Attacking Childhood Asthma: A Dallas Success Story

An Initiative of Children's Health℠
and the Health and Wellness Alliance for Children

Chad Brands, M.D.

Vice President, Clinical Integration, Children's Health

Peter Roberts

President, Population Health and Insurance Services, Children's Health
Co-Chair, Health and Wellness Alliance for Children

Robert Shaum

Senior Director, Process Improvement, Population Health, Children's Health

HEALTH & WELLNESS ALLIANCE FOR CHILDREN

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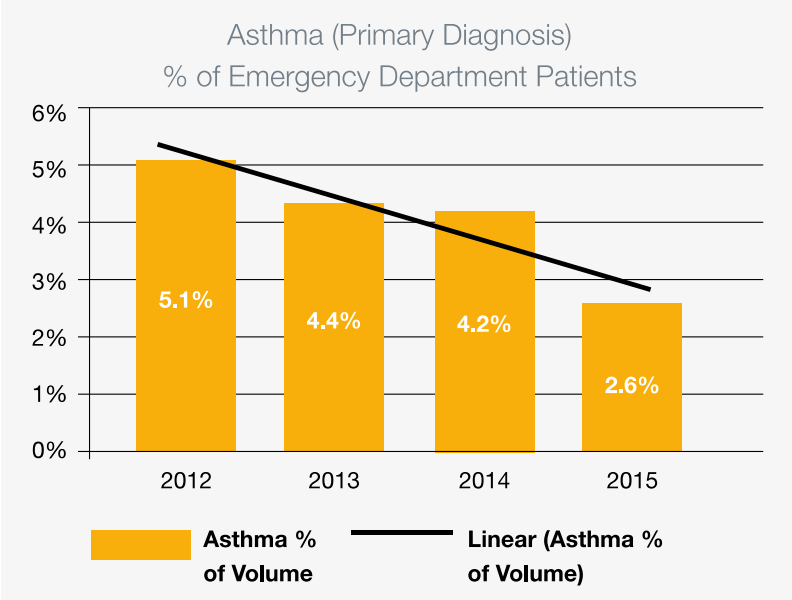
Introduction

Children's Health[SM], a leading academic pediatric system in Dallas, has achieved a remarkable reduction in asthma visits to its Emergency Department. From 2012 to 2015, the number of unique patients visiting the Children's Health ED with a primary clinical diagnosis of asthma decreased by 49% while overall volume remained relatively flat.[1]

The complexity of the topic, combined with overlapping contributing factors, makes it virtually impossible to identify a specific singular source of measurable impact.

Instead, ours is a success story about uncommon partnerships and progressively linking clinical, social, community, public health, philanthropic, educational, environmental and governmental programs to successfully reduce the burden of childhood asthma in our community.



Background

It is estimated that the State of Texas is home to one out of every nine children in the U.S.[1] Within Texas, Children's Health receives the most federal funding for pediatric-only projects through the Delivery System Reform Incentive Payment (DSRIP) program.[1] These two facts presented the opportunity and incumbent responsibility for Children's Health to take on a mantle of leadership with regard to pediatric care transformation on a national scale.

Since 2012, Children's Health has continued to build a range of new capabilities within a population health model. The focus of this model is to *optimize health* for children before they require care due to illness or injury. Aspiring to achieve the tenets of the Triple Aim — improving the experience of care, improving the health of populations and reducing costs — Children's Health is forging a new path for the future, one in which the resources to achieve these goals are distributed in new ways and decision-making shifts to a family/child-centric approach.

The Triple Aim

- Improving the patient care experience
- Improving the health of populations
- Reducing the per capita cost of health care

"The things that influence health include educational attainment, poverty levels and the conditions of neighborhoods. And if we are going to make a difference in the health of our children, we need to think about those factors as much as we are thinking about whether or not a child got the right prescription."

- *Eduardo Sanchez,M.D., Chief Medical Officer for Prevention, American Heart Association; Co-chair, Health and Wellness Alliance for Children*

Why Asthma?

