

Application of Quality-Improvement Methods in a Community Practice: The Sandhills Pediatrics Asthma Initiative

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Asthma is the third leading cause of preventable hospitalization in North Carolina and frequently leads to school absence, parental work absenteeism, and childhood disability.¹ Although there is evidence that appropriate use of controller medicines and self management education improves outcomes in children with asthma, a recent national study demonstrated that most individuals with asthma do not receive recommended care.² While disease management programs have been developed to improve care for those with chronic diseases, such as asthma, their interventions often fail to be integrated into care provided in primary care practices. Community practices are ideally situated to lead disease management efforts, but face barriers such as lack of time, poor reimbursement, lack of available staff, and inadequate information technology.³ Although barriers do exist, effective methodologies have been used to improve care in busy practices, such as measuring performance and providing feedback, and using Plan-Do-Study-Act (PDSA)⁴ cycles to test improvement strategies. *Plan* includes initial problem identification, probable causes of the problem, potential solutions and data needed to evaluate them, and improvement goals. *Do* involves implementing a solution and collecting the data needed to evaluate the impact of the solution. *Study* requires further data analysis to develop conclusions—what happened when we made that change? *Action* involves either further study or action that comes out of the data analysis. In this commentary, we describe one pediatric practice's experience using quality improvement methods to improve asthma care.

The Practice

Sandhills Pediatrics is a rural, private practice in Southern Pines, North Carolina with

approximately 37,000 patient visits per year. The practice is staffed by six pediatricians (five full-time and one part-time) and two pediatric nurse practitioners. The payer mix includes 50% Medicaid, and the practice is enrolled in AccessCare, one of North Carolina's Medicaid managed care networks. AccessCare provides case management services to Medicaid recipients and also supports practice-based quality improvement for asthma. At the start of the project in 1998, the practice estimated that they cared for approximately 1,400 children with asthma. That year, 19 of these children were hospitalized, and 216 were seen in the emergency department with the primary diagnosis for asthma. The aim of the project was to improve outcomes in asthma care, including reducing emergency department visits and hospitalizations due to asthma.

Organizing and Collecting Baseline Data

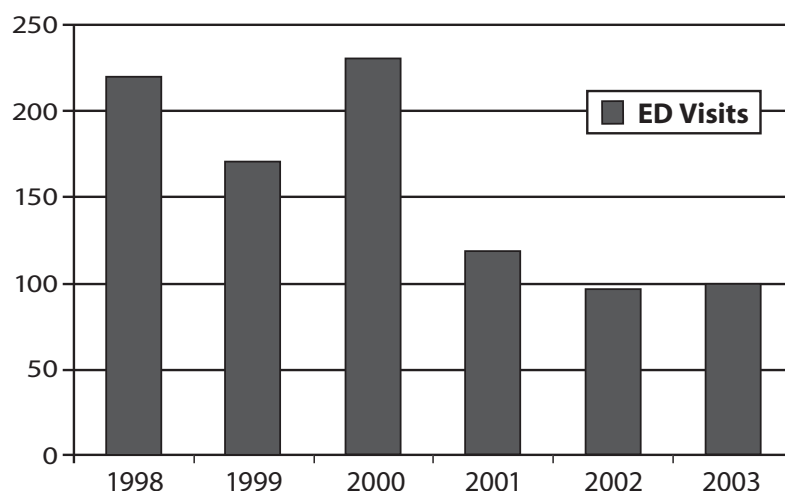
A practice team was initially formed consisting of all providers and several nurses. The practice team adopted the 1997 clinical practice guidelines from the National Heart,

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Figure 1.
Emergency Department Visits, 1998-2003



Lung, and Blood Institute's (NHLBI) Asthma Education and Prevention Program (NAEPP)⁵ to improve care. A case manager from the Medicaid managed care program assisted the team with performing chart audits and reporting performance data. Based on the results of a baseline chart audit, the practice team focused on improving four measures: staging patients as severe-persistent, moderate-persistent, mild-persistent, or mild-intermittent asthma; providing spacers and peak flow meters ("hardware"); using a written action plan; and ensuring that those with persistent asthma were prescribed long-term control medications.

At the beginning of the project, a chart audit was performed on children enrolled in the AccessCare program. The audit found that less than 10% of the charts had documented staging, a written action plan, spacers and peak flow meters, or that long-term control medications were prescribed. It was clear that there was substantial variation among providers in how they cared for their patients with asthma.

