Children's Hospital of Philadelphia PolicyLab

Implementing and Evaluating the Effectiveness of Single Maintenance and Reliever Therapy (SMART) in Pediatric Primary Care

Statement of Problem

Asthma is a leading cause of childhood morbidity and disparities nationwide. Yet, many providers have not adopted leading evidence-based recommendations for chronic asthma management, and many patients do not stick with their treatment plan.

In 2020, the National Heart, Lung, and Blood Institute (NHLBI) introduced single maintenance and reliever therapy (SMART) as the preferred management strategy for children older than 5 with moderate to severe asthma. The SMART strategy simplified the traditional "two inhaler" approach, where one inhaler was used daily for management and the other as needed, into a single inhaler delivering both management and relief medications simultaneously.

While SMART's efficacy, safety, and real-world effectiveness have been demonstrated internationally, the approach has not yet been widely implemented or evaluated in practice among children in the U.S.

Description

Our prior work revealed several critical barriers to successful and widespread SMART implementation, including insufficient provider training to identify and educate patients in need, a lack of post-prescription patient education on SMART, and systems-level barriers to care such as lack of insurance coverage.

This study aims to improve adoption of SMART in pediatric primary care and assess its real-world effectiveness in a large health system with similar racial demographics to U.S. asthma morbidity statistics.

In a two-phased approach, the study team will test two implementation strategies across 18 pediatric primary care clinics—the first, clinical decision support via electronic health records and education; the second, clinical decision support and education together with ongoing educational, social, and insurance support from community-health workers and/or nurse care managers.

The specific aims of the study are to:

1. Conduct a cluster randomized controlled trial to compare the two implementation strategies to standard care on the following outcomes: SMART adoption at visit, sustained adoption of SMART by patient, and incorporation of SMART throughout the clinic
2. Determine the real-world effectiveness of SMART in reducing severe asthma exacerbations among a group of mostly Black children with poorly controlled asthma
3. Assess mechanisms of successful SMART implementation and effectiveness using mixed methods

Next Steps

We anticipate that the findings of this study will inform national implementation and dissemination strategies for SMART. This work aims to establish an evidence base for the effectiveness of SMART in a racially diverse U.S. pediatric population and share effective clinical decision support enhancements or implementation manuals through existing national networks. In particular, we will share findings and strategies with state Medicaid formularies to inform policy.

Ultimately, we hope the findings will help facilitate widespread and equitable implementation of SMART in pediatric health systems nationwide.

For more information about the project partners, visit their websites: Children's Hospital of Philadelphia (CHOP) Data Science and Biostatistics Team (DBSU), and CHOP Clinical Reporting Unit Team (CRU).

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Related Tools & Publications

Improving Single Maintenance and Reliever Therapy for Patients Admitted for Asthma Exacerbation
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