Nationally, childhood asthma is the most common chronic condition to affect children younger than 18.[2] In 2010 and 2011, asthma was among the top five reasons for Emergency Department visits in the Children's Health system, as well as in most pediatric centers nationwide. Asthma and its related complications also rank as one of America's top five costliest health conditions.[3]

Scope of Problem

Of Dallas County's 650,000 children, approximately 60,000 of them, or 9%, have asthma.[4,5]

When poorly managed, even mild asthma can restrict a child's ability to play, participate in school and get adequate rest. In Texas, 54% of children with asthma missed at least one school day per year due to their condition.[3] When children cannot go to school due to asthma, parents miss work, which negatively impacts the whole family. At the extreme, children can require a visit to the emergency room, be admitted to the hospital or even die as a result of asthma.

In 2012, nearly 1,500 children in Dallas County visited an emergency room or were admitted to a hospital due to asthma.[6]

A Call to Action

Given the profound burden that children's asthma was placing on our community, and motivated by the support of state - administered federal health care reform incentives (DSRIP), our call to action was clear: We had to find a way to dramatically reduce the burden asthma inflicts on children, their families and the health care system overall.

While effective high-quality "sick care" clinical treatments for asthma are a hallmark at Children's Health, poor asthma control is strongly affected by factors largely outside the control of clinicians. These realities, also known as the "social determinants of health," include economic, behavior and environmental factors, such as smoking, indoor air

pollution, poor housing codes/enforcement and household pests.

Therefore, pediatric asthma represented an excellent opportunity to explore greater coordination of clinical, non-clinical and community resources to improve the status quo.

The call to action was clear. Find a way to dramatically reduce the burden that asthma inflicts on children, their families and the health care system overall.

Our Approach

We became convinced that we had to move effectively upstream from the Emergency Department and begin to meet the families we serve closer to home - where they live, work and play. In short, it was time to listen to the voices of our at-risk families and to actively partner within their communities to press for solutions. There, we could begin to organize and engage the clinical system and the community in a laser-focused, collective initiative that could finally bend trends and measurably improve the lives of children and families burdened by asthma.

Searching for the Whole Story

After a thorough investigation[1], we believe that at least four specific Children's Health system initiatives had a strong correlation with reduced asthma visits to the Emergency Department during the years 2012–2015. They are the following:

- Expanding the primary care network
- Establishing the Health and Wellness Alliance for Children
- Expanding care management for asthma patients
- Focusing on high-risk asthma patients

This finding in no way implies that many other aggressive activities begun during this same time period between 2012 and 2015 did not have impact. In general, we believe that *any* of the initiatives that are founded on evidence-based practices for improving asthma outcomes had a subsequent positive impact on our patients. This is especially true in light of the high degree of overlap between more than 15 various activities. However, these four initiatives do have the benefit of meaningful data that correlate conclusively.