Educating the Team

The first phase of the intervention involved educating the practice team about the NHLBI guidelines and the potential impact of following the guidelines on the practice population. The practice team and AccessCare staff developed written action plans with embedded asthma guidelines. AccessCare provided patients with the education booklet called *One Minute Asthma*.⁶ The practice team met approximately once a month, with most meetings being unscheduled and informal. After several months, a follow-up chart audit was performed. While there was improvement in the use of long-term control medications, spacers, and peak flow meters, fewer than 20% of children were staged and given action plans. The practice team postulated that physicians were not staging patients and using action plans because there was not enough time during the visit.

Strategies to Improve Care

In an effort to overcome time constraints that limited the provider's ability to provide complete asthma care, the team created "standing orders" so that other team members could provide certain aspects of care. Nurses were given the responsibility for teaching patients how to use peak flow meters and how to fill out a portion of the action plan. In order to facilitate the staging of patients, the action plan form was revised to include a staging tool. One of the other strategies used by the team was to provide the performance data to both the providers and the practice. The performance data of individual physicians were also displayed, creating a "healthy" competition among providers. The next round of chart audits

indicated that practice behavior had begun to change. Greater than 80% of the charts audited had documentation of staging, use of action plans, prescribed long-term control medications when appropriate, and use of peak flow meters and spacers.

Outcomes

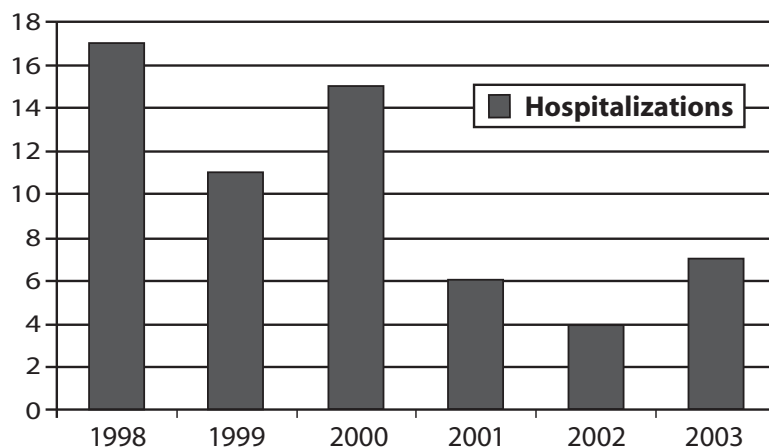
Pediatric asthma emergency department visits and hospital admissions were tracked yearly from 1998 to 2003. Data were obtained on Sandhills Pediatrics' patients, age two-to-17 years with the primary or secondary diagnosis of asthma. Over the project time period, there was a 48% reduction in emergency department visits and a 62% reduction in hospital admissions for asthma (see Figures 1 and 2).

Summary

This case study demonstrates the use of quality improvement methods to improve asthma care in a busy community practice. The practice used disease-management strategies, such as population identification, self-management education, and performance measurement and feedback. The practice then applied several practice-based quality improvement methods, such as PDSA cycles, to improve care. From 1998 to 2003, process measures, such as staging of asthmatics, use of long-term control medications, use of peak flow meters and spacers, and use of action plans, improved. There was also a substantial decrease in emergency department use and hospitalizations among patients with asthma.

Although there have been several studies demonstrating the efficacy of disease management strategies, most lack generalizability to community practices.⁷ Often, interventions are so intensive and cumbersome, that they are unlikely to be replicated in primary care settings. Researchers have been unable to determine which components of the interventions are most effective and replicable. Furthermore, many studies of disease management strategies enroll participants who lack the co-morbidities seen in

Figure 2.
Asthma Hospitalizations, 1998-2003



community practice. There are also few studies of disadvantaged populations that face other barriers to care, such as lack of transportation, poor access to specialists, and medical illiteracy.

In this case study, there were several unique factors that enabled the practice to improve care for this population. The AccessCare case manager who worked with the practice not only provided data and feedback to the practice team, but also served as an improvement “coach,” often pushing the team and facilitating many of the improvement efforts. AccessCare’s approach is in contrast to many of the commercial disease management companies’ “carve out” models that do not sufficiently involve

providers or practices in their interventions. The other necessary ingredient for success in this project was organizational leadership and support. The leaders of the practice saw beyond the usual metrics of patient visit counts and relative value units (RVUs) to embrace the concept of population health: the notion that practices are not only responsible for providing acute, episodic care in the office, but also for improving health outcomes in the community in which they serve. Other important factors included ensuring a basic agreement among providers on the need for improvement and frequent communication about the goals of the project. Although the champions of the project tried to minimize formal meeting time,

there was frequent informal communication between team members. In the future, there is a need to develop other approaches to stimulate these endeavors in community practices, such as “pay for performance” programs, continuing education credit, and tying maintenance of board certification to quality improvement initiatives. **NCMedJ**

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