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Testing evidence routine practice: Using an implementation framework to embed a clinically proven asthma service in Australian community pharmacy

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ABSTRACT

Introduction: Community pharmacists are well placed and evidence clearly demonstrates that they can be suitably trained to deliver professional services that improve the management of asthma patients in clinical, economic and humanistic terms. However the gap between this evidence and practice reality remains wide. In this study we measure the implementation process as well as the service benefits of an asthma service model.

Methods: Using an effectiveness-implementation hybrid design, a defined implementation process (progression from *Exploration* through *Preparation* and *Testing* to *Operation* stages) supporting an asthma service (promoting asthma control and inhaler technique) was tested in 17 community pharmacies across metropolitan Sydney.

Results: Seven pharmacies reached the *Operation* stage of implementation. Eight pharmacies reached the *Testing* stage of implementation and two pharmacies did not progress beyond the *Preparation* stage of implementation. A total of 128 patients were enrolled in the asthma service with 110 patients remaining enrolled at the close of the study. Asthma control showed a positive trend throughout the service with the overall proportion of patients with 'poor' asthma control at baseline decreasing from 72% to 57% at study close. There was a statistically significant increase in the proportion of patients with correct inhaler technique from 12% at Baseline (Visit 1) to 33% at Visit 2 and 57% at study close.

Conclusion: Implementation of the asthma service varied across pharmacies. Different strategies specific to practice sites at different stages of the implementation model may result in greater uptake of professional services. The asthma service led to improved patient outcomes overall with a positive trend in asthma control and significant change in inhaler technique.

1. Introduction

Good asthma control is a primary objective in the management of asthma patients.[21] However, asthma control in many patients is sub-optimal.[35] Recent population-based data indicates that approximately 50% people with asthma in Australia have partially or poorly controlled symptoms.[37] This has negative implications for the patient's health, quality of life and/or health care costs. Evidence clearly demonstrates that community pharmacists are well placed and can be suitably trained to deliver professional services that effectively improve the management of asthma patients.[1,4,17–20,22] However the gap between this evidence and practice reality remains wide[2,8,12,17,20,28,36] with ongoing issues of non-adherence and incorrect inhaler technique.[4,20,24,25,28]

Conversely, usual practice in delivering asthma management in the contemporary community pharmacy setting often does not include counselling on medication adherence or inhaler technique.[2,8,12,24,25,28,36] This occurs despite the evidence provided of

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improved inhaler technique leading to substantial improvements in asthma control[6,7,12] and strategies to improve adherence leading to improved outcomes.[16] Data from previous outcome-based asthma management programs highlight that pharmacists' involvement can successfully impact on asthma symptoms, pulmonary function or asthma severity.[4,20] Similarly, updated asthma guidelines highlight the importance of implementing strategies aimed at improving patients' knowledge, skills and attitudes for self-management of their asthma.[21] Correct inhaler technique and adherence are therefore important skills necessary for patients' asthma self-management that pharmacists are well placed to address through effective professional services. Interestingly, non-adherence to asthma medications is estimated to occur in 30–70% of individuals and is a significant risk factor for asthma morbidity and mortality.[24,25] It is considered an important factor in poor asthma control and related healthcare expenditure.[2,8,12,36] Clearly medication optimisation including adherence support and inhaler use education are key elements of asthma care provision.

Despite the evidence behind professional pharmacy services, many of them fail to be integrated into routine practice, mainly due to a lack of implementation programs and strategies. Implementation science has increasingly become recognized as a pathway for bridging knowledge to practice gaps due to its nature of identifying and addressing the complex process of service implementation.[11,13,33]

Different theories and frameworks aimed at describing, understanding and evaluating the translation of evidence into practice have been developed. The need to use theoretical models and frameworks to facilitate the implementation services has been widely recognized,[34] in order to reduce the existing gap between evidence and practice in different disciplines like pharmacy.[18,19]

Practice change facilitation is a widely used implementation approach used to support practice change in different settings[23] including pharmacy.[26]

There is evidence that practice change facilitators can effectively assist in implementing changes and facilitate quality improvement,[5] helping individuals and teams to understand what they needed to change and how they needed to change it.[27]

The Framework for the Implementation of Services in Pharmacy (FISpH) is a systematic approach that uses implementation science theories.[30,31] Using the FISpH combined with an evaluation framework, we aimed to evaluate a service implementation program in community pharmacies focused on asthma medication management services. Specifically we aimed to:

- Measure the implementation program process in terms of progress in practice change and level of service provision (reach, that is, the number of patients receiving the service);
- Evaluate the effectiveness of the service (service benefits) being implemented in terms of patient outcomes (inhaler technique and asthma control).

2. Methods

The study was conducted using an Implementation-effectiveness hybrid design over a six-month period. Effectiveness-implementation hybrid designs are intended to examine the effectiveness of both an intervention and an implementation strategy.[10,36] The design use here is closest to the “type 2” design, however neither “arm” uses randomization. As such, this is a “quality improvement” type of variation on the hybrid designs. The focus of the hybrid design was on evaluating the implementation process rather than statistical validity of outcomes. The study population consisted of community pharmacies located in the Sydney metropolitan area with 18 pharmacies recruited to the study. Staff from each pharmacy were required to be trained in both the provision and implementation of the asthma service at a study specific training workshop. Upon completion of the training workshop pharmacists were requested to enrol 10 asthma patients in the service. To be eligible to participate in the study, patients were required to:

- Be aged 18 years or older
- Have physician diagnosed asthma
- Have uncontrolled asthma according to the *Asthma Control Assessment* 5-itemed questionnaire[29]
- A patient having an asthma prescription dispensed in the previous six-month period

2.1. Asthma service to be implemented

Provider pharmacists were trained to deliver targeted interventions that addressed behavioural change in patients. These interventions were directed at any issues relating to the patient's adherence and/or inhaler technique. Our training was based on programs that we had previously used for interventions incorporating issues with adherence and inhaler technique in pharmacy.[1,17] Issues were identified by first using a purpose-designed questionnaire that measured asthma control and inhaler technique. Asthma control was measured using *The Asthma Control Assessment* 5-item questionnaire due to its good sensitivity and specificity.[29] Each step of patients' inhaler technique was assessed using previously implemented device-specific checklists.[3] Providers interacted with patients on four occasions during the project, that is, at the initial consultation visit then follow up consultation visits at one month, three months and six months. During these visits patients were educated using verbal instructions, physical demonstration and/or written information about inhaler device use. At the end of each visit the provider and patient jointly agreed goals or points for improvement to be adopted by the next visit.

Ethics approval for the project was obtained from the UTS Human Research Ethics Committee (Approval number: UTS HREC REF NO. 2014000677).

2.2. Implementation process

The Asthma Service implementation process was guided by *The Framework for the Implementation of Services in Pharmacy* (FISpH) model.[30,31] This model appropriately conceptualizes the complexity and provides a structured and systematic approach to the implementation process and breaks down the process into a series of stages (steps) of implementation and identifiable influencing factors, strategies and evaluations.[11,30,31] The FISpH model is shown in Fig. 1.

2.3. Stages of implementation

The implementation process was reliant on the movement of the pharmacies in a structured manner sequentially through the five stages. Each of the five stages had an objective specific to the respective stage of the implementation process as detailed further in Table 1.

Using the FISpH model, implementation strategies, selected by a trained practice change facilitator were applied to those implementation factors identified as barriers or facilitators that influenced the process of implementation and the progression of pharmacies through the implementation stages (except for the ‘Sustainability’ stage which was beyond the scope of this project).

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