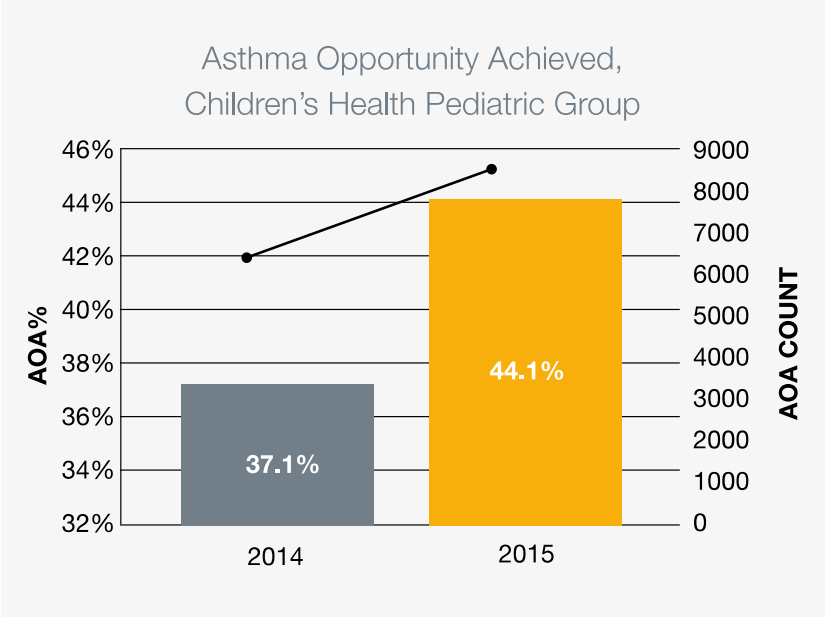
Expanding the Primary Care Network

In a critical first step, we took advantage of the DSRIP "medical homes" project funding through our Children's Health Pediatric Group of primary care clinics. From 2012 to 2015, our primary care network grew from six to 20 clinics covering targeted underserved zip codes in our primary service area. We developed a measurement, "Asthma Opportunity Achieved" (AOA), for each clinic practice and monitored the execution of evidence-based best practices for asthma, including asthma action planning, severity assessment and controller therapy. Additionally, our physicians were incentivized to improve their 2015 AOA results by means of a small financial reward.

This project had key indicators that correlated to the timing and magnitude of the health system's Emergency Department reduction. It was also unique in that it did not share outcome measurements with other asthma-focused projects and, moreover, the metric is a proactive leading indicator compared to others.

Given that AOA intervention focused only on the patients of Children's Health Pediatric Group, it is not the only driver of the reduction in asthma-related ED visits. However, it is noteworthy given that the reduction of asthma-related ED visits, as a percentage of overall visits, declined more rapidly for the patients of Children's Health Pediatric Group than the overall decline.

Another key point is that the asthma usage reduction in both the Emergency Department and throughout the Children's Health Pediatric Group occurred during this time of explosive growth for the clinic network. During the four-year period, visit volumes more than doubled, which effectively doubled the effort required to sustain current AOA scores. Yet, the Children's Health Pediatric Group improved AOA performance by 19% — a truly astounding accomplishment.



"Previously, we tended to focus almost exclusively on addressing the immediate asthma symptoms that brought the child to our doors. By moving upstream into communities and partnering closely with families and cross-sector organizations, we learned that whatever happened in the past 24 hours wasn't the whole story. All the other things going on in a child's everyday life can be just as important."

- *Peter Roberts, President, Population Health and Insurance Services, Children's Health; Co-Chair, Health and Wellness Alliance for Children*

Establishing the Health and Wellness Alliance for Children

In another seminal step, Children's Health established the Health and Wellness Alliance for Children in 2012. This group now represents a broad coalition of more than 75 cross-sector community organizations focused on measurably impacting health and wellness for children. The Alliance made childhood asthma its initial priority and immediately began serving as a powerful bridge between community and clinical partners.

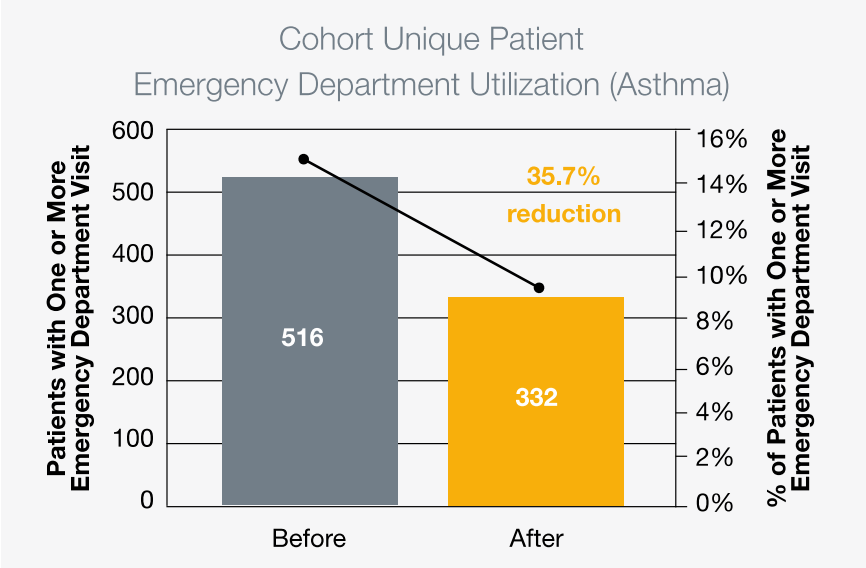
Providing a dedicated and much-needed focus on the asthma issue, the Alliance catalyzed a number of active, but fragmented, internal clinical services at Children's Health. These expert clinical stakeholders then moved alongside other local health care partners, in particular Parkland Health System, one of the nation's largest and most progressive public health centers. The Alliance began to track its progress through tactical working groups with specific goals built to move two indicators for children in Dallas County:

