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RESEARCH

Evaluation of a pharmacist-managed asthma clinic in an Indian Health Service clinic

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ABSTRACT

Objectives: To observe whether American Indian and Alaskan Native (AI/AN) patients at the Yakama Indian Health Service seen at the pharmacist-managed asthma clinic improved asthma outcomes.

Design: Retrospective chart review, single group, preintervention and postintervention.

Setting: Pharmacist-managed asthma clinic at an Indian Health Service ambulatory care clinic. **Patients:** Sixty-one AI/AN patients who were seen at least once in the asthma clinic from 2010 to 2014.

Intervention: Pharmacist-provided asthma education and medication management.

Main outcome measures: Asthma-related hospitalizations and emergency department or urgent care (ED) visits.

Results: The total number of asthma-related hospitalizations and ED visits between the 12-month periods preceding and following the initial asthma clinic visit were 11 versus 2 hospitalizations ($P = 0.02$) and 43 versus 25 ED visits ($P = 0.02$), respectively. Over the same period, asthma-related oral corticosteroid use showed a nonsignificant decrease in the number of prescriptions filled ($n = 59$, $P = 0.08$). In contrast, inhaled corticosteroid prescription fills significantly increased ($n = 42$, $P = 0.01$).

Conclusion: A reduction of asthma-related hospitalizations and ED visits were observed during the course of the intervention. Increased access to formal asthma education and appropriate asthma care benefit the Yakama AI/AN people. A controlled trial is needed to confirm that the intervention causes the intended effect.

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Asthma is a common respiratory disorder characterized by episodes of reversible breathing problems produced by narrowing and obstruction of the airways.¹ The severity of episodes can vary from mild to life threatening. It is estimated that greater than 25 million people in the United States suffer from asthma, with the prevalence increasing every year.²

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American Indian and Alaskan Native (AI/AN) people have a higher prevalence of asthma, with an estimated 10.1% of adults and 15.1% of children compared with the general US population of 7.7% for adults and 9.5% for children.^{2–4} The heavy public health burden of asthma affects not only patients and their families, but also society in avoidable hospitalizations, emergency department visits, missed days of school and work, and premature deaths.^{1,2}

In recognition of the public health burden of asthma, the US Department of Health and Human Services has identified 8 national objectives to help guide and track efforts in improving asthma outcomes through the Healthy People 2020 program.⁵ The first 5 objectives aim at reducing the number of adverse asthma outcomes: death, hospitalization, emergency department visit, activity limitation, and missed school or work days. The next 2 objectives aim at increasing the proportion of asthma patients who receive formal patient education and appropriate asthma care. The last objective is geared toward surveillance at the state level to track asthma cases, illnesses, and disability. One primary method a clinician can contribute

Key Points**Background:**

- Healthy People 2020 objectives for asthma include increasing the proportion of asthma patients who receive formal asthma education and appropriate care.
- Pharmacists are well positioned to provide disease state and medication education and to optimize medication use in asthma patients.
- Pharmacist-managed asthma education and disease management has not been studied in an American Indian and Alaskan Native (AI/AN) population.

Findings:

- The total number of asthma-related hospitalizations and emergency department or urgent care visits decreased in the 12 months following the initial visit in the pharmacist-managed asthma clinic.
- Increased access to formal asthma education and appropriate asthma care benefit the Yakama AI/AN people.

to reduce the 5 adverse asthma outcomes is to increase the proportion of their patients who receive formal asthma education and appropriate asthma care.

A brief review of the progress in achieving the Healthy People 2020 goals shows that although the prevalence of asthma has increased over the last decade, the asthma hospitalization rates have declined for both the general US population and for AI/AN people.^{2,6} Asthma-related emergency department (ED) visits, however, have had little to no change over the same period.² In 2008, the estimated number of asthma patients who had received formal asthma education was approximately 13%, compared with the Healthy People 2020 goal of 14.5%.^{2,5} In addition, in 2008, 33.4% of asthma patients received written asthma management plans from their health care provider, and only 64.8% of asthma patients received education regarding how to recognize early signs and symptoms of an asthma episode or monitoring peak flow results compared with the Healthy People 2020 goals of 36.8% and 68.5%, respectively.^{2,5} Consistent with Healthy People 2020 objectives, improved awareness and disease management may help to reduce asthma hospitalizations and emergency department visits further.

Asthma is a condition that is primarily managed with education and medication.¹ Pharmacists are well positioned to provide asthma education and to optimize proper medication prescribing and patient use.⁷ Pharmacists in a community setting can fill several voids in the care for asthma patients, including evaluating and improving inhalation technique and discussing the benefits of asthma-control medications.^{8,9} Furthermore, pharmacists can contribute to asthma care by performing spirometry services when a respiratory therapist is not available.¹⁰ Although asthma education falls under the practice of pharmacy, it is not common to provide and advertise a pharmacist-managed asthma clinic; this may be

due to the lack of reimbursement opportunities, largely owing to the lack of provider-status recognition for pharmacists. Despite this limitation, positive outcomes have been achieved through pharmacist-managed asthma services.^{11–14}

Pauley et al.¹¹ and Sterné et al.¹² showed decreased asthma-related ED visits using a pharmacist as the primary provider to deliver asthma education and medication management in an ambulatory care setting affiliated with a local hospital. Bunting et al.¹³ also demonstrated a reduction of asthma-related ED visits and hospitalizations while increasing the proportion of patients with asthma action plans using pharmacists as educators in a pharmacy setting.¹³ Pharmacists have also been useful in a multidisciplinary asthma clinic to improve outcomes.¹⁴ Education provided by pharmacists reduces the 5 adverse asthma outcomes outlined in the Healthy People 2020 objectives and can increase the proportion of the asthma patients who receive formal asthma education and appropriate asthma care. However, pharmacist-managed asthma education and disease management has not been studied in an AI/AN population. In this retrospective chart review, we asked whether AI/AN patients who were seen at least once in a pharmacist-managed asthma education clinic would have reduced asthma-related hospitalizations and ED or urgent care visits.

Objectives

The objective of this project was to assess the asthma-related outcomes of patients who were seen at least once at the pharmacist-managed asthma clinic. The primary outcomes were asthma-related hospitalizations and emergency department (ED) or urgent care visits. The secondary outcomes were the prescription fill history for asthma-related oral corticosteroids (OCS) and for inhaled corticosteroids (ICS), both surrogate markers for asthma control.

Methods

The Portland Area Indian Health Service (IHS) Institutional Review Board determined this study to be exempt. This retrospective chart review was completed at the Yakama IHS in Toppenish, Washington.

Intervention

The Yakama IHS is an ambulatory care clinic with a walk-in urgent care facility. It is located on the Yakama Reservation with an estimated enrollment of more than 13,000 people. Since September 2010, pharmacists worked as both board-certified asthma educators and providers of asthma care. Native American pediatric and adult patients were referred by their medical provider, most commonly following an asthma-related hospitalization or ED visit. Pharmacists assessed patients with the Asthma Control Test, medical history, and a brief physical examination including auscultation and peak-flow monitoring. Pharmacists had prescriptive authority for asthma care. Pharmacists spent the majority of their time teaching patients about the disease process, correct medication use, and self-management using an asthma action plan.

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