Pharmacy Dispensing Records to Identify and Educate Patients with Suboptimal Asthma Management

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

Introduction

Asthma is recognised as a National Health Priority Area in Australia, and is responsible for significant morbidity and mortality in the community. International population-based studies suggest that Australia has one of the highest prevalence rates for asthma in the world, affecting an estimated two million people. Despite the existence of national initiatives aiming to improve asthma care, findings from a recent National Health Survey showed that the management of asthma remains suboptimal. There needs to be further research into the most effective way to educate people about asthma and empower them to take responsibility for managing their asthma effectively.

Community pharmacists are in a unique position to help patients manage asthma in view of their expertise, their regular and frequent contact with patients and their accessibility. However, intervention programs are most likely to be successful if they can be easily integrated into the pharmacists’ workflow, and the need for further research using strategies that are pragmatic in busy community pharmacies has been identified.

We previously performed a pharmacy-based asthma intervention used a software application to data mine pharmacy dispensing records and generate a list of patients with potentially suboptimal management of their asthma; in particular, a high rate of provision of reliever medication. These patients were sent educational material from their community pharmacists and advised to seek a review of their asthma management from their general practitioner (GP). The intervention resulted in a three-fold improvement in the ratio of dispensed preventer medication (inhaled corticosteroids, ICS) to reliever medication (short-acting beta-2 agonists, SABAs).

A number of pharmacists that participated in the pilot study indicated that they would prefer to hand out the intervention material to patient face-to-face, rather than mail the packs out. This highlighted the need for finding a balance between interventions that are pragmatic for busy community pharmacies, which require minimal disruption to the pharmacist’s workflow, and encouraging and supporting the involvement of the pharmacist in the delivery of the intervention.

The asthma research described in this report expands on the aforementioned pilot study. In order for this type of study to be implementable on a national scale, the effectiveness and likely uptake by pharmacists, GPs and patients needed to be determined, in a larger setting. This project aimed to utilise community pharmacy dispensing records to identify and educate patients with suboptimal asthma management, and then implement and evaluate two different approaches to intervention. Specifically, the objectives were to:

- Promote the role of pharmacists in asthma education and information provision;
- Empower people with asthma to manage their condition effectively;
- Strengthen communication and collaboration between GPs and community pharmacists on asthma management strategies for patients in common;
- Significantly improve the preventer-to-reliever asthma medication ratio in the intervention cohort compared to control; and
- Determine the uptake and effectiveness of mailed versus face-to-face interventions.

Methods

Seventy-one pharmacies throughout Tasmania, Victoria and South Australia were randomised to perform either a mailed or face-to-face asthma intervention. The pharmacists installed a software application (‘MedeMine-for-Asthma’) that data mined dispensing records, generating a list of patients who had received six or more canisters of inhaled SABAs in the preceding 12 months. The patients identified were allocated to an intervention or control group. In pharmacies performing the face-to-face intervention, the software inserted an electronic prompt in the dispensing software to act as a reminder for pharmacists to perform the intervention on the next dispensing for each intervention patient. Mailed intervention patients were contacted by the community pharmacist via a computer-generated personalised letter, and were sent educational material and asthma questionnaires, with the letter also encouraging them to see their general practitioner for an asthma management review. Face-to-face
intervention patients received the intervention materials in person, with relevant counselling by the pharmacist. Pharmacists were blinded to the control patients’ identities until the end of the 12-month post-intervention period. The primary outcome measure was ratio of dispensed preventer medication to reliever medication. Secondary outcome measures were other patterns in dispensed asthma medication, asthma questionnaire scores and participant satisfaction.

Results
The data mining software identified a total of 1483 patients (510 [34.4%] mailed intervention patients, 480 [32.4%] face-to-face intervention patients and 493 [33.2%] control patients) from 71 pharmacies. Of the 463 eligible mailed intervention patients, 414 (89.4%) were sent an intervention pack by their pharmacist. Of the 442 eligible face-to-face intervention patients, 235 (53.2%) were offered an intervention pack by their pharmacist. Of the 207 patients who were not offered a face-to-face intervention, 118 (57.0%) patients had at least one prescription dispensed during the intervention period, whereas 89 (43.0%) did not present to the pharmacy during the intervention period. Therefore, a total of 353 face-to-face intervention patients presented to the pharmacy during the intervention period, of which 235 (66.6%) were offered an intervention, and 118 (33.4%) were not.

Taking opportunity to intervene into account, significantly fewer face-to-face intervention patients were offered an intervention, compared with mailed intervention patients (66.6% versus 89.4%, respectively; $\chi^2 = 64.2, P < 0.0001$).

After the intervention, there were significant improvements in the preventer-to-reliever ratio in both intervention groups and the control group ($P < 0.0001$). The magnitude of improvement in the face-to-face intervention group was greater than that in the mailed intervention group, which was greater than that in the control group. However, taking the decreased delivery of the face-to-face intervention into account, the magnitude of improvement in the mailed intervention group was greater than that in the control group, which was greater than that in the face-to-face intervention group. The improvements in the preventer-to-reliever ratios were mainly due to significant decreases in daily reliever usage within each group. There was a significant increase in the self-reported possession of written Asthma Action Plans after the face-to-face intervention. Satisfaction was high amongst all participants, with the majority of GPs, pharmacists and patients agreeing that the intervention would improve asthma care in the community if implemented on a larger scale.

Conclusion
Community pharmacy dispensing records can be effectively used, with appropriately designed data mining software, to identify patients with suboptimal asthma management, who can then be referred to their GP for review. The face-to-face intervention improved asthma management to a greater degree than the mailed intervention, but only among those who received the intervention. Time constraints in busy pharmacies may limit the uptake and effectiveness of face-to-face interventions in the ‘real world’ setting. Pharmacists should have both mailed and face-to-face intervention options available to ensure maximum uptake and effectiveness of the interventions.

Using the MedeMine-for-Asthma program, approximately 1500 patients were identified from 71 pharmacies as having suboptimal asthma management. If the program were to be made compatible with all dispensing systems, and the intervention was implemented on a national scale, more than 100,000 patients could be readily identified from approximately 5000 pharmacies. The MedeMine-for-Asthma program was shown to be pragmatic in its use, and with minor modifications, it could potentially be utilised to perform interventions to improve the management of other chronic conditions.

References

Researcher’s logos

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