- Emergency Department visits due to asthma
- Pediatric hospitalizations due to asthma

By adhering closely to the guiding principles of a collective impact organizational model, the Alliance has provided a rallying cry for critical cross-sector stakeholders and has become an essential voice for families and children struggling with the harsh impact of asthma. It has received national commendation for its work from the U.S. Environmental Protection Agency, the City of Dallas and the National Center for Healthy Housing.

"The Health and Wellness Alliance for Children is a shining example of cross-sector organizations coming together with focus, grit and determination to help make Dallas the best city in America for kids to grow up."

- *The Honorable Mike Rawlings, Mayor, City of Dallas*



Expanding Care Management for Asthma Patients

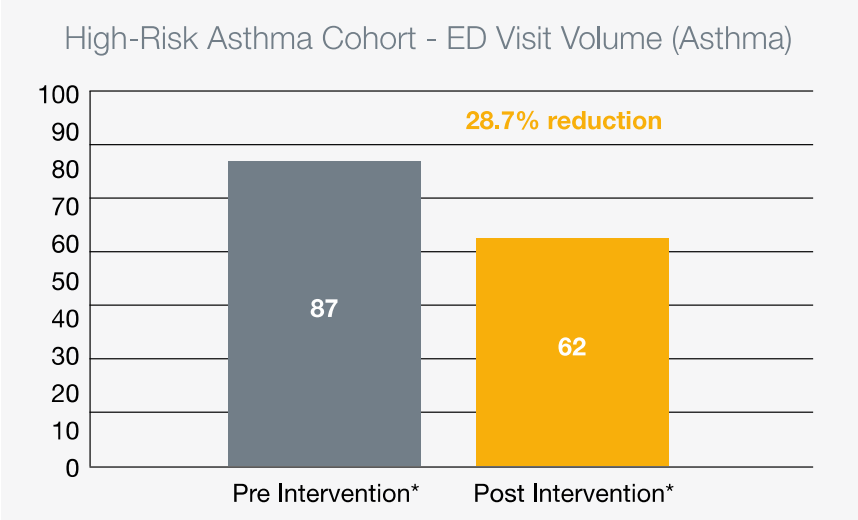
The care management program dramatically expanded its scope and staff in 2012–2013 under the new population health model. Most importantly, it included a specific focus on asthma management. We reviewed a cohort of 3,614 patients participating in the care management program who had a primary or secondary diagnosis of asthma.

In the six months prior to becoming involved in the care management program, 516 members (14.3%) of this cohort had one or more visits to the Emergency Department. In the six months following the encounter, only 332 patients had one or more asthma-related visits, representing a 35.7% reduction in overall unique patient visits.[1]

Emphasizing Care Management for High-Risk Children

Another effort that shows a very high correlation with reducing Emergency Department visits is the set of activities funded by a grant from the Crystal Charity Ball, a nonprofit organization in Dallas County. This grant allowed our team to specifically focus attention on a small subset of the larger care management group. This cohort involved 170 children who were considered at especially high risk for asthma-related illness. Specifically, the funds were used to mitigate environmental triggers for asthma discovered during individual visits to the patient's homes.

