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ADVANCES IN PHARMACY PRACTICE

Pharmacist-managed short-acting beta agonist refill service in a general pediatric clinic

Brooke L. Gildon*, Barnabas John, Michelle Condren, Shellie Keast, Roxanne Maglunog, Jeremy L. Johnson, Christopher Robertson

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ABSTRACT

Objectives: To use a pharmacist-managed short-acting beta agonist (SABA) service (1) to determine the patient's rationale for SABA refill requests, (2) to assess adherence to current controller therapy and current level of disease control, and (3) to characterize the pharmacist's recommendations made in response to a patient's SABA refill request.
Setting: An academic-based general pediatric clinic.
Practice Description: SABA overuse is a marker of increased morbidity and mortality in children with asthma. This article describes a pharmacist-managed SABA refill telephone service.
Practice Innovation: The pediatric ambulatory care pharmacy team assessed and authorized (or denied) all SABA refill requests, provided education, and facilitated appropriate follow-up using a telephone service.
Interventions: Upon receiving a patient-requested SABA refill, the pharmacist identified the reason for the SABA request, assessed asthma control, and determined adherence to daily controllers or spacer use, if applicable. Education was also provided. Data obtained were used to determine SABA refill approval.
Evaluation: Primary reasons for SABA refill request were for (1) current symptom management and (2) no refills remaining in the absence of symptoms. Forty-two (50%) SABA refill requests were eligible for refill per the clinic algorithm, yet 70% actually received a refill after assessment by the pharmacist. Asthma control was assessed as 26% well controlled, 38% not well controlled, and 36% very poorly controlled. Forty-eight percent of patients prescribed daily controller medications were deemed adherent. Spacers were used in 43 of 76 (56%) patients using metered dose inhalers. Education was provided to 82% of caregivers. Pharmacists facilitated asthma follow-up visits in 41 of 84 (49%) patients contacted, and 61% of those appointments were kept.
Conclusions: Pharmacist management of a SABA refill telephone service provides an additional means for delivery of asthma education, facilitates follow-up asthma care, helps to identify patients at risk for increased morbidity and mortality due to the overuse of SABAs, and provides another mechanism for medication refills.

Asthma is one of the most prevalent pediatric chronic illnesses in the United States; it is associated with a significant risk of morbidity and mortality. Over 6 million children younger than 18 years are estimated to be affected by asthma.[1] Annual costs associated with asthma care and the impact on missed school and work days are substantial. The yearly economic burden of impairment from asthma ranges from $3700 to $7800 per patient, depending on the level of asthma conrol.[2] Managing asthma in children with very poorly controlled asthma costs more than twice as much as children with well-controlled or not well-controlled asthma.[2] In comparison with adults, children

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* **Correspondence:** Brooke L. Gildon, PharmD, BCPS, BCPPS, AE-C; Associate Professor, Department of Pharmacy Practice, Southwestern Oklahoma State University College of Pharmacy, 100 E Campus Drive, Weatherford, OK 730960.
E-mail address: brooke.gildon@swosu.edu (B.L. Gildon).

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Key Points

Background:

- Asthma is one of the most prevalent pediatric chronic illnesses in the United States.
- Short-acting beta agonist overuse is a marker of increased morbidity and mortality in children with asthma.
- Successful mechanisms to control overprescribing or overdispensing of short-acting beta agonists are not well reported.

Findings:

- Assessing asthma control at the time of albuterol refill request helps identify patients with poorly controlled asthma.
- Pharmacists provided over-the-telephone education to 82% of caregivers, highlighting the role of pharmacy in asthma education.
- Almost one-half of all patients that requested albuterol refills needed a provider follow-up appointment. Of those appointments facilitated, 61% made their scheduled appointments.

with asthma have been found to experience greater rates of health care encounters with almost 50% more outpatient visits, more than 35% more emergency department visits, and more than 10% more hospitalizations.[3]

