



August 2011 – SUPPORT Summary of a systematic review

Do additional services provided by pharmacists reduce healthcare costs or the demand for healthcare in low- and middle-income countries?

The role of pharmacists includes dispensing medication, and the packaging and compounding of prescriptions. But over the last two decades these responsibilities have expanded to include ensuring the proper use of medication as well as identifying, preventing and resolving drug-related problems. Pharmacists also promote health services and provide educational information.

Key messages

- The provision of additional services such as patient health education and follow-ups by pharmacists may be associated with a decrease in the rate of hospitalisation or general practice and emergency visits
- Pharmacist services to patients may reduce medication costs in middle-income countries
- The applicability of the findings across low- and middle-income countries may be limited by pharmacist numbers, local attitudes to pharmacists by patients and physicians, local pharmacist training, and laws governing pharmaceutical practice



Who is this summary for?

People making decisions concerning
Expanding the role of pharmacist services targeted at patients and healthcare professionals other than dispensing and compounding, in low- and middle-income countries.

! This summary includes:

- Key findings from research based on a systematic review
- Considerations about the relevance of this research for low- and middle-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Pande S. A systematic review of the effectiveness of pharmacist provided services on patient outcomes, health-service utilisation and costs in low- and middle-income countries. MPH Dissertation University of Adelaide, Australia, 2010.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies.

SUPPORT – an international collaboration funded by the EU 6th Framework Programme to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries.
www.support-collaboration.org

Glossary of terms used in this report:
www.support-collaboration.org/summaries/explanations.htm

Background references on this topic:
See back page.

Background

Pharmacists play an important role in providing and interpreting information related to self-medication and self-care. As these practices become more popular, the role of pharmacists in community pharmacies that offer patient care is likely to be enhanced. Increased demands for healthcare, the complex and expanding range of available medicines, the greater use of prescribed medications, and poor patient adherence, are all factors that have contributed to pharmacists needing to deliver patient-targeted services. These services include ensuring that medicines are correctly used, as well as the identification, prevention and resolution of drug-related problems (such as side effects or adverse effects). Pharmacists also contribute to the provision of health promotion services (including screening services for chronic diseases) and provide educational information.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low- and middle-income countries. The methods used to assess the quality of the review and to make judgements about its relevance are described here:

www.support-collaboration.org/summaries/methods.htm

Knowing what's not known is important

A good quality review might not find any studies from low- and middle-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

About the systematic review underlying this summary

Review objective: To examine the effectiveness of services provided by pharmacists on patient outcomes and health service utilisation and costs in low- and middle-income countries

	What the review authors searched for	What the review authors found
Interventions	Any health or drug-related patient-targeted services delivered by pharmacists (other than drug compounding and dispensing, and excluding other services such as the selling of cosmetics or other non-pharmaceutical products) evaluated in a randomised trial, non-randomised trial, controlled before-and-after study, or interrupted time series analysis.	12 randomised trials in middle-income countries were included. 11 examined pharmacist interventions targeted at patients, and 1 evaluated a pharmacist intervention targeted at healthcare professionals. All the studies included compared pharmacist-provided services with usual care.
Participants	Pharmacists (or pharmacies) delivering services in outpatient settings other than, or in addition to, drug compounding and dispensing. Studies of pharmacists delivering services to outpatients in a clinic attached to a hospital or a day hospital were included in the review.	In all the studies, interventions were performed either by practising pharmacists or research pharmacists. 11 studies were randomised by patients, while 1 study was randomised by general practices. 5 of these 11 studies were conducted in the outpatient department of hospitals, 5 studies were conducted in community pharmacies, and 2 in primary health centres (1 was outpatient and primary care centre).
Settings	Outpatient settings	Sudan (1), India (2), Egypt (1), Paraguay (1), Thailand (2), Chile (2), Bulgaria (2), and South Africa (1).
Outcomes	Objective measurement of patient outcomes and process outcomes such as health service utilisation and costs.	Objective measurement of patient outcomes and process outcomes such as health service utilisation and costs. Objective measurement of patient outcomes and process outcomes such as health service utilisation and costs.