Like the larger group, this higher-risk group also showed a significant decline of 28.7% in Emergency Department visits. Because there were only 170 children in the group, this initiative cannot be identified as a major contributor to overall reduction. However, it does corroborate the overall trend. It also serves to remind us that measurable impact to a small group of children still carries a positive impact on the lives of these families. In particular, this group had previously endured tremendous stress due to the more serious and crisis-oriented nature of their children's asthma.



*Intervention refers to Care Management Encounter (CME), not the individual home visit

Aligning More Clinical and Community-Based Capabilities
During this same four-year time period, Children's Health in collaboration with partners from the Health and Wellness Alliance for Children, deployed many other ambitious initiatives across the system — all aimed at asthma.

Examples of these efforts include:

- Evidence based guidelines for management of asthma
- Primary Care Acute Asthma Pathway
- Disease management registry*
- Extended primary care hours*
- Nurse advice line*
- Telemedicine*
- School-based telehealth
- Care coordination efforts
- Physician maintenance of certification for implementing evidence-based guidelines for asthma management
- AVANCE Promotora in-home education partnership
- My Asthma Pal mobile app for asthma management

* DSRIP funding

What Else Could Be Driving Factors?

Within the clinical body of knowledge, and based on scientific evidence and professional experience, we believe that the following factors are of paramount importance to the health of children with asthma:

- Access to care, specifically a relationship with a primary care physician in a medical home
- Implementing asthma action plans individualized to each patient
- Routine vaccinations, including annual influenza vaccination and pneumococcal vaccination
- Knowledge of and mitigation of environmental triggers (particularly cigarette smoke)
- Use of corticosteroid inhalers as disease controlling therapy to prevent flares of disease necessitating acute treatment, often in the Emergency Departments

Many ambitious initiatives were deployed across the health system and the community — all aimed at asthma.

Summary and Future Direction

As a system, Children's Health has significantly improved health outcomes and reduced Emergency Department admissions for children with asthma in the greater Dallas region. By listening to our patient families and becoming laser-focused on relieving the asthma burden for them, we found answers.

We learned that moving upstream into our communities and partnering with cross-sector, non-clinical stakeholders impacted the social determinants of health in sustainable ways. We validated that providing more primary care options and establishing medical homes for our asthma patients keeps them pro-actively healthier and avoids unnecessary trips to the emergency department. We also learned that expanded, asthma-focused care management and a particular emphasis on those children that were at highest risk for dangerous asthma attacks produced extremely positive outcomes.

Our determination to improve the health trajectory of children living with asthma is only further ignited by these impressive results. Our care strategy has shifted to a focus on effective home- and community-based management for patients, assisted by medical home physicians and a large team of skilled health care professionals and volunteer partners.

We believe this broad, long-term investment in mitigating the physical, emotional and economic impact of childhood asthma offers a tremendous return by providing a healthier future for the children we are privileged to serve. We intend to share all that we have learned and to become a beacon for others to follow throughout the state and nation.

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2. *Pediatric Asthma Burden*, Pediatric Asthma Initiative. www.pediatricasthma.org/about/asthma_burden
3. *Trends in the Five Most Costly Conditions among the U.S. Civilian Noninstitutionalized Population,* 2002 and 2012, Soni, A., Statistical Brief #470 April 2015. Agency for Healthcare Research and Quality, Rockville, MD. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st470/stat470.shtml
4. *Texas Asthma Control Program*, Texas Department of State Health Services, Whitney Harrison MPH, Epidemiologist
5. *Direct and Indirect Cost of Asthma in School-age Children*, Preventing Chronic Disease, Li Yan Wang et al. (applied to number of Dallas County children with asthma), January 2005
6. Dallas Fort Worth Hospital Council Foundation, 2013