For children with persistent asthma, the Global Initiative for Asthma and the National Asthma Education and Prevention Program (NAEPP) Expert Panel Report 3 (EPR-3) guidelines recommend chronic disease management with daily use of controller medications and the use of rescue medication as needed for acute symptoms.[4,5] Rescue medications, in the form of short-acting beta agonists (SABA), provide rapid bronchodilation for quick relief during asthma exacerbations. Therefore, increased SABA use can be an indicator for poor asthma control. Guidelines suggest SABA use more than 2 times per week for symptom management to be reflective of inadequate asthma control.[4,5]

Overuse of SABA rescue medications has been shown to result in numerous adverse asthma-related consequences, compromised patient health, and increased risk of mortality.[4,6] In addition, increased SABA use has been associated with greater bronchial hyperresponsiveness and increased cardiovascular events, emergency department visits, and hospitalizations.[7-10]

Despite recommendations and the adverse consequences associated with overuse of SABA medications, studies suggest that many patients use SABA rescue medication frequently. In a study evaluating patients who refilled a SABA at least once within a 1-year period, 12.8% of patients were determined to have received 9 or more canisters of SABA per year.[11] In a retrospective review of asthma medication use by Connecticut Medicaid, 14% of patients were found to be high users of SABA medications (>1 canister/mo).[12] Neither study investigated the rationale for SABA refills.

Several interventions have been proposed to attempt to reduce the overprescribing and overdispensing of SABAs. In 1 study by Blais et al.,[13] physicians and pharmacists were sent educational letters with information on appropriate use of asthma medications. Unfortunately, no significant reduction in SABA dispensing was found. In another study by Wong et al.,[14] prescribers were provided with written and verbal requests to decrease SABA refill quantities in patients who were receiving more than 1 SABA refill per month. Unlike the Blais study, physicians were required to respond to these requests before dispensing more than 1 SABA per month.[14] This intervention significantly reduced SABA prescribing. In addition, refill algorithms have been suggested as an alternative means for regulating SABA medication overdispensing.[15] Although these refill algorithms exist, none have been validated. The various efforts to reduce SABA dispensing call attention to the problem of excessive SABA use and a continued need to address the issue.

Objectives

This study described a pharmacist-managed SABA refill service in a general pediatric clinic. Specifically, the study aims were (1) to determine the patient's rationale for SABA refill requests, (2) to assess the patient's adherence to current controller therapy and current level of disease control as documented by the clinical pharmacist, and (3) to characterize the pharmacist's recommendations made in response to a patient's SABA refill request.

Setting and practice description

The study was conducted at the general pediatric clinic at the University of Oklahoma Schusterman Center in Tulsa, Oklahoma. The Schusterman Center includes academic clinics not affiliated with a health care or hospital system. The pediatric clinic provides primary care for the children served. In addition to the provider staff, at the time of the service, the clinic employed 3 pediatric residency trained clinical pharmacists (for the total of 1 full-time equivalent) and was a training site for postgraduate year 2 ambulatory care pharmacy residents and pharmacy students.

At the clinic system being evaluated, a SABA refill algorithm is used to determine SABA refill decision making. The algorithm is a decision tree that was approved by the clinic medical directors for use in patients with asthma. This algorithm is included in the university-wide medication refill policy. In the pediatric clinic, before the implementation of the pharmacist-led SABA refill service, the algorithm was being executed and refills authorized by nurses and medical assistants.

The pharmacist-led service was implemented to address 2 key problems of underutilization of the SABA refill algorithm and excessive authorization of SABA refills. These 2 problems were identified through a chart review as part of a quality improvement project that evaluated the SABA refill algorithm. Ninety-four pediatric patients were identified as requesting a SABA refill during a 3-month period. Results demonstrated only 23.5% of authorized SABA refills followed the SABA refill algorithm. The mean number of SABA inhaler and nebulizer refills authorized per patient per year were 3.19 (SD ± 3.43; range, 0-24) and 1.39 (SD ± 3.13; range, 0-28), respectively. Furthermore, this review identified 1 patient who received 24 SABA inhaler and 6 SABA nebulizer refill authorizations over