An investigation of asthma care best practices in a community health center.

Lester D, Mohammad A, Hernandez PI, Leach EE, Walker EA.

Summary: Urban Health Plan, Inc. (UHP) implemented a comprehensive asthma management program that has resulted in sustained improvements in patient outcomes for UHP's primarily Latino and Black populations in the South Bronx. UHP is now engaged in a community-academic partnership to build community research capacity from its strength in quality improvement.

PMID: 22864502  [PubMed - in process]

OVERVIEW

In the recent publication based on the Urban Health Plan (UHP), FeNO was measured. The study was performed in South Bronx, New York, an area with high asthma prevalence.

- In children, 26.4% versus 9.6% in the US population overall.\(^1\)\(^-\)\(^3\)
- In adults, 13.4% versus 8.8% in the US population overall.\(^1\)\(^-\)\(^3\)

*Prevalence data from UHP are from 2011; US prevalence data are from 2009.

The program was developed in response to health disparities in the South Bronx Latino community whom Urban Health Plan serves. From 2001, a special attention has been given to improve asthma health outcomes. In 2011, UHP served 48,000 patients through 248,000 patient visits.

The Asthma Relief Street program is UHP's comprehensive asthma management program. A special workflow algorithm is applied. All patients are screened for asthma risk factors. Patients with a diagnosis of asthma are subject to a questionnaire including Asthma Control Test. Patients 6 years and older are referred for FeNO test and spirometry. Patients are given treatment guidance on how to achieve and maintain asthma control. Patients with well-controlled asthma are scheduled for follow-up every three months. Poorly-controlled patients are seen every two weeks, until their asthma is well controlled.

FeNO is used at every visit to measure airway inflammation, to identify risks of acute exacerbations, and to evaluate adherence to use of controller medications.

The plan was implemented in 2001 (children) and 2003 (adults) and evaluated in 2011. In 2011, UHP served 48,000 patients and the Asthma Relief Street program improved the asthma outcomes for nearly 8000 of these patients.

The Asthma Relief Street program led to improved asthma outcomes for both children and adults and reduced costs. The costs were 22% less for adults and 39% less for children, compared to similar asthma management plans.

UHP PROGRAM DESIGN\(^1\)

Patients with asthma participated in a health performance improvement collaborative to improve asthma health outcomes. The program included the following:

- Screening for asthma symptoms, emergency room visits, hospitalizations, and intubations
- Asthma Control Test Questionnaire
- Review of medication use
- Bi-annual spirometry
- Self-management goals
- Fractional exhaled nitric oxide (FeNO) measurement at each visit to help identify patients (6 years of age and older) at risk for acute exacerbations and to determine controller medication adherence
- Development of asthma action plan

From this information, pharmacologic therapy and time to follow-up were determined.
IMPROVED ASTHMA OUTCOMES

Implementation of the UHP Asthma Relief Street program resulted in sustained improvements in asthma outcomes. An integral part of the program’s success was using evidence-based medicine, including FeNO measurement, to help identify risk of exacerbations and adherence to controller medications. As of December 2011:

![Reduction in Emergency Room/Urgent Care Visits](chart1)

- Patients with an emergency room/urgent care visit in previous 6 months (%)
  - Pre-program adults: 16%
  - Pre-program children: 45%
  - Post-program adults and children: 5%

*Data are from 2003. *Data are from 2001. *Data are from 2011.

REDUCTION OF COSTS

The success of the program led to a project to assess the cost of asthma care using the UHP Asthma Relief Street program relative to the entire network.

![Reduction in Costs](chart2)

- Reduction in costs for non-UHP providers: $280.62
- Reduction in costs for UHP providers: $219.96
- Cost per month: $81.11 for children, $49.18 for adults

*Non-UHP providers from health insurance plan’s entire network. *Data shown are comparative data from 2005-2007.

CONCLUSION

The study demonstrated that a comprehensive asthma management program that includes measurement of FeNO not only improved asthma outcomes, but it did so while lowering costs.