptake. The fourth category, the *self-sufficient* patient, is unlikely to need an HMR to the same extent as the other three groups and therefore would not be considered a priority target group due to his/her strong sense of self-reliance and cooperation with their health care providers. The *heedless patient* could be targeted with a campaign that compares and contrasts the risks relating to medication non-adherence versus the risks of medication interactions and side effects. The *aware patient* could be reached with a campaign that includes addressing caregivers encouraging them to play an active and informed role in the management of their care recipients' medicines. As the aware patient is cognizant of the fact that s/he needs help with

their medicine use, a suitable marketing strategy for this patient category will also include reminding the aware patient of the professional assistance that a pharmacist can provide to him/her through the HMR. The *scrupulous patient* is probably the least complex category to target. S/he is proactive in searching for information concerning his/her health and is likely to respond readily to any awareness campaign of the HMR service. A brochure outlining the purpose and aim of the HMR program may be the only trigger s/he needs to ask their GP or pharmacist for more information about the service.

This study demonstrates that the uptake of the HMR program can be effectively increased by direct-to-consumer communication strategies that are tailored to the needs, beliefs, behaviors, motivations and limitations of specific patient categories. It must however be ensured that any such campaigns target HMR-eligible patients only, specifically those who are at highest risk of medication misadventure, and that the supply of available HMR-accredited pharmacists be built up to meet an increased demand.

Study limitations/further research

The study is limited by the relatively small sample size (50 patients) and did not include patients who were unable (or unwilling) to attend a focus group, e.g. due to physical inability to leave their homes. Whilst the study included caregivers of such house-bound patients, the caregiver perspective is likely to differ from the patient perspective. Home-based interviews with physically impaired patients would therefore be a beneficial addition to this study. Further research could also include patients and caregivers with different lifestyles, such as remote and rural patients/caregivers and Aboriginal and Torres Strait Islanders, as well as patients who have already had an HMR or those who have refused to receive this service, to test the fit and examine the generalizability of the proposed patient categories. Another option would be to specifically investigate the perspectives of those 'high-risk' patients who have experienced preventable medicine-related emergency hospital admissions.

Acknowledgements:

---

[1] Commonwealth Department of Health and Aging, "Home Medicine Review: helping your patients/caregivers manage their medicine at home", www.health.gov.au , accessed March 2009

[2] Pharmacy Guild of Australia, HMR Statistics 2009, accessed via http://www.guild.org.au/mmr

[3] The Australian Government has devised the following non-exclusive list of risk factors that are used to identify HMR-eligibility: *"Examples of risk factors include patients:*
- *currently taking five or more regular medications*
- *taking more than 12 doses of medication per day*
- *with significant changes to their medication regimen in the last three months, including recent discharge from hospital*
- *taking medication with a narrow therapeutic index or required therapeutic monitoring*
- *with symptoms suggestive of an adverse drug reaction*
- *having difficulty managing their own medicines because of literacy or language difficulties, impaired sight*
- *attending a number of different doctors, both general practitioners and specialists*

The HMR service is not available to in-patients of a hospital, day hospital facility or care recipients in residential aged-care facilities." (Source: Medicare Australia, http://www9.health.gov.au/mbs/)

[4] In the following discussion the term 'patient' includes caregivers to the extent to which the latter are involved in making medicine decisions for the person they care for.

[5] Pharmacy Guild of Australia, HMR Statistics 2009, accessed via http://www.guild.org.au/mmr

References

WHITE, L. & KLINNER, C. 2009. Increasing Patient Demand for Home Medicines Reviews: A Marketing Plan. Pharmacy Guild of Australia

BARBER, N., PARSONS, J., CLIFFORD, S., DARRACOTT, R. & HORNE, R. 2004. Patients' problems with new medication for chronic conditions. *Quality and Safety in Health Care,* 13**,** 172-175.

BARBOUR, R. 2001. Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *BMJ,* 322**,** 1115 - 1117.

BATTY, G., M. , GRANT, R., L. , AGGARWAL, R., LOWE, D., POTTER, J., M. , PEARSON, M., G. & JACKSON, S., H. D. 2003. Using prescribing indicators to measure the quality of prescribing to elderly medical in-patients. *Age and Ageing,* 32**,** 292.

BENNETT, A., SMITH, C., CHEN, T., JOHNSEN, S. & HURST, R. 2000. *A comparative study of two collaborative models for the provision of domiciliary medication review: St George Canterbury Medico/Pharmacy Project - Executive Report* [Online]. Available: http://www.guild.org.au/mmr/content.asp?id=406 [Accessed].

BENRIMOJ, C., ROBERTS, A., CHEN, T., WILLIAMS, K. & ASLANI, P. 2004. Quantification of facilitators to accelerate uptake of cognitive pharmaceutical services (CPS) in community pharmacy, Investigator Initiated Guild Government Grant 2003-007. The Pharmacy Guild of Australia.

CAMPBELL RESEARCH & CONSULTING 2008. Home Medicines Review Program, Qualitative Research Project, Final Report. Department of Health and Ageing.

CHEN, T. & LARKIN, C. 2002. Consumer attitudes toward and experiences of domiciliary visits by community pharmacists. *Australian Pharmacist,* 21**,** 682-4, 686-8.

HUSTON, S. A. & HOBSON, E. H. 2008. Using focus groups to inform pharmacy research. *Research in Social and Administrative Pharmacy,* 4**,** 186-205.

KITZINGER, J. 1995. Introducing focus groups. *British Medical Journal,* 311**,** 299.

LEENDERTSE, A. J., EGBERTS, A. C. G., STOKER, L. J., VAN DEN BEMT, P. M. L. A. & FOR THE HARM STUDY GROUP 2008. Frequency of and Risk Factors for Preventable Medication-Related Hospital Admissions in the Netherlands. *Arch Intern Med,* 168**,** 1890-1896.

LIAMPUTTONG, P. 2009. Qualitative Data Analysis: Conceptual and Practical Considerations. *Health Promotion Journal of Australia: Official Journal of Australian Association of Health Promotion Professionals,* 20**,** 133-139.

PIT, S. W., BYLES, J. E. & COCKBURN, J. 2008. Prevalence of self-reported risk factors for medication misadventure among older people in general practice. *Journal of Evaluation in Clinical Practice,* 14**,** 203-208.

SCHWARTZKOFF, J., ET AL FOR URBIS, KEYS, YOUNG 2005. Evaluation of the Home Medicines Review Program – Pharmacy Component, Investigator Initiated Guild Government Grant 2004-526. The Pharmacy Guild of Australia.

SIKDAR, K. C., ALAGHEHBANDAN, R., MACDONALD, D., BARRETT, B., COLLINS, K. D., DONNAN, J. & GADAG, V. 2010. Adverse Drug Events in Adult Patients Leading to Emergency Department Visits. *Ann Pharmacother,* 44**,** 641-649.