Date of most recent search: March 2010

Limitations: This is a good quality systematic review with minor limitations. There were few evaluations of impact that allowed robust conclusions to be drawn, particularly as many of the studies did not take all the costs involved into account.

Pande S. A systematic review of the effectiveness of pharmacist provided services on patient outcomes, health-service utilisation and costs in low- and middle-income countries. MPH Dissertation University of Adelaide, Australia, 2010.

Summary of findings

Twelve studies were eligible for this review. Of these, 11 examined pharmacist interventions targeted at patients, and 1 evaluated a pharmacist intervention targeted at healthcare professionals. Seven studies were undertaken in low- and middle-income countries (Sudan, 1; India, 2; Egypt, 1; Paraguay, 1; Thailand, 2); and 5 in upper middle-income countries (Chile, 2; Bulgaria, 2; South Africa, 1). None of the studies presented data on total costs. One study presented data on medication costs. All the studies provided data on patient outcomes and 4 studies examined health service utilisation.

1) Pharmacist-provided services targeted at patients versus usual care

11 of the 12 studies compared pharmacist-provided services with usual care. Interventions included patient education and counselling (11), complete pharmaceutical care follow-up (3), and bespoke educational booklets explaining disease, medication and lifestyle modifications (7). The duration of the interventions ranged between 20-50 minutes, and 3 of the 11 interventions were conducted over periods ranging between 9 weeks and 6 months.

- Pharmacist services targeted at patients may decrease the use of specific health services such as hospital admissions and general practitioner visits
- Pharmacist services targeted at patients may lead to little difference in medication costs
- Total costs were not measured in any of the studies
- No studies were identified that examined pharmacist-provided services targeted at patients versus the same services provided by other healthcare workers – or the same services provided by untrained health workers

About the quality of evidence (GRADE)

⊕⊕⊕⊕

High: Further research is very unlikely to change our confidence in the estimate of effect.

⊕⊕⊕○

Moderate: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

⊕⊕○○

Low: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

⊕○○○

Very low: We are very uncertain about the estimate.

For more information, see last page

<p>Patients or population: Pharmacists (or pharmacies) delivering services in outpatient settings Settings: Sudan (1), India (2), Egypt (1), Paraguay (1), Thailand (2), Chile (2), Bulgaria (2), and South Africa (1) Intervention: Patient education and counselling (11), complete pharmaceutical care follow-up (3), bespoke educational booklets explaining the required disease, medication and lifestyle modifications Comparison: Usual care</p>			
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Health service utilisation	Rate of hospitalisation, general practice and emergency visits can probably be reduced. In one study, for example, the reduction in general practice visits was 14% for the intervention group and 0% for the control group.	590 patients (4 studies)	⊕⊕⊕○ Moderate
Medication costs	Medication costs of patients with asthma and chronic obstructive pulmonary disease may decrease. Other costs were not reported.	350 patients (1 study)	⊕⊕○○ Low
Clinical outcomes	Clinical outcomes* for diabetic and hypertensive patients may improve; e.g. reduction in fasting plasma glucose levels or systolic and diastolic blood pressure.	1,102 (8 studies)	⊕⊕⊕○ Moderate
p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)			

2) Pharmacist-provided services targeted at healthcare professionals versus usual care in low- and middle-income countries

1 of the 12 studies evaluated this comparison. The main aim of this study was to improve the diagnosis, prescribing and follow-up care provided by general practitioners to children with asthma. The intervention was educational outreach. This study reported an improvement in the asthma score in the intervention group compared to the control group.

- Pharmacist services targeted at health professionals, such as educational outreach visits, probably can improve patient outcomes
- Total costs were not reported
- No studies were found which assessed pharmacist-provided services targeted at healthcare professionals versus the same services provided by other healthcare workers, or the same services provided by untrained health workers

<p>Patients or population: Pharmacists delivering educational outreach visits to general practitioners Settings: South Africa Intervention: Educational outreach visits aimed at improving diagnosis, prescribing and follow-up care for children with asthma Comparison: Usual care</p>			
Outcomes	Impact	Number of participants (studies)	Quality of the evidence (GRADE)
Patient outcome	There was an improvement on asthma scores as reported by the parents or guardians of children that were cared for by general practitioners in the educational outreach group.	43 general practitioners and 318 patients (1 study)	⊕⊕⊕○ Moderate
p: p-value GRADE: GRADE Working Group grades of evidence (see above and last page)			

Relevance of the review for low- and middle-income countries

→ Findings

▷ Interpretation*

APPLICABILITY

- The included studies were conducted in middle-income countries.
- The pharmacists in the included studies may have received supplementary training.

