Systematic review of the use of patients’ own medications in acute care institutions

Lummis H, Sketris I, Veldhuyzen Van Zanten S

CRD summary
The authors concluded that there was some evidence of benefit for the use of the patient's own medication when admitted to hospital, but the studies were flawed and further research is required. The review methods were poorly reported but, overall, the authors' cautious conclusions seem appropriate in view of the limitations of the studies.

Authors' objectives
To identify the benefits and risks to the patient and hospital of using the patient's own medication (POM) when admitted to hospital.

Searching
PubMed, EMBASE, International Pharmaceutical Abstracts and CINAHL were searched from 1984 to 2004; the search terms were reported. Only articles published in the English language were eligible. In addition, reference lists and three named journals were handsearched. Internet searches were conducted; the search terms and sites searched were reported. Abstracts were not included.

Study selection
Study designs of evaluations included in the review
Inclusion criteria were not specified in terms of the study design.

Specific interventions included in the review
Studies that evaluated the use of POMs which patients had obtained in the community setting and taken with them when admitted to hospital were eligible for inclusion. The included studies evaluated a variety of interventions in which the use of POMs were accompanied by changes to clinical pharmacy services (details were reported).

Participants included in the review
Inclusion criteria were not specified in terms of the participants, but it was clear that the review focused on patients admitted to hospital who continued to use their own medicines.

Outcomes assessed in the review
Studies assessing theoretical or demonstrated benefits or risks to the patient or institution, results or evaluation of policy implementation, any type of medication, legal and ethical issues related to institutional policy, provincial or federal legislation, impact on third-party drug insurance companies and impact on health care providers, were eligible for inclusion. Studies assessing patient benefits and risks, hospital benefits and risks, and impact on health care providers were included.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity. The authors did, however, grade studies using a hierarchy of study design in descending order of quality (quasi-experimental, observational studies as cohort, cross-sectional, before-and-after and case series) according to the Cochrane Reviewer's Handbook.

Data extraction
Two reviewers independently extracted data from all of the included primary studies. A third reviewer checked the
**Methods of synthesis**
How were the studies combined?
The studies were combined in a narrative. Each study was described in the text, with additional descriptive information provided in the tables.

How were differences between studies investigated?
Differences between the studies were discussed in the text.

**Results of the review**
Eighteen studies (reported in 19 articles) were included in the review: 1 quasi-experimental study, 1 observational cohort study, 7 observational-cross-sectional studies, 4 observational before-and-after studies and 5 observational case series. The number of patients was not reported.

Fourteen studies were from the UK, two from the USA, one from Canada and one from New Zealand.

Patient benefits and risks.
Studies reported the following benefits from the use of interventions: evidence of a decrease in wastage of POMs either from preventing their loss or avoiding their destruction by the hospital pharmacy (7 studies); improved accuracy of admission orders (3 studies); removal of unsuitable or unneeded POMs (5 studies); additional opportunities for patient counselling and direct patient care (4 studies); and an increase in identification of prescribing errors when a pharmacist conducted medial histories compared with a pharmacist reviewing admission orders (1 study). One study found no significant differences in medication administration errors found by a nurse when POMs were used compared with traditional hospital pharmacy-dispensed prescriptions.

Hospital benefits and risks.
No studies reported evidence that POM use increased legal risks to the hospital, although this was assessed in only 3 studies.

Impact on health care providers.
Ten studies assessed the pharmacist conducting patient interviews and/or evaluating POMs for use by patients either during administration or upon discharge. Other health professionals that evaluated POMs were nurses (2 studies) and pharmacy technicians (2 studies). The mean time to conduct a medication history (assessed by 3 studies) ranged from 10 to 20 minutes per patient. One study reported that after a review of patient's medication history by a pharmacist, each clinical intervention to alter drug therapy took on average 18 minutes.

**Cost information**
All costs were converted to US dollars ($) at a rate posted on 15 November 2004.

Hospital benefits and risks: 10 studies reported savings from using POMs in the hospital; these ranged from $5 to $27 per patient, or from $239 to $196,991 annually per hospital depending on bed size. However, none of the studies reported a comprehensive economic analysis to account for all potential savings in medication costs or staff expenditure. Impact on patients' drug costs after discharge: 6 studies reported the savings in drug costs when POMs are not destroyed but are returned to the patient on discharge, particularly in a community setting; the savings ranged from $5 to $47 per patient, or from $9,442 for two wards up to $280,941 for all patients discharged from a 540 bed hospital.

**Authors' conclusions**
Only a small number of studies addressed the benefits, risks and costs of using POMs in hospitals. These studies had
methodological limitations, but the studies showed some evidence of benefits to the patients and hospitals.

**CRD commentary**

The review addressed a clear question that was broadly defined in terms of the intervention and outcomes; inclusion criteria were not specified for the participants or study design. Several databases were searched and efforts were made to locate unpublished studies. Only English language articles were included, which means that relevant studies published in other languages might have been missed. Methods used to select the studies were not described and those used to extract the data were not fully described, so it is not known whether any efforts were made to reduce reviewer error and bias. The validity of the studies was not formally assessed, thus it is difficult to determine the reliability of the evidence presented.

Characteristics of the included studies were presented in tabular format. The included studies were grouped by outcomes and a narrative description presented, which seems appropriate given the apparent heterogeneity of the studies. The authors’ conclusions reflect limitations in the included studies and appear appropriate. However, review methods were poorly reported and the potential for bias in the review should not be ignored.

**Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.

Research: The authors stated that well-designed controlled trials are needed to evaluate the benefits, staff workload and economic costs of using POMs. Policies that describe identification, storage and documentation procedures to address issues of liability and risk concerns should be in place.

**Funding**

Canadian Health Services Research Foundation; Canadian Institutes of Health Research; Nova Scotia Health Research Foundation.

**Bibliographic details**


**PubMedID**

17176360

**DOI**

10.1111/j.1365-2710.2006.00773.x

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Cost Savings; Drug Costs; Hospitalization; Humans; Medication Errors; Pharmaceutical Preparations /administration & dosage; Pharmacy Service, Hospital; Primary Health Care

**AccessionNumber**

12006009325

**Date bibliographic record published**

31/03/2008

**Date abstract record published**

31/03/2008
Record Status

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.