Are we ready for the Better Medication Management System?

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ABSTRACT

- The Better Medication Management System (BMMS) is an Australian project to provide electronic access to patient medication records.
- It aims to improve access to patient medication information and to reduce adverse drug events and hospital admissions.
- Evidence supporting the achievability of the BMMS aims is limited.
- Voluntary participation of patients in the BMMS may limit its ability to achieve its aims and capitalise on its potential benefits.

MJA 2003; 178: 448–450

THE BETTER MEDICATION MANAGEMENT SYSTEM (BMMS) is an Australian project to create electronic records of patient medications. Despite the many potential benefits of such a system, concerns arise as to whether its goals are achievable and whether the effects of different patient participation styles (voluntary or mandatory) have been adequately considered.

The BMMS is currently being developed by the Commonwealth Department of Health and Ageing with input from key industry participants, including consumer groups and healthcare providers. The system will enable electronic transfer of medication information between doctors, pharmacists, hospitals and the Health Insurance Commission (HIC). It is envisaged that it will improve access to patient medication information for both healthcare providers and consumers, assist healthcare providers in prescribing and dispensing medications, provide information for research, and act as a testing ground for developing a more comprehensive electronic health information network. It is currently planned to be a voluntary system for healthcare consumers, providers and pharmacists.[1]

The BMMS will have profound implications for healthcare delivery in Australia, and significant resources are being invested in the project. Three success measures of the BMMS have been identified:

- to improve access to information about a consumer's medicines;
- to reduce adverse outcomes; and
- to reduce hospital admissions.[1]

Despite the enormous effort expended in developing the BMMS, evidence supporting the achievability of its goals is scarce. A great deal of research has focused on the effectiveness of information technology in medical practice, but most has assessed decision-support systems and measured physician parameters rather than patient outcomes.[2-5] Further, most was conducted in tertiary care settings, with non-voluntary participation of patients and physicians. There are also concerns about the quality of much of this research.[6]

Development of the BMMS has relied heavily on the experience of PharmaNet in the Canadian province of British Columbia. PharmaNet is a secure computer network containing up-to-date medication profiles for all patients who have prescriptions filled in the province (Box). Two pilot studies have been conducted on the effects of enabling doctors in emergency departments and medical practices to access PharmaNet.[7,8] Although these studies were considered successful, they yielded less quantitative evidence than expected. In particular, the study of medical practice access did not provide evidence supporting the achievability of the BMMS aims.

First, the response rate was not high, with many medical practices withdrawing before or during the study and 60 from 85 actively participating practices returning survey questionnaires (see Box).[8] Second, the evaluation assessed medical practitioners' perceptions of the system and their prescribing, rather than patient outcomes. Third, while patient participation in the pilot studies was voluntary, participation in PharmaNet is not. Thus, patient medication profiles were already available on PharmaNet and did not need to be entered before useful information could be retrieved. In Australia, the Health Insurance Commission has some patient-specific prescription information,[9] but there is currently no equivalent to PharmaNet. Australian doctors may be less enthusiastic about participating if their initial access is to enter rather than retrieve medication data. A PharmaNet equivalent is a desirable initial step before the BMMS is introduced.

In addition, there are insufficient data to establish a voluntary model of participation as the preferred alternative. While voluntary participation of patients, doctors and pharmacists is perceived as more acceptable than mandatory participation, it may be less successful in achieving BMMS objectives. Regardless of participation style, it is fundamental that doctors and pharmacists are willing to participate. This can only be achieved by incorporating their concerns into the development of the BMMS and providing sufficient incentives to guarantee their involvement. Fortunately, the Federal Government is committed to a comprehensive consultation process with all major stakeholders, and many organisations are represented in the BMMS Development Group. In conjunction with field testing, this will enable many problems apparent in the Canadian experiment to be overcome before implementation (eg, onerous patient consent procedures, complex data presentation and inefficient access protocols).[8]

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Experience of accessing PharmaNet in British Columbia, Canada

PharmaNet

PharmaNet is a secure computer network containing up-to-date medication profiles for all patients who have prescriptions filled at community and hospital outpatient pharmacies in British Columbia, Canada.

PharmaNet was developed in 1995 by the province's Ministry of Health Services as a foundation for an integrated health network.