- ▷ *Expanding the role of pharmacists is dependent on having a workforce able to supply sufficient numbers of competent pharmacists, pharmacy technicians or assistants.*
- ▷ *Regulatory frameworks are needed to allow pharmacists to extend their activities beyond their traditional professional responsibilities.*
- ▷ *There may be too few pharmacists in low-income countries and who may lack sufficient training or support to assume additional roles and responsibilities.*
- ▷ *Other healthcare professionals may oppose expanding the role of pharmacists, especially those responsible for medication prescriptions.*

EQUITY

- The distribution of outpatient pharmacies and pharmacists may vary, especially between rural and urban areas.

- ▷ *Expanding the role of pharmacists could reduce inequalities if, for example, help from pharmacists is available when access to other healthcare professionals is limited. However, if pharmacists are unavailable in underserved areas, allowing pharmacists to expand their roles may increase inequalities between urban and rural areas.*

ECONOMIC CONSIDERATIONS

- None of the studies provided a full costing of the interventions or their impacts.

- ▷ *Insufficient information was provided to allow for the assessment of the costs or savings associated with services provided by pharmacists. These costs might include training costs of pharmacists, medication costs, costs of healthcare professional fees, and transport costs for patients.*

MONITORING & EVALUATION

- No studies were undertaken in low-income countries, no studies compared services delivered by pharmacists to the same services delivered by others, and only one study assessed services targeted at healthcare professionals.

- ▷ *The monitoring of health service utilisation, prescription data and costs should be undertaken. Randomised trials should be taken to evaluate changes to the role of outpatient pharmacists in low-income countries. Patient satisfaction with health services should also be assessed in order to assess the impact of the intervention and its costs. This should be done before attempts are made to scale-up any proposed changes.*

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low- and middle-income countries. For additional details about how these judgements were made see: <http://www.support-collaboration.org/summaries/methods.htm>

Additional information

Related literature

Bene, J, Bero, L & Bond, C 2000, 'Expanding the roles of outpatient pharmacists: effects on health services utilisation, costs, and patient outcomes', *Cochrane Database Syst Rev*, no. 3, p. CD000336.

Roughead EE, Semple SJ, Vitry AI. Pharmaceutical care services: a systematic review of published studies, 1990 to 2003, examining effectiveness in improving patient outcomes. *International Journal of Pharmacy Practice*.2005;13(1):53-70.

This summary was prepared by

Fatima Suleman, University of KwaZulu-Natal, South Africa

Conflict of interest

None declared. For details, see: www.support-collaboration.org/summaries/coi.htm

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Keywords

All Summaries: evidence-informed health policy, evidence-based, systematic review, health systems research, health care, low- and middle-income countries, developing countries, primary health care, pharmacist interventions, expanded roles, low- and middle-income countries

About quality of evidence (GRADE)

The quality of the evidence is a judgement about the extent to which we can be confident that the estimates of effect are correct. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), the risk of bias, the consistency of the results across studies, and the precision of the overall estimate across studies. For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE:

www.support-collaboration.org/summaries/grade.htm

SUPPORT collaborators:

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration aiming to promote the generation and use of health policy and systems research as a means to improve the health systems of developing countries. www.who.int/alliance-hpsr

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is a Collaborative Review Group of the Cochrane Collaboration: an international organisation that aims to help people make well informed decisions about health care by preparing, maintaining and ensuring the accessibility of systematic reviews of the effects of health care interventions.

www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking. Focusing on low- and middle-income countries, EVIPNet promotes partnerships at the country level between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available. www.evipnet.org

For more information:

www.support-collaboration.org

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