The effects of providing prescribers with access to PharmaNet have been evaluated in two pilot projects:

- in emergency departments (beginning in 1997, with a final report released in November 1998[7]); and
- in medical practices (beginning in 1999, with a final report released in July 2001[8]).

Medical practice pilot access study

Participants: Of 263 medical practice sites that expressed interest, 105 enrolled; 20 of these later withdrew.

Outcome measures: Evaluation was by questionnaires that assessed use of medication profiles and, where necessary, reasons for withdrawal from the pilot project. Surveys were also conducted on the value of each medication profile accessed over a sample day and week.

Results: Sixty of the active sites (71%) and 17 of the withdrawn sites (85%) responded to the questionnaire. One-week surveys were conducted at 13 sites, and a one-day survey at one site.

- 76% felt that PharmaNet met their expectations most of the time.
- Over 50% felt that PharmaNet improved the accuracy and timeliness of their local patient medication history.
- Over 50% felt that patient visit time was extended.
- Over 50% felt that their overall access to PharmaNet was less than expected because of difficulties with internet connections and patient consent requirements.
- Less than 50% felt that PharmaNet affected medication or treatment decisions.
- The major reasons for sites withdrawing included the need for written patient consent, impact on office workflow, slow internet connection, negative patient response, and need for staff confidentiality undertakings.

Further information is available through the Ministry of Health Services, Government of British Columbia (http://healthnet.hnet.bc.ca/index.html) and the College of Pharmacists of British Columbia (http://www.bcpharmacists.org/)

The Exposure Draft of The Better Medication Management System Bill 2001 (Cwlth) provides patients with substantial control over their medication profiles, including the ability to suppress information and destroy their profiles.[10] However, I believe this Draft is too consumer-oriented, potentially jeopardising the commitment of healthcare providers to the BMMS. If they cannot be assured of the completeness of the data retrieved, they may be reluctant to participate.

Once healthcare providers have confidence in the BMMS and are keen to participate, they will need to promote participation of healthcare consumers. Workshops conducted by the Consumers' Health Forum of Australia in 2001 found that elderly people, people with chronic illness and some women's groups were interested in the BMMS.[11] However, no other data are currently available on the likely participants in the BMMS. The characteristics of patient participants may profoundly affect whether the BMMS can reduce adverse drug events and hospital admissions.

Voluntary patient participation will raise other important issues. First, if it improves clinical decision-making, those not participating will be relatively disadvantaged. This will potentially widen the gap in quality of healthcare services to groups less likely to participate, such as Indigenous Australians, people from non-English-speaking backgrounds and those from remote and rural areas.[12] Second, if providers rely on automated alerts from the BMMS, there is the potential for more prescribing and dispensing errors for non-participating patients. As a result, providers may decide only to treat participating patients to reduce the risk of missing drug interactions. Finally, without complete participation, the market may be too small to ensure the development of effective and efficient support systems.

Despite these concerns, it is evident that adverse drug events cause a significant amount of morbidity and cost in Australia.[13] These events occur in both hospitals and general practice, and may arise from a multitude of system failures.[14] Many are deemed preventable.[15-20] If the BMMS is able to win the confidence of healthcare providers and consumers, it may significantly reduce drug-related morbidity and hospital admissions.

In addition to its expressed goals, the BMMS has the potential to provide a wealth of health information for research and statistical purposes.[9,21,22] It may help overcome many of the limitations of current health data by providing information about over-the-counter and complementary medicines.[9,22] However, some studies have shown that patients who consent to use of their health information for medical research differ significantly from those who do not consent, and serious concerns arise about the completeness of data collected if patient participation is voluntary.[23,24] Resulting biases would be unquantifiable and would render such data almost useless.

Despite the potential benefits of the BMMS, several outstanding issues require resolution. It is imperative to ensure community acceptance of the project, and this will come only through demonstrated improvements in patient outcomes while maintaining the balance between patient confidentiality and clinical utility. In addition, implementation of the BMMS must not widen social disparities in health outcomes.[25]

Competing interests

This article was developed from an honours project undertaken under the supervision of Professor George Rubin and Professor Michael Kidd, Faculty of Medicine, University of Sydney. Professor Kidd is also Chair of the Better Medication Management System Development Group. All research was undertaken independently, and Professor Kidd's position did not in any way influence the research or findings.

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(Received 31 May 2002, accepted 21 Feb 2003) ❑